Connected Services Product Development

AppLink™ Validation Guideline

Version 1.5
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Revision History

Date	Version	Created/Modified By	Notes
8/17/12	0.1	JM	Initial version
8/30/12	0.2	IS	First draft
9/18/12	1.0	EH	Release Version
10/10/12	1.1	CK	Updated reference documents section
10/24/12	1.2	CK	Added Section 1.5 & 3.3 Updated Section 5.2.5.2 & 4.2.13.1
11/5/12	1.3	EH	Added 4.2.14-17. Modified quitting/exiting direction. Added steps for iphone lockscreen when backgrounded. Other minor fixes. Added end phone call section to Appendix. Edits per comments from EU.
12/10/2012	1.4	IS	Added 4.6.10, 4.6.11, 5.5.6, other clarification fixes Added 4.6.11 and 5.5.6 Backgrounding Tests
12/18/2012	1.5	EW	Removed unsupported OS versions from both Android™ and iOS™ sections (1.5.1.1 and 1.5.2.1)

Table of Contents

1 Introduction

1.1 Disclaimer, Copyrights, and Trademarks Notice

SYNC® and AppLink™ are trademarks of Ford Motor Company. All other trademarks are the property of their respective owners.

1.2 Purpose

The purpose of this document is to highlight the test cases necessary for SYNC® AppLink™ applications to pass the design intent of the AppLink product. Executing these tests is necessary to ensure that customer expectations are met.

1.3 Nomenclature

Term	Description
US	United States
HMI	Human Machine Interface
TTS	Text To Speech
FMC	Ford Motor Company
PTT	Push To Talk
TBT	Turn-By-Turn Navigation
VR	Voice Recognition
Mobile Gateway	SYNC® software developed under this document
Endpoint	A transport concept which identifies what a transport connects to
Connection	A transport concept
RPC	Remote Procedure Call
SYNC®	Host platform of the mobile gateway software
Mobile Application Session	The time when a mobile application is interacting with the user

1.4 References

This section contains references to documents which affect the requirements presented in this requirement specification.

Reference Title
AppLink™ Developer Guide
SYNC® TDK Quick Reference and Architecture Guide

1.5 Validation Device Requirements

This section contains the device requirements for the validation testing for Android™ and iOS™.

1.5.1 Android™:

Complete 12 test sets meeting the following device requirements and fill out all 12 tabs in the Android™ Validation Checksheet

1.5.1.1 Minimum requirements:

Hardware manufacturers (minimum of 1 test set on each):
    Samsung
    HTC
    Motorola
    LG

Carriers (minimum of 1 test set on each):
> T-Mobile
> AT&T
> Verizon
> Sprint

OS versions (minimum of 2 test sets on each but limited iOS™ version supported by current app):
> 2.3.x (Gingerbread)
> 4.x (Ice Cream Sandwich)

This leads to at least 6 tests using 6 different phones.

1.5.1.2 Additional Recommendations

For the rest, it is recommended to test using the following hardware:
> Sony
> Pantech
> More Samsungs
> More HTCs.

1.5.2 iOS™

Complete 6 test sets meeting the following device requirements and fill out all 6 tabs in the iOS™ Validation Checksheet

1.5.2.1 Minimum requirements:

Device models (minimum of 1 test set on each):
> iPhone 3GS
> iPhone 4
> iPhone 4S
> iPhone 5

iOS™ versions ((minimum of 1 test sets on each but limited iOS™ version supported by current app):
> 5.1.1
> 6.x

This leads to at least 6 tests using 6 different iPhones.

2 Mobile Applications Definition

Mobile applications are defined as a software executable that resides on a mobile device. For paired and connected Android™ or Blackberry phones, all currently running AppLink™ -enabled mobile applications will be listed in SYNC's Mobile Applications Menu. For iOS™ devices, only the currently running foreground AppLink™ -enabled mobile application will be listed in SYNC's Mobile Applications Menu.

2.1 AppLink™ -enabled Application Definition

AppLink™ -enabled applications include code from Ford Motor Company that enables the mobile app to communicate with SYNC®. The app shall communicate over a known transport layer, exchanging messages in a pre-determined format. These messages include (but are not limited to) command and control information, as well as other program data, executing and utilizing existing SYNC® features to interact with the driver. Any reference to a mobile application or mobile application herein implies an AppLink™ -enabled application, indicating one that is modified to send the proper messages to SYNC®.

3   AppLink™ Definitions

3.1   What is SYNC®?

SYNC® is an integrated in-vehicle communications and entertainment system that allows customers to make and receive hands-free telephone calls, control music, have turn-by-turn directions, and more simply by utilizing your voice. In January 2012, SYNC® has been installed in over four million vehicles and is projected to top nine million vehicles by 2015.

3.2   What is SYNC® AppLink™?

SYNC® AppLink™ is intended to provide the capability for third party developers of mobile device applications to AppLink™ -enable their products. Once this mobile gateway is completed, mobile applications will have the ability to present their HMI to the vehicle occupants in a safe, non-distracting and consistent way. The applications are intended to run on the mobile device, and exchange program data as well as command and control information through the SYNC® gateway. This technology is similar to how Bluetooth phones and digital media are integrated and used on the current SYNC® production platform.

3.2.1   Communication Mechanisms

Android™ and BlackBerry® applications communicate with SYNC® AppLink™ over Bluetooth® and iOS™ applications utilize the iPod Accessory (iAP) protocol over USB. All communication is handled by the AppLink™ APIs.

3.3   General definitions

3.3.1   Quit on Sync (remove app name from mobile apps menu; Pre-condition App not running on SYNC)

When the app is currently running through SYNC, some apps may have an option to 'quit' or 'disconnect from SYNC' from the lockscreen or the app's UI on the phone. If the user chooses to 'quit' the app, the app shall disconnect from SYNC® and unregister from the mobile apps menu on SYNC®.

3.3.2   Quit on the Mobile Device (when Pre-condition is App not Running on Phone)

This is when the user quits the application on the mobile device, if 'quit' or 'exit' is an available option in the app's UI. Apps without such an option can skip these tests.

3.3.3   Running on the Phone
For Android™, the app has been selected and is either running as the top activity..

3.3.4   Running on SYNC

The app has been selected by the user in the Mobile Apps Menu. The app is in focus on SYNC. It is playing audio if a media app. The app has the status of HMI_Full.

3.3.5   Exit on SYNC

Using SYNC®'s HMI (menu or voice) to 'exit' app on SYNC® so that the app moves to HMI_NONE, but it still registered and listed in the mobile apps menu.

4   Test Cases: Android™

4.1   Phone Not Paired

These tests verify your application behaves properly when a phone is not paired, and then subsequently paired to a SYNC® equipped vehicle.

4.1.1 Phone not paired and app running

This test validates that the app is listed in the vehicle when paired for the first time with the app running on the phone.

4.1.1.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	NO
Phone	Connected	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in *Vehicle*	NO

4.1.1.2 Steps

Step #	Description	Expected Result
1	Pair Phone to SYNC Module	Phone Paired: YES Phone Connected: YES
2	Check that the app is listed in the mobile apps menu	App Listed in Vehicle: YES
3	Start the app through SYNC	App Running: YES Lockscreen: YES
4	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.1.1.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in *Vehicle*	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.1.2 Phone not paired and app not running, phone OFF

This test validates that the app is listed in the vehicle when paired for the first time with the app not running on the phone and power powered off.

4.1.2.1 Prerequisites:

Item	Value	State
Phone	Power	OFF

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Phone	Bluetooth	ON
Phone	Paired	NO
Phone	Connected	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.1.2.2 Steps

Step #	Description	Expected Result
1	Turn ON the phone	Phone Status: ON
2	Pair Phone to SYNC Module	Phone Paired: YES Phone Connected: YES
3	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
4	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.1.2.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.1.3 Phone not paired, app not running, BT off
This test validates that the app is listed in the vehicle when paired for the first time with the app not running on the phone and BT turned off.

4.1.3.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	OFF
Phone	Paired	NO
Phone	Connected	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES

App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.1.3.2 Steps

Step #	Description	Expected Result
1	Turn on the Bluetooth on the phone.	Phone Bluetooth: ON
2	Pair Phone from SYNC Module.	Phone Paired: YES Phone Connected: YES
3	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
4	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.1.3.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.1.4 Phone not paired, app running and BT off

This test validates that the app is listed in the vehicle when paired for the first time with the app running on the phone and BT powered off.

4.1.4.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	OFF
Phone	Paired	NO
Phone	Connected	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.1.4.2 Steps

Step #	Description	Expected Result
1	Turn on the Bluetooth on the phone.	Bluetooth: ON
2	Pair Phone from SYNC Module.	Phone Paired: YES Phone Connected: YES
3	Check that the app is listed in the mobile apps menu.	App Listed in the Vehicle: YES
4	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.1.4.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.1.5 Phone not paired, BT Off, Install app

This test validates that the app is listed in the vehicle when paired for the first time with the app not installed and BT turned off.

4.1.5.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	OFF
Phone	Paired	NO
Phone	Connected	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	NO
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.1.5.2 Steps

Step #	Description	Expected Result
1	Install the mobile application on the phone.	App Installed: YES
2	Open/start the mobile app on the phone.	App Running on Phone: YES
3	Turn on the BT connection on the Phone.	Phone Bluetooth: ON

4	Pair Phone from SYNC Module.	Phone Paired: YES Phone Connected: YES
5	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
6	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
7	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.1.5.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.1.6 **Phone not paired and app running, ignition OFF**
This test validates that the app is listed in the vehicle when paired for the first time with the app running on the phone and ignition off.

