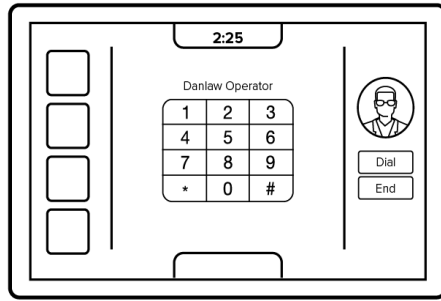


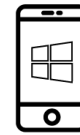
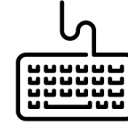
# Mx-Suite™ Bluetooth Profile Testing Connector

## The Bluetooth Testing Challenge

Rapid growth in the Bluetooth device market creates serious challenges for OEMs and suppliers of automotive infotainment systems. As more sophisticated devices enter the market, infotainment suppliers must deal with additional Bluetooth profiles, new communications interfaces, and increased types of interactions between features. Finding problems before they reach consumers ensures satisfaction and reduces warranty costs.



- A2DP
- AVRCP
- DUN
- FTP
- HFP
- PAN
- SPP



## Benefits

Continuous support for new profiles

Stability-test modules by increasing simultaneous interactions of Bluetooth and other communications stressors

Multiple test methodologies and tools are replaced with a single, simple method and tool

## Features

Automatic test execution and reporting

Seamless integration with industry-proven Mx-Suite embedded software test environment

Support of Bluetooth high speed 3.0 profiles (backwards compatible with v2.1)

Easy to understand configuration and execution of tests

Can be used for any ECU module that requires Bluetooth Profile testing

Eliminates the need for script writing and parsing of Bluetooth profile messages

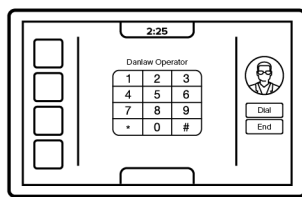
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## Bluetooth Profile Connector for Mx-Suite

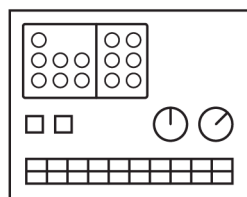
Danlaw's Bluetooth Profile Connector for Mx-Suite is a cost-effective desktop solution that offers efficient functional and stress testing of your infotainment head unit. Danlaw's Bluetooth Profile Connector is an add-on option for Mx-Suite, the industry's leading embedded software test environment. It reduces the time and operational costs of traditional testing efforts and minimizes the schedule required for testing. By using a trusted tool that conforms to standard test methods and reporting formats, suppliers can quickly prepare their components for production release.

## Test System Architecture

Mx-Suite can simulate systems in a vehicle that interact with the infotainment head unit. The test system runs on a PC and simulates peripherals as well as other electronic systems, providing a powerful framework for testing infotainment systems. Developers can perform unit tests with peripheral devices, as well as more complicated stress tests and interaction tests with all the peripherals and communications buses.

