



## AAA CENTER FOR DRIVING SAFETY & TECHNOLOGY



2017 INFINITI Q50 PREMIUM AWD

### INFOTAINMENT SYSTEM\* DEMAND RATING

Moderate Demand



The 2017 Infiniti Q50 Premium AWD's InTouch® infotainment system generated an overall moderate demand in the study. Drivers who placed calls and adjusted audio using voice commands or the center stack and console experienced moderate demand. However, using the text messaging system posed very high overall demand.

O Optional ● Standard	Base	Premium	Premium AWD	Signature Edition	Sport	Red Sport 400
Android Auto						
Apple CarPlay						
Mobile App Support	●	●	●	●	●	●
Text Messaging	●	●	●	●	●	●
Navigation		○	○	●	○	○
Touch Screen	●	●	●	●	●	●
Gesture Control						
Heads-Up Display						
Voice Commands	●	●	●	●	●	●
Console Control	●	●	●	●	●	●

### STRENGTHS

- The voice command system allows drivers to quickly place calls and adjust audio while keeping their eyes on the road.
- The customizable menu structure of the upper center stack display is simple and easy to navigate.

### WEAKNESSES

- Sending text messages using the voice system is a very highly demanding and time-consuming process.

### ABOUT THE STUDY

Researchers evaluated 30 new 2017 vehicles' infotainment systems\* to measure overall demand\*\* placed on a driver when using voice command, touch screen and other interactive technologies to make a call, send a text message, tune the radio or program navigation, all while driving down the road.

\* Infotainment System: Vehicle system that combines entertainment and information content

\*\*Overall demand measured: visual (eyes-off road), cognitive (mental) and time-on-task

## VEHICLE OVERVIEW: CONTROLS AND DISPLAYS



VOICE COMMANDS



STEERING WHEEL COMMANDS



INSTRUMENT CLUSTER



CENTER STACK



CENTER CONSOLE

# INFOTAINMENT SYSTEM

The InTouch® In-Vehicle Infotainment System offers the following features:

## CALLING AND DIALING



The Infiniti Q50 Premium AWD's phone system allows drivers to make phone calls using the center console's rotary wheel to control the center stack's two touch screens, and voice commands when a phone is paired. Some limited calling and dialing functionality is also available via steering wheel buttons. Drivers can pair a phone via Bluetooth through the lower center stack display's phone menu while the vehicle is in motion. As a safety measure, the center stack touch screens restrict drivers from accessing the dial pad and phonebook while in motion, but do allow access to a list of 10 favorite contacts. Voice commands must be used to dial phone numbers and access the full list of contacts.

Overall, drivers are met with moderate demand when calling and dialing and are able to keep interactions short. By using the simple and intuitive voice commands, drivers were able to keep their eyes on the road. Upon activation of the voice system, a list of commands is read aloud and displayed on the upper touch screen, providing additional help. Although the system interprets commands quickly and with high accuracy, the system will ask for confirmation if it is unsure of user input, helping to reduce system error.

Two touch screens allow drivers to place calls quickly, although with high levels of visual (eyes-off-road) and cognitive (mental) demand. The high demand may result from the inconsistent menu layout between the two touch screens. Buttons on both touch screens are large and intuitively labeled.

Drivers were also faced with high levels of visual (eyes-off-road) and cognitive (mental) demand when placing calls using the center console's rotary wheel to control the center stack's upper touch screen. Conveniently, placing calls using the rotary wheel requires the exact same steps as when done using touch. The responsiveness of the rotary wheel and shallow phone menu makes calling favorite contacts a quick and easy task.

## TEXT MESSAGING



With a phone paired over Bluetooth, drivers can access text messaging options using a voice command system and touch screens. Fifteen predefined, customizable responses can be sent as new messages using voice commands or the center stack touch screens. Only the first five predefined messages are available while driving to prevent the need to scroll through the long list. The body of a selected text message is not shown while the vehicle is in motion.

Using the system to send new text messages via voice commands and the touch screens resulted in very high overall demand. But drivers were able to keep their visual attention on the road when using the center console rotary wheel to control the upper touch screen.