4.1.6.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	NO
Phone	Connected	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.1.6.2 Steps

Step #	Description	Expected Result
1	Pair Phone from SYNC Module	Phone Paired: PAIRED Phone Connected: CONNECTED
2	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
3	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
4	Validate that the app is initialized	All commands appear in application's menu.

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properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	You should see more than just 'Exit <appName>.'

4.1.6.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2 Phone Paired to SYNC

These tests verify your application behaves properly when a phone is paired to SYNC.

4.2.1 Paired, Re-enter vehicle, IGN off, App not running

This test validates that the app is listed on Sync when you re-enter the vehicle with the app not running on phone.

4.2.1.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	OFF
Vehicle	Door Status	OPEN
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.2.1.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
2	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
3	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
4	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
5	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
6	Validate that the app is initialized	All commands appear in application's menu.

properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	You should see more than just 'Exit <appName>.'

4.2.1.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.2 Phone paired, ignition off and app running
This test validates that the app is listed on SYNC with the app running on the phone when you re-enter the vehicle.

4.2.2.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	OFF
Vehicle	Door Status	OPEN
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.2.2.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
2	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
3	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
4	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
5	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
6	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.2.2.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.
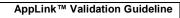
4.2.3 Phone paired and ignition off while loading

This test validates that the app is listed in the vehicle when the app is started on Sync and ignition off while loading.

4.2.3.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.2.3.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
2	While app is loading commands on SYNC, Set TDK Ignition (Key) to OFF.	Vehicle Ignition: OFF
3	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
4	Wait for bluetooth to disconnect with SYNC.	Bluetooth connection with SYNC: Disconnected Lockscreen on Phone: No Audio playing on phone speakers: NO (if media app)
5	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
6	Set the TDK control Ignition (Key) to ON	Vehicle Ignition ON
7	Verify phone is connected through bluetooth to SYNC	Bluetooth connection on SYNC: YES Bluetooth connection on Phone: YES
8	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES

9	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.2.3.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.
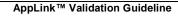
4.2.4 Phone paired and quick ignition off

This test validates that the app is listed in the vehicle when the app is started on Sync and a quick ignition cycle occurs while loading commands.

4.2.4.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.2.4.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
2	While app is loading commands on SYNC, set TDK control Ignition off (Key off) and TDK control Door to OPEN for 2 seconds.	Ignition is off for 2 seconds: YES Vehicle Door Status 2 sec: OPEN
3	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
4	Set the TDK control Ignition (Key) to ON	Vehicle Ignition : ON
5	Verify phone is connected through bluetooth to SYNC. Check under phone's bluetooth settings. (Press the phone button on SYNC to ensure the phone is connected.)	Bluetooth connection on SYNC: YES Bluetooth connection on Phone: YES
6	Start the app through SYNC	App Running in Vehicle: YES

		Lockscreen on Phone: YES
7	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.2.4.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.5   Paired, Re-enter vehicle, IGN On, Phone OFF, BT ON
This test validates that the app is listed in the vehicle when the phone is first OFF, then connected to Sync.

4.2.5.1 Prerequisites:

Item	Value	State
Phone	Power	OFF
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.2.5.2 Steps

Step #	Description	Expected Result
1	Turn on the Phone.	Phone Power: ON.
2	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
3	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
4	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

menu on SYNC.

4.2.5.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.6   Paired, Re-enter vehicle, IGN ON, Phone ON, BT OFF

This test validates that the app is listed in the vehicle when the BT is turned ON and the phone is connected to Sync with the app not running on the phone.

4.2.6.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	OFF
Phone	Paired	PAIRED
Phone	Connected	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.2.6.2 Steps

Step #	Description	Expected Result
1	Turn on the BT connection on the phone	Phone BT: ON.
2	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
3	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
4	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.2.6.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.7 Paired, Re-enter vehicle, App running, IGN ON, Phone ON, BT OFF

This test validates that the app is listed in the vehicle when the BT is turned ON and the phone is connected to Sync with the app running on the phone.
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4.2.7.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	OFF
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.2.7.2 Steps

Step #	Description	Expected Result
1	Turn on the BT connection on the phone	Phone BT: ON.
2	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
3	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
4	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.2.7.3 Post-conditions

Item	Value	State

	Ford Motor Company	

Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.8 Paired, Toggle BT, IGN ON, Phone ON, App running on Sync

This test validates that the app is listed in the vehicle after a Bluetooth toggle occurs and the phone is connected to Sync.

4.2.8.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.2.8.2 Steps

Step #	Description	Expected Result
1	Turn OFF the BT connection on the Phone	Phone BT: OFF
2	Turn on the BT connection on the phone	Phone BT: ON.
3	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
4	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
5	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
6	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.2.8.3 Post-conditions

Item	Value	State
Phone	Power	ON

Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.9 Paired, IGN ON-OFF, Door OPEN-CLOSE- 5 minutes delay, App running

This test validates that the app is listed in the vehicle after an Ignition cycle occurs (with 5 min delay) and the phone is connected to Sync and app running.

4.2.9.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.2.9.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
2	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN Audio playing on phone speakers: NO (if media app)
3	Wait for 5 minutes	5 minutes have passed: YES
4	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
5	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
6	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
7	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
8	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
9	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.2.9.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.10 Paired, IGN ON-OFF, Door OPEN-CLOSE- 5 minutes delay, App Backgrounded

This test validates that the app is listed in the vehicle after an Ignition cycle occurs(with 5 min delay) and the phone is connected to Sync with app backgrounded (app UI not seen) on phone.
.

4.2.10.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES, Backgrounded.
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.2.10.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
2	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN Audio playing on phone speakers: NO (if media app)
3	Wait for 5 minutes	5 minutes have passed: YES
4	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
5	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
6	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
7	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
8	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
9	Validate that the app is initialized	All commands appear in application's menu. You should see more than just 'Exit

properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.

`<appName>.'`

4.2.10.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.11 Paired, Re-enter vehicle, IGN ON, Phone ON, App not installed

This test validates that the app is listed in the vehicle after the app is installed and started on Sync.

4.2.11.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	NO
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.2.11.2 Steps

Step #	Description	Expected Result
1	Install the mobile application on the phone.	App installed on Phone: YES
2	Start app on the phone	App Running on Phone: YES
3	Select 'Find New Apps' under Mobile apps menu	App Listed in Vehicle: YES
4	Start the app through SYNC	App started: YES Lockscreen on Phone: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit `<appName>`.'

4.2.11.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.12 Paired, App running on Sync, BT-OFF, Quit on phone, BT-ON, connect phone and start on sync

This test validates that the app is listed in the vehicle after a BT off, quitting the app, turning the BT ON and starting the app on Sync.

4.2.12.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.2.12.2 Steps

Step #	Description	Expected Result
1	Turn OFF the BT connection on the phone	Phone BT is OFF App Running in Vehicle: No Lock Screen on Phone: No
2	Quit the app from the mobile device	App Running on Phone: No
3	Turn ON the BT connection on the phone	Phone BT: ON
4	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
5	Check that the app is listed in the mobile apps menu	App Listed in the Vehicle: YES
6	Start the app through SYNC	App Running: YES Lockscreen: YES
7	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.2.12.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.13 Paired, BT OFF, Install app, BT On, connect phone, start on sync

This test validates that the app is listed in the vehicle after the app is installed, the BT is turned ON and the phone is connected to Sync.

4.2.13.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	OFF
Phone	Paired	PAIRED
Phone	Connected	NOT CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	NO
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.2.13.2 Steps

Step #	Description	Expected Result
1	Install the mobile application on the phone.	App Installed: YES
2	Start the app on the phone	Main App UI is shown on the phone.
3	Turn ON the BT connection on the Phone.	Phone BT: ON.
4	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
5	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
6	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
7	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.2.13.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.14 Paired, Re-enter vehicle, IGN off, App not running, Phone is locked

This test validates that the app is listed on Sync when you re-enter the vehicle with the app not running on phone.

4.2.14.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	OFF
Vehicle	Door Status	OPEN
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.2.14.2 Steps

Step #	Description	Expected Result
1	Lock phone	Phone display: OFF Phone locked
2	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
3	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
4	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
5	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
6	Start the app through SYNC	App Running in Vehicle: YES
7	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'
8	App is able to play audio (if applicable)	Audio play through SYNC

4.2.14.3 Post-conditions

Item	Value	State
Phone	Power	ON

Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.15 Phone paired, ignition off and app running, Phone locked

This test validates that the app is listed on SYNC with the app running on the phone when you re-enter the vehicle.

4.2.15.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	OFF
Vehicle	Door Status	OPEN
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.2.15.2 Steps

Step #	Description	Expected Result
1	Lock phone	Phone display: OFF Phone locked
2	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
3	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
4	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
5	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
6	Start the app through SYNC	App Running in Vehicle: YES
7	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'
8	App is able to play audio (if applicable)	Audio play through SYNC

4.2.15.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON

Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.16 Paired, Re-enter vehicle, IGN off, App not running, Simulate Phone going to sleep
This test validates that the app is listed on Sync when you re-enter the vehicle with the app not running on phone.

