AAA CENTER FOR DRIVING SAFETY & TECHNOLOGY

2017 LINCOLN MKC PREMIERE

Standard and Optional Features in the 2017 Lincoln MKC

○ Optional
● Standard

	Premiere	Select	Reserve
Android Auto	●	●	●
Apple CarPlay	●	●	●
Mobile App Support	●	●	●
Text Messaging	●	●	●
Navigation		○	●
Touch Screen	●	●	●
Gesture Control			
Heads-Up Display			
Voice Commands	●	●	●
Console Control			

INFOTAINMENT SYSTEM* DEMAND RATING

Moderate Demand

The Lincoln MKC Premiere's SYNC® 3 infotainment system (version 2.0) received an overall moderate demand rating. Most notably, its voice system consistently processed commands quickly and correctly, allowing participants to make calls and adjust audio without delay.

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.

STRENGTHS

- Voice command system is fast and allows a range of intuitive commands to be used.
- Touch screen is responsive and the menu layout is uncluttered.

WEAKNESSES

- All voice command interactions had high visual (eyes-off-road) demand on drivers.
- Voice commands for text messaging required lengthy interaction times and very high cognitive (mental) demand.
- During the on-road and researchers'^ evaluations, the SYNC® 3 system crashed several times, requiring a complete reset.

* Infotainment System: Vehicle system that combines entertainment and information content
**Overall demand measured: visual (eyes-off road), cognitive (mental), and time-on-task
^Researchers with expertise about how humans interact with technology evaluated the usability of the infotainment system in stationary vehicles.

VEHICLE OVERVIEW: CONTROLS AND DISPLAYS

VOICE COMMANDS

STEERING WHEEL COMMANDS

INSTRUMENT CLUSTER

CENTER STACK

INFOTAINMENT SYSTEM

The SYNC® 3 Infotainment System offers the following features:

CALLING AND DIALING

Drivers can pair a phone using the touch screen while the MKC is stopped, but still in drive mode. With a phone paired, they can access phone calls and text messaging. The MKC allows drivers to dial numbers and call contacts via the touch screen or voice commands. Some limited phone functionality is also available through the instrument cluster display and steering wheel buttons.

In the on-road test, participants were able to make phone calls using voice commands quickly, despite very high cognitive (mental) demand. Researchers^ found the voice system accepted a range of intuitive phone-related commands. Additionally, when drivers activate the voice command system, the MKC automatically adjusts the HVAC fans to allow the system to hear drivers' commands.

On-road testing found that using the touch screen allowed drivers to make calls quickly, albeit with very high levels of visual demand. While the touch screen quickly responds to input, the dial pad has small buttons that may be hard for some drivers to press without making errors.

The responsive touch screen and intuitive voice commands allow drivers to initiate phone calls quickly and efficiently, leading to overall moderate levels of demand placed on drivers.

TEXT MESSAGING

Drivers can access text messaging using either voice commands or the touch screen. As a safety measure, the touch screen's messaging menu prevents drivers from reading messages while the vehicle is in motion. However, drivers can still listen to the message by pressing an adjacent microphone button. Drivers can always send a reply to the first message in the phone's inbox by using voice commands and choosing from 15 predefined messages.

Accessing text messages in the MKC provided moderate overall demand on drivers in our study. While the touch screen interactions were quick, with familiar labeling and easy menu structures, there was high visual (eyes-off-road) and very high cognitive (mental) demand. Researchers^ found that allowing the driver to only listen to messages in the inbox kept interactions short while the vehicle was in motion.

Using voice commands also involved high visual (eyes-off-road) and very high cognitive (mental) demand, and tasks took an average of 27 seconds◆ to complete. This is likely attributable to drivers needing to reference the touch screen and scroll through multiple pages of possible replies before sending.

As drivers were limited to only listening to messages in the inbox while the vehicle was in motion, this interaction imposed a moderate demand overall. However, when drivers used voice commands to reply to a message in the inbox, they were met with very high cognitive (mental) demand.

^Researchers with expertise about how humans interact with technology evaluated the usability of the infotainment system in stationary vehicles.
◆Compared to a recommended maximum of 24 seconds

AUDIO ENTERTAINMENT

The MKC's audio entertainment system includes: AM, FM and XM radio; CD; USB; and Bluetooth audio. With a phone paired, it also offers access to Android Auto, Apple CarPlay and a range of music applications if installed on the phone. Drivers can access audio through steering wheel buttons, the instrument cluster display, the center stack and voice commands.

Results from the on-road testing generated moderate demand on drivers for the MKC's audio system, with high cognitive (mental) demand and moderate time required to adjust audio.

On-road data also suggested that using the touch screen to access audio entertainment had very high visual (eyes-off-road) and high cognitive (mental) demand, but drivers were able to keep interactions short due to its simple, uncluttered menu design. Voice commands were better at keeping drivers' eyes on the forward roadway and allowed them to also quickly adjust audio. Researchers^ found the voice system accepted a range of audio-related commands and consistently processed them with accuracy.

Overall, audio tasks placed moderate demand on drivers; they were easy to accomplish quickly, whether by voice commands or the touch screen.

^Researchers with expertise about how humans interact with technology evaluated the usability of the infotainment system in stationary vehicles.

VEHICLE CONTROLS AND DISPLAYS

VOICE COMMANDS

Drivers can press the voice command button on the steering wheel to interact with the infotainment system using voice commands. The voice system gives drivers access to phone, audio, climate and a selection of applications.

INSTRUMENT CLUSTER

The instrument cluster located behind the steering wheel consists of a 10.1-inch LCD screen segmented into four separate sub-screens. Combined, they offer a range of menus, as well as familiar gauges and dials. The instrument cluster also includes hybrid gauges that have an analog outline and digital needle.

STEERING WHEEL CONTROLS

The MKC's steering wheel has 22 buttons, with a direction pad on the left controlling the left side of the cluster display, and a direction pad on the right controlling the center of the cluster display. Lower on the steering wheel, additional left-side buttons give access to cruise control, while additional right-side buttons control voice command, audio entertainment and phone.

CENTER STACK

The MKC's center stack features an 8-inch touch screen that houses the vehicle's main audio, phone, applications, climate and settings menus. Drivers can access its functionality via touch or two dials located below the touch screen. It displays time, outside temperature and a static menu ribbon at all times. Below the dials, the center stack also contains 16 buttons that give access to the MKC's climate control. It offers separate driver and passenger controls, as well as syncing between both.

VEHICLE SALES SUMMARY

The 2017 Lincoln MKC is the 142nd best-selling vehicle in the United States, with 25,562 vehicles sold during 2016[1].

[1] Source: Automotive News at autonews.com; Wall Street Journal at wsj.com – data updated to 2/25/2017.