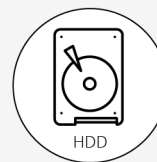


Head Unit

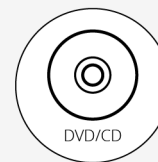


Gateway

### PC-based Infotainment Simulation



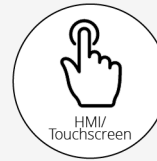
HDD



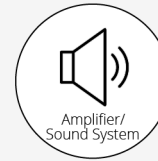
DVD/CD



GPS NAV



HMI/ Touchscreen



Amplifier/ Sound System

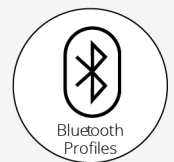


Auxiliary Cameras

- Bluetooth
- CAN
- LIN
- MOST
- Ethernet
- Serial



Digital TV

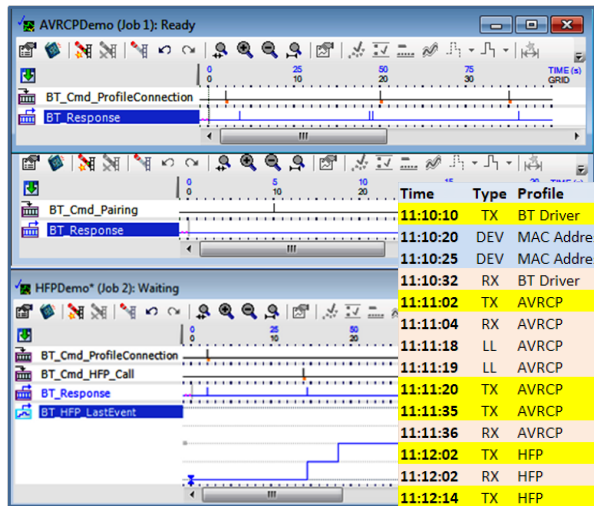


Bluetooth Profiles

# Mx-Suite™ Bluetooth Profile Testing Connector

## Key Feature Support for Bluetooth Profiles

Danlaw's Bluetooth Profile Connector for Mx-Suite simulates peripheral devices and vehicle electronics, and creates repeatable interactions with head units using automotive Bluetooth communications profiles. Graphical behavior diagrams and powerful logging features provide insight into what is happening to your head unit throughout the development and testing effort.



Graphical Behaviors

Detailed Protocol Logs

Time	Type	Profile	Primitive	Signal
11:10:10	TX	BT Driver	Pair Request	BT_Cmd_Pairing
11:10:20	DEV	MAC Address		
11:10:25	DEV	MAC Address		
11:10:32	RX	BT Driver	Paired Response	BT_Response
11:11:02	TX	AVRCP	Connect Profile Request	BT_Cmd_ProfileConnection
11:11:04	RX	AVRCP	Profile Connection Response	BT_Response
11:11:18	LL	AVRCP	User Action FF Event Indication	BT_Response
11:11:19	LL	AVRCP	User Action FF Event Indication	BT_Response
11:11:20	TX	AVRCP	Disconnect Profile Request	BT_Cmd_ProfileConnection
11:11:35	TX	AVRCP	Connect Profile Request	BT_Cmd_ProfileConnection
11:11:36	RX	AVRCP	Profile Connection Response	BT_Response
11:12:02	TX	HFP	Connect Profile Request	BT_Cmd_ProfileConnection
11:12:02	RX	HFP	Connect Profile Response	BT_Response
11:12:14	TX	HFP	Generate Incoming Call Request	BT_Cmd_HFP_Call
11:12:14	RX	HFP	Generate Incoming Call Reponse	BT_Response
11:12:15	LL	HFP	Incoming Call Ringing Event Indication	BT_HFP_LastEvent
11:12:19	LL	HFP	Incoming In-Call Indication	BT_HFP_LastEvent
11:12:34	TX	HFP	Generate Incoming End Call Request	BT_Cmd_ProfileConnection
11:12:34	RX	HFP	Generate Incoming End Call Response	BT_Response
11:12:34	LL	HFP	Idle Call State Event Indication	BT_HFP_LastEvent

## Contact Us

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### Supported Bluetooth Profiles

- Advanced Audio Distribution Profile (A2DP)
- Audio/Video Remote Control Profile (AVRCP)
- Dial-up Networking Profile (DUN)
- Fax Profile (FAX)
- File Transfer Profile (FTP)
- Generic Access Profile (GAP)
- Hands-Free Profile (HFP)
- Headset Profile (HSP)
- Message Access Profile (MAP)
- Object EXchange (OBEX, aka IrOBEX)
- Object Push Profile (OPP)
- Personal Area Networking Profile (PAN)
- Phone Book Access Profile (PBAP, PBA)
- Serial Port Profile (SPP)
- Service Discovery Application Profile (SDAP)

### Installation Platform Requirements

- Microsoft™ Windows XP, SP3
- Windows Vista, SP2
- Windows 7

### Mx-Suite Embedded Software Test Environment Dependency

- Microsoft™ Windows XP, SP3
- Windows Vista, SP2
- Windows 7