4.2.16.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	OFF
Vehicle	Door Status	OPEN
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.2.16.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
2	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
3	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
4	Lock phone	Phone display: OFF Phone locked
5	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
6	Start the app through SYNC	App Running in Vehicle: YES
7	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'
8	App is able to play audio (if applicable)	Audio play through SYNC

4.2.16.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON

Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.2.17 App running on SYNC, Simulate Phone going to sleep

This test validates that the app is listed on Sync when you re-enter the vehicle with the app not running on phone.

4.2.17.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.2.17.2 Steps

Step #	Description	Expected Result
1	Lock phone	Phone display: OFF Phone locked
2	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'
3	App is able to play audio (if applicable)	Audio play through SYNC

4.2.17.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.3   Phone Calls

These tests verify your application behaves properly when an incoming or outgoing phone call occurs while the app is running on SYNC

4.3.1   Incoming phone call, User Accepts via SYNC and terminate call using SYNC controls

This test validates that the app resumes back to its previous state after an incoming call is accepted and terminated on Sync.

4.3.1.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.3.1.2 Steps

Step #	Description	Expected Result
1	User accepts incoming call on the SYNC-connected phone by short-pressing the phone button on the steering wheel.	App Audio: paused. HMI: Background/Not_Audible Phone Call: In progress
2	Terminate the call by long pressing the phone button on the steering wheel.	App Audio: Resume HMI: FULL/Audible Phone Call: Ended
3	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

4.3.1.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.3.2   Incoming phone call, User does not accept the call

This test validates that the app resumes back to its previous state after an incoming call is rejected on Sync.

4.3.2.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.3.2.2 Steps

Step #	Description	Expected Result
1	SYNC-connected phone receives an incoming call.	App Audio: paused. HMI: Background/Not_Audible Phone Call: Ringing
2	Reject the call by long pressing the phone button on the TDK	App Audio: Resumes HMI: FULL/Audible Phone Call: Rejected
3	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

4.3.2.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.3.3 Incoming phone call, before connecting, call ended by the caller
This test validates that the app resumes back to its previous state after an incoming call is placed and terminated by the caller.

4.3.3.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES

Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.3.3.2 Steps

Step #	Description	Expected Result
1	Place call with outside, non-SYNC connected phone.	App Audio: paused. HMI: Background/Not_Audible Phone Call: Ringing
2	The call is ended by the caller (non-SYNC connected phone).	App Audio: Resume HMI: FULL/Audible Phone Call: Ended
3	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

4.3.3.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.3.4 Incoming phone call, User Accepts on phone, call is terminated by caller

This test validates that the app resumes back to its previous state after an incoming call is accepted by user on the SYNC-connected phone's UI and terminated on caller's phone.

4.3.4.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.3.4.2 Steps

Step #	Description	Expected Result
1	User accepts incoming call on SYNC-connected phone's UI.	App Audio: paused. HMI: Background/Not_Audible Phone Call: In progress
2	The call is ended by the caller (non-SYNC connected phone).	App Audio: Resumed HMI: FULL/Audible Phone Call: Ended
3	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

4.3.4.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.3.5 Placing Outgoing phone call using SYNC, end call using SYNC phone button
This test validates that the app resumes back to its previous state after an outgoing call is placed using Sync and call is terminated using SYNC display buttons.

4.3.5.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.3.5.2 Steps

Step #	Description	Expected Result
1	Place an outgoing call using voice command : " Call <contact name>".	App Audio: Paused HMI: Background/Not_Audible Phone Call: Ringing

2	Call Receiver (non-SYNC connected phone) accepts call.	Phone Call: In progress
3	Terminate the call via the steering wheel button. (See Appendix)	App Audio: Resumed HMI: FULL/Audible Phone Call: Ended
4	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

4.3.5.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.3.6 Placing Outgoing phone call using Phone UI, User ends the call using phone UI
This test validates that the app resumes back to its previous state after an outgoing call is placed using Phone and call is terminated on the user's phone.

4.3.6.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.3.6.2 Steps

Step #	Description	Expected Result
1	Place an outgoing call using the SYNC-connected phone while running the App running in the background.	App Audio: Paused HMI: Background/Not_Audible Phone Call: Ringing
2	Call Receiver (non-SYNC connected phone) accepts call.	Phone Call: In progress
3	Terminate the call using the SYNC-connected phone's UI.	App Audio: Resumed HMI: FULL/Audible

4	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	Phone Call: Ended All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone when app in foreground: YES

4.3.6.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.3.7 Placing Outgoing phone call using SYNC, User ends the call using SYNC before connecting

This test validates that the app resumes back to its previous state after an outgoing call is placed using Sync and call is terminated on Sync before connected.

4.3.7.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.3.7.2 Steps

Step #	Description	Expected Result
1	Place an outgoing call using voice command : "Dial <contact phone number>".	App Audio: Paused HMI: Background/Not_Audible
2	Before connecting the call, end the outgoing call via the steering wheel button. (See Appendix)	App Audio: Resumed HMI: FULL/Audible
3	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

4.3.7.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.3.8 Incoming call, reject call on phone UI before connecting

This test validates that the app resumes back to its previous state after an incoming call is placed and rejected on Sync-connected phone's UI before connected.

4.3.8.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.3.8.2 Steps

Step #	Description	Expected Result
1	Place an incoming call using non-SYNC connected phone.	App Audio: Paused HMI: Background/Not_Audible Phone call: Ringing
2	Before connecting, end the incoming call using the SYNC-connected phone's UI.	App Audio: Resumed HMI: FULL/Audible Phone call: Rejected
3	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

4.3.8.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON

Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.
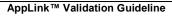
4.4 Quitting App

These tests verify your application behaves properly after quitting and restarting the app on Sync.

4.4.1 Quit App running on SYNC using SYNC Commands

This test validates that the app exits on Sync by using voice commands.

4.4.1.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.1.2 Steps

Step #	Description	Expected Result
1	Exit/Quit the app on Sync using the voice command 'EXIT'.	App Running in Vehicle: No Phone Lock Screen: No
2	Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES
3	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
4	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

4.4.1.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES

App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.2 Quit App from Mobile Device
This test validates that the app exits on Sync when it is quit on the mobile device.

4.4.2.1 Prerequisites:

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.2.2 Steps

Step #	Description	Expected Result
1	Unregister the App from SYNC via the app on the mobile device (if available option from lockscreen)	App Running in Vehicle: No Phone Lock Screen: No.
2	Select 'Find New Apps' in the mobile apps menu	Mobile App Listed in Vehicle: YES
3	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
4	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.4.2.3 Post-conditions

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.3 Quit App via Ignition Cycle
This test validates that the app exits on Sync during an ignition cycle and the app is running on phone and Sync.

4.4.3.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.3.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
2	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
2	Wait until the phone disconnects BT with the SYNC.	Phone BT: OFF App Running in Vehicle: No Phone Lock Screen: No Audio playing on phone speakers: NO (if media app)
3	Set the TDK control Ignition (Key) to ON	Vehicle Ignition ON
	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
4	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
5	Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES
6	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
7	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.4.3.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.4 <u>Ignition On-Off when app was never started on SYNC HMI</u>

This test validates that the app appears on Sync during an ignition cycle when the app was never started on SYNC.

4.4.4.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	YES

4.4.4.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
2	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
3	Wait until the phone disconnects BT with the SYNC.	Phone Connected: NO App Running in Vehicle: No Phone Lock Screen: No
4	Set the TDK control Ignition (Key) to ON	Vehicle Ignition ON
	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
5	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
6	Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES
7	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
8	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.4.4.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.5 Paired, IGN OFF-ON, App running on phone, Quit App, Find Apps
This test validates that the app is listed in vehicle after an ignition cycle and quitting the app on the phone.

4.4.5.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	OFF
Vehicle	Door Status	OPEN
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.4.5.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Ignition (Key) to ON	Vehicle Ignition ON
2	Set the TDK control Door to CLOSE	Vehicle Door Status: CLOSED
3	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
4	Check that the app is listed in the mobile apps menu	Mobile App Listed in Vehicle: YES
5	Quit the app on the phone	App Running in Vehicle: NO App Running on Phone: NO Lock Screen on Phone: NO
6	Select "Find New Apps" in the Mobile Apps menu	App Listed in Vehicle: YES
7	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
8	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.4.5.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.6 Paired, App running on Sync, Exit app on phone, BT OFF and ON, restart app on Sync
This test validates that the app is listed in vehicle after quitting the app and doing a BT toggle.

4.4.6.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.6.2 Steps

Step #	Description	Expected Result
1	Quit the App from the mobile device, through phone's UI (both lockscreen and main activity options if applicable).	App Running in Vehicle: No Phone Lock Screen: No
2	Turn OFF the BT connection on the Phone	Phone BT: OFF
3	Turn ON the BT connection on the Phone	Phone BT: ON.
4	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: *YES*
5	Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES
6	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
7	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.4.6.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.7 Paired, App running on sync, Exit app on phone, IGN OFF and ON, restart app on sync

This test validates that the app is listed in vehicle after exiting on phone and doing an ignition cycle,

4.4.7.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.7.2 Steps

Step #	Description	Expected Result
1	Quit the App from the mobile device, through phone's UI (both lockscreen and main activity options if applicable).	App Running in Vehicle: No Phone Lock Screen: No
2	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
3	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
4	Wait until the phone disconnects BT with the SYNC	Phone Connected: NO
5	Set the TDK control Ignition (Key) to ON	Vehicle Ignition ON
6	Set the TDK control Door to CLOSE	Vehicle Door Status: CLOSED
7	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
8	Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES
9	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
10	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.4.7.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES

App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.8 <u>Paired, App running on Sync, Exit app on sync first then on Phone, restart app on Sync</u>
This test validates that the app is listed in vehicle after exiting the app on Sync first and then on the phone.