While the system allows drivers to send only one of the first five of 15 predefined messages using the center stack screens, the process is highly mentally demanding. The menu structures of both touch screens are slightly different, forcing drivers to remember specific pathways for each screen. Drivers can use the well-labeled buttons on each screen to navigate quickly through each menu, whether by touch or the center console's rotary wheel and buttons. However, users were better able to keep their visual attention on the road when using the center console's rotary wheel over touch to access text messaging.

## INFOTAINMENT SYSTEM (CONTINUED)

### TEXT MESSAGING (CONTINUED)

Contrastingly, the process of sending a new text message using voice commands took an exceptionally long time – an average of 54 seconds<sup>♦</sup> – and was very highly mentally demanding on drivers. Unlike the center stack screens, drivers can use voice commands to scroll through and read all of the predefined messages listed across multiple pages. Although the available commands are straightforward and conversational, the system does not understand long streams of information, resulting in a long, multi-step process.

### AUDIO ENTERTAINMENT



The audio entertainment system includes: AM, FM, and XM radio as well as CD and USB input. Bluetooth media and audio applications on a connected phone can be accessed after a separate pairing process from the initial phone pairing is complete. Drivers can access audio using voice commands, steering wheel controls, the center stack and the center console's rotary wheel. Functions are not locked out while driving.

Overall, accessing audio entertainment generated moderate demand.

Drivers were able to quickly tune the radio and make audio selections using voice commands and the touch screens. Users were able to easily change audio with voice commands and keep their eyes on the road. Interactions were kept short due to the fast processing speed of the system and the flexible commands available.

When using touch or the center console to make audio selections on the center stack displays, drivers are met with overall high levels of demand. The different design of the two center stack touch screens combined with their very distinctive menu structures likely were responsible for the high levels of cognitive (mental) and very high visual (eyes-off-road) demand. However, accessing audio entertainment functions using the center console's rotary wheel or center stack touch screens resulted in quick interactions.

<sup>♦</sup> Compared to a recommended maximum of 24 seconds.

## VEHICLE CONTROLS AND DISPLAYS

### VOICE COMMANDS



The Infiniti Q50 includes a voice system that allows drivers to access phone calling, text messaging and audio entertainment. The voice system is activated using the voice recognition button on the steering wheel. An automated female voice speaks at a slow pace and provides drivers with a long description of how to use the voice system, offering suggested commands and indicating when to speak.

### INSTRUMENT CLUSTER



The Q50's instrument cluster, located behind the steering wheel, features a 5-inch full-color LCD display with familiar gauges on either side. Various vehicle information and audio entertainment menus are accessible via buttons on the right side of the steering wheel.

### STEERING WHEEL CONTROLS



The steering wheel contains 11 buttons, two of which also function as switches. Five buttons on the right side give access to the cluster display, and six on the left activate the voice command system, adjust audio and control the upper display in the center stack.

### CENTER STACK



The center stack features two touch screens stacked on top of one another. The lower 7-inch touch screen houses the main menus for phone, audio entertainment, climate control, applications and vehicle settings. Ten physical buttons and one dial below this screen provide access to audio entertainment sources. The upper, slightly indented 8-inch touch screen is accessible via touch, steering wheel buttons, voice commands and the center console rotary wheel. The display has a customizable menu structure so drivers can program shortcuts to the controls of their choice. A total of 13 buttons split on either side of and below the lower touch screen give access to climate control.

### CENTER CONSOLE



The Infiniti Q50 comes equipped with a rotary wheel and three accompanying buttons to make up the center console. Drivers can scroll through and select content on the upper stack display using the rotary wheel, which functions much like a joystick.

## VEHICLE SALES SUMMARY

The 2017 Infiniti Q50 is the 108th best-selling vehicle in the United States, with 44,007 vehicles sold during 2016<sup>1</sup>.

<sup>1</sup> Automotive News at autonews.com; Wall Street Journal at wsj.com – data updated to 2/25/2017.