

STUDY: Research on Drivers' Use of Camera-Based Systems Versus Original Equipment Outside Rearview Mirrors
STERLING IRB ID: 10451-EMazzae
DATE APPROVED BY STERLING IRB: 04/22/2025

Under the Paperwork Reduction Act, a Federal agency may not conduct or sponsor, and a person is not required to respond to a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control number. The OMB Control Number for this information collection is 2127-0756 (expiration date: **MM/DD/YYYY**). The National Highway Traffic Safety Administration (NHTSA) has proposed to perform research involving the collection of information from the public as part of a multi-year effort to learn about drivers' use of camera-based rear visibility systems as compared to their use of traditional vehicle outside mirrors. This research will support NHTSA in evaluating whether to pursue a regulation modification that would permit technologies other than mirrors, such as camera-based visibility systems (sometimes referred to as camera monitor systems (CMS)), for compliance with FMVSS No. 111. The average amount of time to complete the experimental data collection procedures is 215 minutes. All responses to this collection of information are voluntary. If you have comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden send them to Information Collection Clearance Officer, National Highway Traffic Safety Administration, 1200 New Jersey Ave, S.E., Washington, DC, 20590.

Driving Research Study Experimental Data Collection

U.S. Department of Transportation National
Highway Traffic Safety Administration

1. Test Protocol Overview and Training

"Today you will be driving on a multi-lane test track along with two other vehicles, which will be used to create typical highway scenarios that you will need to respond to. You will complete 4 drives consisting of multiple laps around TRC's 7.5-mile oval test track while maneuvering as needed in response to other vehicles in your path.

The test track contains straight sections and curved sections. Your driving will be restricted to Lanes 1 and 2.

Here is a sheet that lists the TRC facility operating rules as well as an image of the test track's numbered lane lines. Please take a moment to read it over and let me know if you have any questions."

Show participant Test Track Rules document with images of the different lanes. "Do you have any questions about the test track rules and numbered lane lines on the test track?"

You will be completing several laps around the test-track. In the curved sections, you will always drive in Lane 1 and will not change lanes. One or both grey vehicles will move into the appropriate lane when approaching a curve to show you which lane you should drive in through the curve.

In the straight sections, you will drive in both Lanes 1 and 2, but one lane will be the primary driving lane which you will start in for that straight section. Each time you approach a straight section of the track, the experimenter will tell you which lane is the primary driving lane, and you should get into that lane. The primary driving lane will change between Lane 1 and Lane 2, depending on the trial.

Your main task is to generally maintain 60 mph; however, if the vehicle in your lane ahead of you slows down on straight sections of the test track, you may slightly slow down if needed to wait for a safe gap before making a lane change. Change lanes only when it feels safe to do so. Pass the slower vehicle when ready and return to the primary lane when safe. Please do not make any aggressive or unsafe maneuvers during the drive. You will receive practice on this before we start the main trials.

STUDY: Research on Drivers' Use of Camera-Based Systems Versus Original Equipment Outside Rearview Mirrors

STERLING IRB ID: 10451-EMazzae

DATE APPROVED BY STERLING IRB: 04/22/2025

While driving on the test track, other traffic will be present, including vehicles that will occasionally stop in Lane 0. The other vehicles on the test track may also be using their hazard lights. This does not mean there is a problem, and you should continue unless you are given other instructions by the experimenter. We will not be driving or stopping in Lane 0. You should drive as normally as possible, watching for other traffic, while still maintaining safety and driving as you are comfortable. Drive as if this is a regular multi-lane highway, except you will only be driving in two of the lanes (Lanes 1 and 2).

This means that if the primary lane is Lane 2 and you change lanes to avoid a slower vehicle ahead, you are permitted to pass on the right in Lane 1 and then return to Lane 2.

An experimenter will be in one of the grey vehicles monitoring the data collection computer and will have an open phone call for communication with you. You will hear the experimenter through the speaker attached to the sun visor. If you feel confused or don't know what you are supposed to do, just ask. However, please do not converse with the experimenter unnecessarily; we want your driving to be as though there is no other person to distract you. If there is some sort of emergency or if the call drops out, you should follow the grey vehicle in front of you. A hand-held radio that has one-way communication is in the vehicle for use if the wireless call drops. Please listen to the experimenters' instructions, please do not pick up the radio to respond.

After each drive, you will be asked to answer some questions about specific features of the vehicle you drove.

To summarize: In each trial, you will drive the vehicle at a consistent speed and pass any slower moving vehicles in the straight road sections when it is safe to do so. You are allowed to slow slightly to wait for a safe opportunity to change lanes. You will only be driving in Lanes 1 and 2 for the duration of the study. Please remember, safe driving will always be your highest priority. Do you have any questions?

If you have a phone with you, please silence it or turn it off for the duration of the drive."

"Please wear the seat belt. Make sure you can comfortably reach the brake and accelerator pedals, and the steering wheel. Do you have the seat adjusted the way you like it?" **Check proper seat adjustment, and ensure they are wearing the seat belt.**

"Also, go ahead and adjust the inside rearview mirror."

If mirror trial: "Next, we will have you adjust the outside rearview mirrors to match this image [**hold up image**]."

If CMS trial: "This is the camera-based display that you will be using for this drive [**point to CMS displays**]. You will use these displays in place of mirrors for the duration of this drive."