4.4.8.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.8.2 Steps

Step #	Description	Expected Result
1	Exit/Quit the App from the SYNC using voice command 'EXIT'.	App Running in Vehicle: No Phone Lock Screen: No
2	Quit the App from the mobile device (if an option from app's UI on phone)	App Running on Phone: No
3	"Find new apps" on SYNC. Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES
4	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.4.8.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.9 Paired, App running on Sync, force close on Phone, restart on phone, start on Sync

This test validates that the app is listed in vehicle after force closing the app and restarting on the phone.

4.4.9.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.9.2 Steps

Step #	Description	Expected Result
1	Force Close the App on the phone within Settings->Apps.	App Running in Vehicle: No Phone Lock Screen: No
2	Restart the app on the phone.	App Running on Phone: Yes
3	"Find new apps" on SYNC. Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES
4	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.4.9.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.10 Paired, App running on sync, IGN OFF, BT OFF, BT ON, IGN ON, restart app on sync.

This test validates that the app is listed in vehicle after an ignition cycle and BT toggle.

4.4.10.1 Prerequisites:

Item	Value	State

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Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.10.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
2	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
3	Wait until the phone disconnects BT with the SYNC	Phone Connected: NO Audio playing on phone speakers: NO (if media app)
4	Turn OFF the BT connection on the Phone	Phone BT: OFF
5	Turn ON the BT connection on the Phone	Phone BT is turned ON.
6	Set the TDK control Ignition (Key) to ON	Vehicle Ignition ON
7	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
8	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
9	Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES
10	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
11	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.4.10.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.11 Paired, App running on Sync, IGN OFF, IGN ON, quit app on phone, restart app on sync.

This test validates that the app is listed in vehicle after an ignition cycle and quitting the app on the phone while the app is listed on Sync.

4.4.11.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.11.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
2	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
3	Wait until the phone disconnects BT with the SYNC	Phone Connected: NO Audio playing on phone speakers: NO (if media app)
4	Set the TDK control Ignition (Key) to ON	Vehicle Ignition ON
5	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
6	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
7	Quit the App from the mobile device	App Running in Vehicle: No App Running on Phone: No Phone Lock Screen: No
8	"Find New Apps" on SYNC. Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES
9	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
10	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.4.11.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.12 Paired, App running on Sync, IGN OFF, quit app on phone, IGN ON, restart app on sync.

This test validates that the app is listed in vehicle after an ignition off, quitting the app on the phone and ignition ON.

4.4.12.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.12.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
2	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
3	Wait until the phone disconnects BT with the SYNC	Phone Connected: NO
4	Quit the App from the mobile device	App Running in Vehicle: NO App Running on Phone: NO Phone Lock Screen: NO
5	Set the TDK control Ignition (Key) to ON	Vehicle Ignition ON
6	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
7	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
8	Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES
9	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
10	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.4.12.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES

App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.13 Paired, App running on sync, IGN OFF, quit app on phone, restart app on phone, IGN ON, restart app on sync

This test validates that the app is listed in vehicle after an ignition off, quitting and restarting the app on phone, ignition On.

4.4.13.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.13.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
2	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
3	Wait until the phone disconnects BT with the SYNC	Phone Connected: NO
4	Quit the App from the mobile device	App Running in Vehicle: NO App Running on Phone: NO Phone Lock Screen: NO
5	Restart the App on mobile device	Application starts running on phone
6	Set the TDK control Ignition (Key) to ON	Vehicle Ignition ON
7	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
8	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
9	Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES
10	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
11	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.4.13.3 Post-conditions

Item	Value	State

Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.14 Paired, App running on SYNC, Quit on phone, BT-OFF, Restart app on phone, BT-ON, restart on sync

This test validates that the app is listed in vehicle after quitting the app on phone, BT off, restart app on phone, BT on and restart on sync.

4.4.14.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.14.2 Steps

Step #	Description	Expected Result
1	Unregister the App from SYNC via the mobile device (if available from the lockscreen; maybe a 'disconnect' or 'quit' option)	App Running in Vehicle: NO Phone Lock Screen: NO
2	Quit the App from the mobile device (if not completed in the previous step)	App Running on Phone: NO
3	Turn OFF the BT connection on the Phone	Phone BT: OFF
4	Restart the App on the mobile device	App Running on Phone: YES
5	Turn ON the BT connection on the Phone	Phone BT: ON
6	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES
7	Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES
8	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
9	Validate that the app is initialized properly with SYNC by checking that	All commands appear in application's menu. You should see more than just 'Exit

all app commands are loaded in the app's menu on SYNC.	<appName>.'

4.4.14.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.4.15 Paired, App running on sync, Exit app on sync, delete sync on phone, pair phone to sync, restart the app on sync.

This test validates that the app is listed in vehicle after restarting the app on sync by first quitting it on sync and unpair and pair the phone to sync.

4.4.15.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.4.15.2 Steps

Step #	Description	Expected Result
1	Exit/Quit the App from the SYNC using voice command 'EXIT'.	App Running in Vehicle: NO Phone Lock Screen: NO
2	Unpair SYNC from Bluetooth devices on Phone	Phone Paired: NO
3	Pair the phone from SYNC module	Phone Paired: YES Phone Connected: YES
4	Check that the app is listed in the mobile apps menu.	Mobile App Listed in Vehicle: YES.
5	Start the app through SYNC	App Running on Sync: YES Lock Screen on Phone: YES
6	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

	menu on SYNC.

4.4.15.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.5 Multiple Apps

These tests verify your application behaves properly when multiple applink apps are running on your device and Sync.

4.5.1 Connected Phone, Ignition Cycle

This test validates that the app is listed in vehicle when re-entering vehicle after an ignition cycle.

4.5.1.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	OFF
Vehicle	Door Status	OPEN
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.5.1.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
2	Set the TDK control Ignition (Key) to ON	Vehicle Ignition ON
3	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES Apps Listed in Vehicle: YES
4	Select test application in the mobile apps menu using Voice Commands	App Running in Vehicle: YES Lockscreen on Phone: YES Other Apps in Vehicle: Background
5	Check all commands loaded in the menu	All commands appear in application's menu.
6	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF Lockscreen on Phone: NO

7	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
8	Wait until the phone disconnects BT with the SYNC	Phone Connected: NO
9	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
10	Set the TDK control Ignition (Key) to ON	Vehicle Ignition ON
11	Connect phone to Sync module (Press phone button)	Phone Connected: YES
12	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
13	Start the test app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
14	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.5.1.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.5.2 <u>Connected Phone, Bluetooth Toggle</u>
This test validates that the app is listed in vehicle after a bluetooth toggle occurs while the app is running on Sync when multiple apps are running on Sync.

4.5.2.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.5.2.2 Steps

Step #	Description	Expected Result
1	Turn OFF the BT connection on the phone	Phone BT: OFF Phone Connected: NO

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2	Turn ON the BT connection on the phone	Phone BT: ON
3	Connect phone to Sync module (Press phone button)	Phone Connected: YES
4	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
5	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
6	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.5.2.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.5.3 Phone Not Paired, App not installed

This test validates that the app is listed in vehicle after installing and launching the app on the phone and pairing the phone to Sync with multiple apps installed on the phone.

4.5.3.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	NO
Phone	Connected	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
Test App	Installed	NO
Test App	Running on Phone	NO
Test App	Running in Vehicle	NO
Multiple Apps	Installed	YES
Multiple Apps	Running on Phone	NO
Multiple Apps	Running in Vehicle	NO
All Apps on Phone	Listed in Vehicle	YES

4.5.3.2 Steps

Step #	Description	Expected Result
1	Install the test app on the phone.	App Installed: YES
2	Launch the test app on the phone	App Running on Phone: YES

3	Pair phone from SYNC module	Phone Paired: YES Phone Connected: YES
4	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.5.3.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
Multiple Apps	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
Multiple Apps	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.5.4 Quit, App Run

This test validates that the app is listed in the vehicle when the test app is quit and re-started on Sync with multiple apps running.

4.5.4.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
Test App	Installed	YES
Test App	Running on Phone	YES
Test App	Running in Vehicle	YES
Multiple Apps	Installed	YES
Multiple Apps	Running on Phone	YES
Multiple Apps	Running in Vehicle	NO
All Apps on Phone	Listed in Vehicle	YES

4.5.4.2 Steps

Step #	Description	Expected Result
1	Quit the App from the mobile device (if available)	App Running on SYNC: NO App Running on Phone: NO Lockscreen on Phone: NO
2	Select 'Find New Apps' in the mobile apps menu	App Listed in Vehicle: YES
3	Start the app through SYNC	App Running on Sync: YES

			Lockscreen on Phone: YES
4	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.		All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.5.4.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
Multiple Apps	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
Multiple Apps	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.5.5 Switch Apps

This test will validate the behavior of the app while switching to a different Applink app on SYNC.

4.5.5.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
Test App	Installed	YES
Test App	Running on Phone	YES
Test App	Running in Vehicle	YES
Multiple Apps	Installed	YES
Multiple Apps	Running on Phone	YES
Multiple Apps	Running in Vehicle	NO
All Apps on Phone	Listed in Vehicle	YES

4.5.5.2 Steps

Step #	Description	Expected Result
1	Switch app on Sync by pressing the voice button, wait for SYNC to say: "<appName> please say a command" and saying the name of another applink app. (Say App B). *If you here "SYNC, please say a command" the mobile app is not currently in focus on SYNC.	App B: HMI: Full/Audible App B: Lockscreen on Phone: YES Test App: HMI: Background/ non-audible Test App: Lockscreen on Phone: YES
2	Press the voice button and say 'Help'	SYNC lists commands for App B: YES
3	Verify that all the commands are loaded in the app menu	All commands loaded in app menu: YES

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4	Switch app on Sync by pressing the voice button, wait for SYNC to say: "<appName B> please say a command" and saying the name of test app.	App B: HMI: Background/ non-audible App B: Lockscreen on Phone: YES Test App: HMI: Background/ non-audible Test App: Lockscreen on Phone: YES
5	Press the voice button and say 'Help'	SYNC lists commands for Test App: YES
6	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.5.5.3 Post-conditions

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
Multiple Apps	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
Multiple Apps	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.5.6 Paired, Re-enter vehicle, Re-boot Phone
This test validates that the app is listed in the vehicle when your phone is turned ON and connected to Sync and the app is then started on Phone and Sync.

4.5.6.1 Prerequisites:

Item	*Value*	*State*
Phone	Power	OFF
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
Test App	Installed	YES
Test App	Running on Phone	NO
Test App	Running in Vehicle	NO
Multiple Apps	Installed	YES
Multiple Apps	Running on Phone	NO
Multiple Apps	Running in Vehicle	NO
All Apps on Phone	Listed in Vehicle	NO

4.5.6.2 Steps

Step #	Description	Expected Result
1	Turn ON the phone	Phone Status: ON
2	Force a connection to SYNC by pressing the phone button (if phone doesn't automatically connect)	Phone Connected to Vehicle: YES
3	Check that the app is listed in the mobile	App Listed in Vehicle: YES

4	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.5.6.3 Post-conditions

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.6 Miscellaneous Tests

These tests verify your application behaves properly in different scenarios.

4.6.1 Switch SYNC media while app is loading

This test will validate that the app is launched on Sync when the app is started on Sync and then switched to media during loading.

4.6.1.1 Prerequisites:

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	YES

4.6.1.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App Running: YES Lockscreen: YES
2	Press "Media/Aux" button on SYNC while the app is loading commands.	SYNC changes media (to radio, etc.): YES HMI: Background/ Non_Audible
3	Press "Media/Aux" button until focus returns to SYNC Mobile Apps.	Media changes back to SYNC
4	The app should resume running through	App Running in Vehicle: YES

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	SYNC.	HMI: FULL/ Audible Lockscreen: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit \<appName>.'

4.6.1.3 Post-conditions

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.6.2 Ignition ON, App playing through headphones first (if media app)
This test validates that the app is launched on SYNC when the app is already playing on the Phone with headphones plugged in.

4.6.2.1 Prerequisites:

Item	*Value*	*State*
Phone	Power	ON, Headphones plugged in
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES, playing through headphones
App	Running on SYNC	NO
App	Listed in Vehicle	YES

4.6.2.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App loads and begins playing through headphones
2	Unplug headphones	App begins playing through SYNC (Press play if the audio is paused)

4.6.2.3 Post-conditions

Item	*Value*	*State*

Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.6.3   Ignition ON, App playing through phone speakers first (if media app)
This test will validate the launching of the app on SYNC when the app is already playing through the phone speakers before connecting to SYNC.

4.6.3.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	NO
Vehicle	Ignition	OFF
Vehicle	Door Status	OPEN
App	Installed	YES
App	Running on Phone	YES, Playing audio through speakers before BT connection
App	Running on SYNC	NO
App	Listed in Vehicle	NO

4.6.3.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
2	Set the TDK control Ignition (Key) to ON	Vehicle Ignition : ON
3	Verify phone is connected through bluetooth to SYNC. Check under phone's bluetooth settings. (Press the phone button on SYNC to ensure the phone is connected.)	Bluetooth connection on SYNC: YES Bluetooth connection on Phone: YES
4	Start the app through SYNC	App running on Sync: YES App playing through SYNC Speakers: YES HMI: FULL/Audible Lockscreen: YES

4.6.3.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED

Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.6.4 Button mash
This test validates the app running on sync after repeatedly pressing vehicle button.

4.6.4.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.6.4.2 Steps

Step #	Description	Expected Result
1	Repeatedly press the following buttons on SYNC	App on Phone: Should not crash App Running on SYNC: YES Reaction to button press: use debouncing, app reacts appropriately to final button press.
a	Seek forward	
b	Seek back	
c	OK play/pause	
d	Tune up/down	
e	preset button(s)	

4.6.4.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.6.5 Paired, Initiate Perform Interaction VR, IGN OFF (if applicable)

This test validates an app does not crash when a perform interaction is interrupted.

4.6.5.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.6.5.2 Steps

Step #	Description	Expected Result
1	Initiate perform interaction VR session	SYNC issues prompt and displays "Listening"
2	Set the IGN to OFF	Vehicle Ignition: OFF
3	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
4	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
5	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
6	Connect phone to Sync module (Press phone button if not connected automatically)	Phone Connected: YES Apps Listed in Vehicle: YES
7	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
8	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
9	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

4.6.5.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.6.6 Using the Help voice command

This test validates the Help command specific to the app.

4.6.6.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.6.6.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App Running on Sync: YES Lockscreen on Phone: YES
2	Press the voice button and say "Help"	Help prompt specific to the app heard: YES. Should hear more than just "Help, cancel, and exit."

4.6.6.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.6.7 Displaying the logo on the lockscreen

This test validates the logo on the lock screen when the app is running on Sync.

4.6.7.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES

Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.6.7.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App Running on Sync: YES Lockscreen on Phone: YES
2	Observe the logo on the phone screen	*The Logo should either be:* *Ford SYNC® (or)* *SYNC® AppLink™*

4.6.7.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.6.8 Paired, IGN ON, App running, Press Android™ back button while Lockscreen is up

This test validates the app remains running on sync after pressing back button on an Android™ phone.

4.6.8.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.6.8.2 Steps

Step #	Description	Expected Result
1	Press "Back" button on the Android™	App Running on SYNC: YES

	phone	Option:
		A) Phone home screen appears
		    App on Phone: Background
		B) nothing happens
		    App on Phone: Foreground

2	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit \<appName\>.'

4.6.8.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.6.9 App behavior on the phone while vehicle is in motion (if listening for onDriverDistraction notification)
This test validates the phone screen while the app is running on Sync and the vehicle is in motion with speed greater than 5km/h or 3mph.

4.6.9.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.6.9.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App Running on Sync: YES Lockscreen on Phone: YES
2	Change the TDK switch to forward and 5km/h or 3mph	Lockscreen on Phone: YES
3	Change the TDK switch to 0km/h or 0mph	Lockscreen on Phone: NO
4	Change the TDK switch to 5km/h or 3mph	Lockscreen on Phone: YES

4.6.9.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.6.10 While playing through sync, background app, start the app and see if lock screen still up

This test validates the app behavior and lockscreen when the app is back grounded and foregrounded on the phone.

4.6.10.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.6.10.2 Steps

Step #	Description	Expected Result
1	Background the app on the phone by pressing the home button	App Running on Sync: YES
2	Select the app on the phone by pressing the app icon	App Running on Sync: YES Lockscreen on Phone: YES

4.6.10.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED

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App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

4.6.11 <u>While playing through sync, background app, ignition Off, start the app and see if lock screen still up</u>

This test validates the app behavior and lockscreen when the app is backgrounded, ignition is turned off and foregrounded on the phone.

4.6.11.1 Prerequisites:

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

4.6.11.2 Steps

Step #	Description	Expected Result
1	Background the app on the phone by pressing the home button	App Running on Sync: YES App in HMI_Background
3	Set the IGN to OFF	Vehicle Ignition: OFF
2	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
3	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
4	Select the app on the phone by pressing the app icon	Lockscreen on Phone: NO

4.6.11.3 Post-conditions

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	NO
Vehicle	Ignition	OFF
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5 Test Cases: iPhone

5.1 iPhone not connected via USB

These tests verify your application behaves properly when the iPhone is not connected via USB, and then subsequently connected via USB to a SYNC® equipped vehicle.

5.1.1 IGN On, App not running, iPhone not connected via USB

This test validates that app is listed on Sync when the phone is not plugged in via USB and then plugged in by the user and then starting the app on phone.

5.1.1.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

5.1.1.2 Steps

Step #	Description	Expected Result
1	Plug iPhone into TDK via USB cable.	Connected via USB: YES
2	Start the mobile app on the phone.	App Running on the phone foreground: YES
3	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
4	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.1.1.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

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5.1.2 <u>IGN On, App running, iPhone not connected via USB</u>

This test validates if an already running app on the phone is recognized upon connection over USB

5.1.2.1 Prerequisites:

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

5.1.2.2 Steps

Step #	Description	Expected Result
1	Plug iPhone into TDK via USB cable.	Connected via USB: YES
2	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
3	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
4	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.1.2.3 Post-conditions

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.1.3 <u>IGN On, App not running, iPhone off, iPhone not connected via USB</u>

This test validates that the app is found on Sync when phone powered ON, connected to SYNC via USB with the app running on the Phone while IGN on.

5.1.3.1 Prerequisites:

Item	Value	State
Phone	Power	OFF
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

5.1.3.2 Steps

Step #	Description	Expected Result
1	Plug iPhone into TDK via USB cable.	Connected via USB: YES
2	Turn ON the phone	Phone Status: ON
3	Start the mobile app on the phone.	App Running on the phone foreground: YES
4	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
5	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
6	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.1.3.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.1.4 Unplugged, start app, lock iPhone, plug in, test
This test validates that the app is listed in vehicle when iPhone is plugged in via USB after starting the app and locking the iPhone.

5.1.4.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES

Phone	Connected via USB	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

5.1.4.2 Steps

Step #	Description	Expected Result
1	Kill all AppLink apps found in the multitasking bar. (Double tap the home button, press and hold an app icon, and tap the small red 'x' on top of each app icon in the multitasking bar.)	No AppLink Apps are running in the background on the iPhone.
2	Start the mobile app on the phone.	App Running on the phone foreground: YES
3	Lock the iPhone	Black screen appears on the iPhone: YES
4	Plug iPhone into TDK via USB cable.	Connected via USB: YES
5	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
6	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.1.4.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.1.5 Unplugged, start app, background app, plug in, test

This test validates that the app is listed in vehicle when iPhone is plugged in via USB after starting the app and backgrounding the app.

5.1.5.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	NO
Vehicle	Ignition	ON

Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

5.1.5.2 Steps

Step #	Description	Expected Result
1	Kill all AppLink apps found in the multitasking bar. (Double tap the home button and tap the small red 'x' on top of each app icon in the multitasking bar.)	No AppLink Apps are running in the background on the iPhone.
2	Start the mobile app on the phone.	App Running on the phone foreground: YES
3	Background the mobile app on the iPhone by pressing the Home button.	Home screen appears on the iPhone: YES
4	Plug iPhone into TDK via USB cable.	Connected via USB: YES
5	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
6	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'
7	Unplug iPhone from USB.	iPhone connected to SYNC via USB: NO
8	Re-select app on iPhone into foreground.	Lockscreen on Phone: NO

5.1.5.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.1.6 Unplugged, start app, play music, lock iphone, plug in, test
This test validates that the app is listed in vehicle when the phone is plugged in the USB after starting a music station and locking the iPhone.

5.1.6.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED

App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

5.1.6.2 Steps

Step #	Description	Expected Result
1	Kill all AppLink apps found in the multitasking bar. (Double tap the home button and tap the small red 'x' on top of each app icon in the multitasking bar.)	No AppLink Apps are running in the background on the iPhone.
2	Start the mobile app on the phone.	App Running on the phone foreground: YES
3	Start a Music Station	Audio heard from phone speakers: YES
4	Lock the iPhone	Black screen appears on the iPhone: YES
5	Plug iPhone into TDK via USB cable.	Connected via USB: YES
6	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES Same audio continued through SYNC's speakers: YES
7	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.1.6.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.2 iPhone connected via USB

These tests verify your application behaves properly when the iPhone is already connected via USB.

5.2.1 Ignition Off, App not running, iPhone connected via USB

This test validates the app starts running correctly on SYNC after doing an ignition cycle and starting the app on the phone.

5.2.1.1 Prerequisites:

Item	Value	State
Phone	Power	ON

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Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	OFF
Vehicle	Door Status	OPEN
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

5.2.1.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
2	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
3	Start the mobile app on the phone so that it is running in the foreground.	The application is running in the foreground.
4	Check that the app is listed in the mobile apps menu	App Listed in the Vehicle: YES
5	Start the app through SYNC	App Running: YES Lockscreen: YES
6	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.2.1.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.2.2 Ignition Off, App running, iPhone connected via USB
This test validates the app starts running correctly on SYNC after ignition on while the app is already running on the phone.

5.2.2.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES

Phone	Connected via USB	YES
Vehicle	Ignition	OFF
Vehicle	Door Status	OPEN
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

5.2.2.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
2	Set the TDK control Ignition (Key) to ON	Vehicle Ignition ON
3	Check that the app is listed in the mobile apps menu	App Listed in the Vehicle: YES
4	Start the app through SYNC	App Running: YES Lockscreen: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.2.2.3 Post-conditions

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.2.3 Ignition ON, App not running, iPhone off, iPhone connected via USB
This test validates the app running correctly when phone is turned on while being connected via USB.

5.2.3.1 Prerequisites:

Item	*Value*	*State*
Phone	Power	OFF
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

5.2.3.2 Steps

Step #	Description	Expected Result
1	Turn on the Phone.	Phone Status: ON
2	Start the mobile app on the phone.	App Running on the phone foreground: YES
3	Check that the app is listed in the mobile apps menu	App Listed in the Vehicle: YES
4	Start the app through SYNC	App Running: YES Lockscreen: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.2.3.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.2.4 Ignition Off for 5 minutes, App running, iPhone connected via USB

This test validates the app is listed in vehicle after an ignition On/Off for 5 minutes.

5.2.4.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.2.4.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN

2	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
3	Set the TDK control Door to CLOSE	Vehicle Door Status: CLOSED
4	Wait for 5 minutes	5 minutes have passed: YES
5	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
6	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
7	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
8	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
9	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.2.4.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.2.5   Ignition Off, App running, iPhone unplugged for 5 minutes
This test validates the app is listed in vehicle after unplugging and re-plugging the usb cable for 5 minutes.

5.2.5.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.2.5.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
2	Unplug iPhone USB cable from the TDK	Connected via USB:: NO
3	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN

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4	Set the TDK control Door to CLOSE	Vehicle Door Status: CLOSED
5	Wait for 5 minutes	5 minutes have passed: YES
6	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
7	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
8	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
9	Plug iPhone into TDK via USB cable	Connected via USB:: YES
10	Check that the app is listed in the mobile apps menu	App Listed in the Vehicle: YES
11	Start the app through SYNC	App Running: YES Lockscreen: YES
12	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.2.5.3 Post-conditions

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.2.6 <u>Ignition ON, App not installed, iPhone plugged in via USB</u>
This test validates the app is listed in vehicle after installing the app.

5.2.6.1 Prerequisites:

Item	*Value*	*State*
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	NO
App	Running on Phone	NO
App	Running on SYNC	NO
App	Listed in Vehicle	NO

5.2.6.2 Steps

Step #	**Description**	**Expected Result**
1	Install the mobile app on the phone.	App Installed on Phone: YES
2	Start the mobile app on the phone.	App Running on the phone foreground: YES

3	Check that the app is listed in the mobile apps menu	App Listed in the Vehicle: YES
4	Start the app through SYNC	App Running: YES Lockscreen: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.2.6.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.2.7 Ignition Off, App running, iPhone connected via USB
This test validates the app is listed in vehicle after an ignition On/Off with the iPhone connected via USB.

5.2.7.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.2.7.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
2	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
3	Wait for iphone bluetooth to disconnect with SYNC.	Phone Connected: NO Lockscreen on Phone: NO
4	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
5	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
6	Verify phone is connected through bluetooth to SYNC.	Phone Connected: YES

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| 7 | Re-select the app through SYNC | App Running in Vehicle: YES
Lockscreen on Phone: YES |
| 8 | Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC. | All commands appear in application's menu. You should see more than just 'Exit <appName>.' |

5.2.7.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.2.8 Ignition Off while App is loading
This test validates the app is listed in vehicle after an ignition On/Off while the app is loading.

5.2.8.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.2.8.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
2	While the app is loading commands on Sync, Set the TDK control Ignition (Key) to OFF	Vehicle Ignition: OFF
3	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
4	Wait for iphone bluetooth to disconnect with SYNC.	Phone Connected: NO Lockscreen on Phone: NO
5	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
6	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
7	Verify phone is connected through	Phone Connected: YES

	bluetooth to SYNC.	
8	Re-select the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
9	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.2.8.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.2.9 Unplug Phone from Sync While App is running
This test validates the app starts running correctly on SYNC after unplugging and re-plugging the iphone cable while the app is running on Sync.

5.2.9.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	OPEN
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.2.9.2 Steps

Step #	Description	Expected Result
1	Unplug iPhone from USB	iPhone connected via USB: NO Lockscreen on Phone: NO
2	Re-plug in iPhone to SYNC via usb.	iPhone connected via USB: YES
3	Re-select the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
4	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.2.9.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.2.10 Plugged in, start app, lock iPhone, test

This test validates the app continues running correctly on SYNC after locking the phone while running on SYNC.

5.2.10.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.2.10.2 Steps

Step #	Description	Expected Result
1	Lock the iPhone	Black screen appears on the phone: YES Audio still hear if media app: YES
2	Try an app command	App responds appropriately: YES

5.2.10.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.3 Phone Calls

These tests verify your application behaves properly during incoming and outgoing calls when the phone is connected to Sync.

5.3.1 <u>Incoming phone call, Call is ended by SYNC.</u>

This test validates that the app resumes back to its previous state after an incoming call is accepted and terminated on Sync

5.3.1.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.3.1.2 Steps

Step #	Description	Expected Result
1	Use another phone to place a call to the iPhone connected to SYNC	A call is placed to the test iPhone
2	Accept incoming call by short pressing the phone button on the center stack or steering wheel	App Audio: paused. HMI: Background/Not_Audible Phone Call: In progress
3	Terminate the call by long pressing the phone button on the steering wheel.	App Audio: Resume HMI: FULL/Audible Lockscreen on Phone: YES Phone Call: Ended
4	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

5.3.1.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES

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App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.3.2 Incoming phone call, User rejects call
This test validates that the app resumes back to its previous state after an incoming call is rejected on Sync.

5.3.2.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.3.2.2 Steps

Step #	Description	Expected Result
1	Lock the iPhone by pressing the button on top of the device.	Phone Locked: YES Black Screen on Phone: YES
2	Use another phone to place a call to the iPhone connected to SYNC.	App Audio: paused. HMI: Background/Not_Audible Phone Call: Ringing
3	User rejects incoming call by long-pressing the phone button on the steering wheel or center stack.	App Audio: Resume HMI: FULL/Audible Lockscreen when app in focus: YES

5.3.2.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.3.3 Placing outgoing phone call, call ended by phone call button on steering wheel

This test validates that the app resumes back to its previous state when user places an outgoing call using voice command and the call is terminated on Sync (phone call button)

5.3.3.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.3.3.2 Steps

Step #	Description	Expected Result
1	Lock the iPhone by pressing the button on top of the device.	Phone Locked: YES Black Screen on Phone: YES
2	Place a phone call using the voice command, saying "Call <contact>"	App Audio: paused. HMI: Background/Not_Audible Phone Call: Ringing
3	Accept the phone call on the other, receiving phone that is not connected to SYNC.	Phone Call: In progress
4	Outgoing call is ended on SYNC by long-pressing the phone button on the steering wheel or center stack.	App Audio: Resume HMI: FULL/Audible Phone Call: Ended
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

5.3.3.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.3.4 Placing outgoing phone call via phone, hang up on the phone

This test validates that the app resumes back to its previous state when user places an outgoing call and terminates the call using the phone

5.3.4.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.3.4.2 Steps

Step #	Description	Expected Result
1	Place a phone call by backgrounding the running app on the phone and using the phone to dial.	App Audio: paused. HMI: Background/Not_Audible Phone Call: Ringin
2	Accept the phone call on the other, receiving phone that is not connected to SYNC.	Phone Call: In progress
3	Outgoing call is ended on the iPhone's UI.	App Audio: Resume HMI: FULL/Audible Phone Call: Ended
4	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone when app in foreground: YES

5.3.4.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.3.5 Accepting Incoming call on phone, ends call, re-launches app on SYNC

This test validates that the app resumes back to its previous state when user accepts and ends the incoming phone call on the phone.

5.3.5.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.3.5.2 Steps

Step #	Description	Expected Result
1	Use another phone to place a call to the iPhone connected to SYNC.	A call is placed to the test iPhone.
2	Accept an incoming phone call (using phone's UI controls)	App Audio: paused. HMI: Background/Not_Audible Phone Call: In progress
3	The call is ended by the caller (non-SYNC connected phone).	App Audio: Resumed HMI: FULL/Audible Phone Call: Ended
4	Check for app's lockscreen on phone.	App Audio: Resume HMI: FULL/Audible Lockscreen: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

5.3.5.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.3.6 Incoming call, reject call on phone UI before connecting

This test validates that the app resumes back to its previous state after an incoming call is rejected.

5.3.6.1 Prerequisites:

Item	Value	State

Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.3.6.2 Steps

Step #	Description	Expected Result
1	Place an incoming call using non-SYNC connected phone.	App Audio: Paused HMI: Background/Not_Audible Phone call: Ringing
2	Before connecting, end the incoming call using the SYNC-connected phone's UI.	App Audio: Resumed HMI: FULL/Audible Phone call: Rejected
3	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

5.3.6.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.3.7 Placing outgoing call via SYNC, ending on SYNC before answered

This test validates that the app resumes back to its previous state when user places an outgoing call on the phone and ends it on Sync before answered.

5.3.7.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES

Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.3.7.2 Steps

Step #	Description	Expected Result
1	Place an outgoing call using voice command : "Dial <contact phone number>".	App Audio: Paused HMI: Background/Not_Audible
2	Before connecting the call, end the outgoing call via the steering wheel button. (See Appendix)	App Audio: Resumed HMI: FULL/Audible
3	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

5.3.7.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.3.8 Incoming call, before answering, call ended by caller

This test validates that the app resumes back to its previous state after an incoming call is canceled.

5.3.8.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.3.8.2 Steps

Step #	Description	Expected Result
1	Place call with outside, non-SYNC connected phone.	App Audio: paused. HMI: Background/Not_Audible Phone Call: Ringing
2	The call is ended by the caller (non-SYNC connected phone).	App Audio: Resume HMI: FULL/Audible Phone Call: Ended
3	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.' Lockscreen on phone: YES

5.3.8.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.4 Quitting Apps

These tests verify your application behaves properly when the app is exited and re-started on SYNC.

5.4.1 Exit app using voice commands
This test validates that the app exits on Sync by using voice commands.

5.4.1.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.4.1.2 Steps

Step #	Description	Expected Result
1	Exit the app through SYNC by pressing the voice button and saying "Exit"	App Running on SYNC: NO Lockscreen on Phone: NO
2	Select the app through SYNC	App Running on SYNC: YES Lockscreen on Phone: YES
3	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.4.1.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.5   Miscellaneous Tests

These tests verify your application behaves properly during different scenarios.

5.5.1   Switch SYNC media while app is loading

This test will validate that the app is launched on Sync when the app is started on Sync and then switched to media during loading.

5.5.1.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	YES

5.5.1.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App Running: YES

		Lockscreen: YES
2	Press "Media/Aux" button on SYNC while the app is loading commands.	SYNC changes media (to radio, etc.): YES HMI: Background/ Non_Audible
3	Press "Media/Aux" button until focus returns to SYNC Mobile Apps.	Media changes back to SYNC
4	The app should resume running through SYNC.	App Running in Vehicle: YES HMI: FULL/ Audible Lockscreen: YES
5	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.5.1.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.5.2 Ignition ON, App playing though headphones first (if media app)

This test validates that the app is launched on SYNC when the app is already playing on the Phone with headphones plugged in.

5.5.2.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	YES

5.5.2.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App loads and begins playing through headphones
2	Unplug headphones	App begins playing through SYNC (Press play if the audio is paused)

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5.5.2.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.5.3 Ignition ON, App playing through phone speakers first (if media app)
This test will validate the launching of the app on SYNC when the app is already playing through the phone speakers.

5.5.3.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	OFF
Vehicle	Door Status	OPEN
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

5.5.3.2 Steps

Step #	Description	Expected Result
1	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
2	Set the TDK control Ignition (Key) to ON	Vehicle Ignition : ON
3	Verify phone is connected through bluetooth to SYNC. Check under phone's bluetooth settings. (Press the phone button on SYNC to ensure the phone is connected.)	Bluetooth connection on SYNC: YES Bluetooth connection on Phone: YES
4	Start the app through SYNC	App running on Sync: YES App playing through SYNC Speakers: YES HMI: FULL/Audible Lockscreen: YES

5.5.3.3 Post-conditions

Item	Value	State

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Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.5.4 Switching apps on SYNC (iOS™ 5+ only)

This test validates the behavior of apps on sync while switching between different Applink apps.

5.5.4.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.5.4.2 Steps

Step #	Description	Expected Result
1	Background the test app on the iPhone by pressing the home button.	Test App Running in Vehicle: YES
2	Select another AppLink media app on iPhone so that it runs in the foreground. (referred to as App B)	App B Listed in Vehicle: YES App B Running on Phone: YES HMI: Background/Non_Audible (Test App)
3	Select the app B to run through SYNC.	App B Running in Vehicle: YES HMI: FULL/Audible(App B) Lockscreen on Phone (App B): YES
4	Background App B on the iPhone by pressing the home button.	HMI: FULL/Audible(App B)
5	Re-select the test app on iPhone so that it runs in the foreground.	Test App Listed in Vehicle: YES Test App Running on Phone: YES HMI: Background/Non_Audible (App B)
6	Select the test app to run through SYNC.	Test App Running in Vehicle: YES HMI: FULL/Audible(Test App) Lockscreen on Phone (Test App): YES
7	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.5.4.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.5.5 While playing through sync, background app, unplug, start the app and see if lock screen still up
This test validates the app behavior and lockscreen when the app is back grounded and the USB cable is unplugged from Sync.

5.5.5.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.5.5.2 Steps

Step #	Description	Expected Result
1	Background the app on the iPhone by pressing the home button.	App Running in Vehicle: YES
2	Unplug iPhone from USB.	Connected via USB:: NO
3	Re-select app on iPhone.	Lockscreen on Phone: NO

5.5.5.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	NO
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	NO

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.5.6 While playing through sync, background app, start the app and see if lock screen still up

This test validates the app behavior and lockscreen when the app is back grounded and re-selected on the phone.

5.5.6.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.5.6.2 Steps

Step #	Description	Expected Result
1	Background the app on the iPhone by pressing the home button.	App Running in Vehicle: YES
2	Re-select app on iPhone.	Lockscreen on Phone: YES

5.5.6.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.5.7 Using the Help Voice Command

This test validates the Help command specific to the app.

5.5.7.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON

	Ford Motor Company		

Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.5.7.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App Running on Sync: YES Lockscreen on Phone: YES
2	Press the voice button and say "Help"	Help prompt specific to the app heard: YES

5.5.7.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.5.8 Display for the Logo on the lockscreen when the app is running
This test validates the logo on the lock screen when the app is running on Sync

5.5.8.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.5.8.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App Running on Sync: YES Lockscreen on Phone: YES
2	Observe the logo on the phone screen	*The Logo should either be:* *Ford SYNC® (or)* *SYNC® AppLink™*

	Ford Motor Company	

5.5.8.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.5.9 App behavior on phone while vehicle is in motion >5km/h (if listening to onDriverDistraction notification)
This test validates the phone screen while the app is running on Sync and the vehicle is in motion with speed greater than 5km/h or 3mph.

5.5.9.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	NO
App	Listed in Vehicle	YES

5.5.9.2 Steps

Step #	Description	Expected Result
1	Start the app through SYNC	App Running on Sync: YES Lockscreen on Phone: YES
2	Change the TDK switch to forward and 5km/h or 3mph	Lockscreen on Phone: YES
3	Change the TDK switch to 0km/h or 0mph	Lockscreen on Phone: NO
4	Change the TDK switch to 5km/h or 3mph	Lockscreen on Phone: YES

5.5.9.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON

Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.5.10 Paired, Initiate Perform Interaction VR, IGN OFF (if applicable)
This test validates an app does not crash when a perform interaction is interrupted.

5.5.10.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.5.10.2 Steps

Step #	Description	Expected Result
1	Initiate perform interaction VR session	SYNC issues prompt and displays "Listening"
2	Set the IGN to OFF	Vehicle Ignition: OFF
3	Set the TDK control Door to OPEN	Vehicle Door Status: OPEN
4	Set the TDK control Ignition (Key) to ON	Vehicle Ignition: ON
5	Set the TDK control Door to CLOSED	Vehicle Door Status: CLOSED
6	Connect phone to Sync module (Press phone button if not connected automatically)	Connected via USB:: YES Apps Listed in Vehicle: YES
7	Check that the app is listed in the mobile apps menu.	App Listed in Vehicle: YES
8	Start the app through SYNC	App Running in Vehicle: YES Lockscreen on Phone: YES
9	Validate that the app is initialized properly with SYNC by checking that all app commands are loaded in the app's menu on SYNC.	All commands appear in application's menu. You should see more than just 'Exit <appName>.'

5.5.10.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED

App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

5.5.11 Button mash
This test validates the app running on sync after repeatedly pressing vehicle button.

5.5.11.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

5.5.11.2 Steps

Step #	Description	Expected Result
1	Repeatedly press the following buttons on SYNC	App on Phone: Should not crash App Running on SYNC: YES Reaction to button press: use debouncing, app reacts appropriately to final button press.
a	Seek forward	
b	Seek back	
c	OK play/pause	
d	Tune knob	
e	preset button(s)	

5.5.11.3 Post-conditions

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected via USB	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

6 Operational Tests: Platform Generic

6.1 SYNC Hardbuttons

These tests verify your app responds to all subscribed buttons when pressed on the steering wheel or center stack of the vehicle.

6.1.1 List of Buttons

6.1.1.1 Prerequisites for all button tests:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

6.1.1.2 Steps

Step #	Description	Expected Result
1	Press button:	Audio or visual response heard or seen through SYNC HMI.
a	OK Play/pause	
b	SEEK forward (right) short press	
c	SEEK backward (left) short press	
d	SEEK forward (right) long press	
e	SEEK backward (left) long press	
f	Tune Up	
g	Tune Down	
h	preset (0-9) short press	
i	preset (0-9) long press	

6.1.1.3 Post-conditions for all button tests

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

6.2   SYNC Softbuttons & App Menu Commands

These tests verify your app responds to all registered menu addcommands, perform interaction choices, and soft buttons when selected in the in-app menu, center stack, or touch screen.

6.2.1   List of Menu Items and Soft buttons
Dependent on app design.

6.2.1.1 Prerequisites for all button tests:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

6.2.1.2 Steps

Step #	Description	Expected Result
1	Select menu add command, perform interaction choice, or soft button.	Audio or visual response heard or seen through SYNC HMI.

6.2.1.3 Post-conditions for all button tests

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

6.3   App Voice commands

These tests verify your app responds to all registered voice addcommands and voice perform interaction choices when said during a voice sessions in the vehicle.

6.3.1   List of Menu Items and Soft buttons
Dependent on app design.

6.3.1.1 Prerequisites:

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	YES
Phone	Connected	YES
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

6.3.1.2 Steps

Step #	Description	Expected Result
1	Say a voice add command, or say a perform interaction choice.	Audio or visual response heard or seen through SYNC HMI.

6.3.1.3 Post-conditions for all button tests

Item	Value	State
Phone	Power	ON
Phone	Bluetooth	ON
Phone	Paired	PAIRED
Phone	Connected	CONNECTED
Vehicle	Ignition	ON
Vehicle	Door Status	CLOSED
App	Installed	YES
App	Running on Phone	YES
App	Running on SYNC	YES
App	Listed in Vehicle	YES

The application should be listed in vehicle, selectable, and have control of the vehicle display, menus and other AppLink related functions once connected to the vehicle.

7 Appendix A: SYNC Functions Based on Display Type

7.1 How to Start an App on SYNC

7.1.1 Voice Commands

Regardless of your display type, you can access AppLink using the following voice commands:
1. Press the voice icon.
2. When prompted, say "Mobile Apps".
3. Say the name of the application after the tone, such as "Pandora."
4. The app should start. While an app is running through SYNC, you can press the voice button and speak commands specific to the app, such as "Play Station Quickmix." Say the 'help' voice command to discover available voice commands.

7.1.2 Directions for CID (2-line) display

2012 Mustang, Fusion, F-150, Super Duty, Econoline, Expedition, and Lincoln Navigator
2013 Mustang, Econoline, Expedition, and Lincoln Navigator

You can access AppLink if you have a 2 line display that looks like this:

To access AppLink using the phone menu:
1. Press the Phone button
2. Browse to Mobile Applications and press OK.
3. Browse to your desired app and press OK.
4. Once an app is running through SYNC, you can access an app's menu by pressing the MENU Button to first access the SYNC menu.
5. Scroll until "<App Name> Menu" is displayed (i.e. Pandora Menu), then press OK. From here you can access an application's features, such as Thumbs up, Thumbs down, etc. For more information, please visit www.SYNCMyRide.com.

To access AppLink using the media menu:
1. Press the Aux Button to access the SYNC menu.
2. Press the Menu button to access the SYNC Media menu.
3. Browse to Mobile Applications and press OK.
3. Browse to your desired app and press OK.
4. Once an app is running through SYNC, you can access an app's menu by pressing the MENU Button to first access the SYNC menu.
5. Scroll until "<App Name> Menu" is displayed (i.e. Pandora Menu), then press OK. From here you can access an application's features, such as Thumbs up, Thumbs down, etc. For more information, please visit www.SYNCMyRide.com.

7.1.3 <u>**Directions for Next Generation Nav (NGN) 8-inch touch screen**</u>
2012 Mustang, Fusion, F-150, Super Duty, Econoline, Expedition, and Lincoln Navigator
2013 Mustang, Econoline, Expedition, and Lincoln Navigator
You can also access AppLink if you have a navigation screen that looks like this: (NOT MyFordTouch)

To access AppLink using the touch screen:
1. Press the Phone button
2. Press the SYNC Apps tab
3. Press Mobile Apps
4. Select the app to start it.

7.1.4 <u>**Directions for 3 inch or 4 inch color screen (MyFord)**</u>
2011 Fiesta
2012 Fiesta
2013 Fiesta, Focus, C-Max, Fusion, F-Series, and Super Duty
You can access AppLink if you have a 4 inch display (MyFord) that looks like this:

To access AppLink using the phone menu:
1. Press the phone button to access the SYNC Phone menu on-screen.

2. Scroll to Mobile Apps and press OK to access a list of available applications.
3. Scroll through the list of available applications and press OK to select a particular app.
4. Once an app is running through SYNC, you can access an app's menu by pressing the MENU Button to first access the SYNC menu.
5. Select "SYNC-Media" by pressing OK.
6. Scroll until "<App Name> Menu" is displayed (i.e. Pandora Menu), then press OK. From here you can access an application's features, such as Thumbs up, Thumbs down, etc. For more information, please visit www.SYNCMyRide.com.

To access AppLink using the media menu:
1. Press AUX Button on the center console.
2. Press MENU to access the SYNC menu.
3. Select "SYNC-Media" by pressing OK.
4. Then scroll to Mobile Apps and press OK to access a list of available applications.
5. Scroll through the list of available applications and press OK to select a particular app.
6. Once an app is running through SYNC, you can access an app's menu by pressing the MENU Button to first access the SYNC menu.
7. Select "SYNC-Media" by pressing OK.
8. Scroll until "<App Name> Menu" is displayed (i.e. Pandora Menu), then press OK. From here you can access an application's features, such as Thumbs up, Thumbs down, etc. For more information, please visit www.SYNCMyRide.com.

7.2   How to end a phone call via Steering Wheel Button
7.2.1   If the steering wheel buttons look like this (usually coupled with the 2-line CID display above):

7.2.2   Press and hold the phone button to end a phone call.
7.2.3   If the steering wheel buttons look like this (usually coupled with the MyFord display above):

Press the phone hangup button to end a phone call.