OMB Control Number: 2127-0756
Expiration Date:

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 survey is 10 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.

Post-drive Questionnaire: Drive with Camera-Based Visibility System

Answer the following questions thinking about the rear visibility technology that you just experienced. For each question, please respond using the rating of a scale of 1 to 7, in which 1 = Strongly Disagree and 7 = Strongly Agree.

1. It was easy to use the camera-based system while driving.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

2. I was comfortable with the physical location of the camera-based displays.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

3. The size of the visible area (field of view) in the camera-based display images was acceptable.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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3a. If the size of the visible area (field of view) was not acceptable, what was wrong with it, (e.g., was it too large, too small, showing the wrong area)?

1	2	3	4	5	6	7
Far too small	Moderately too small	Slightly too small	Neither too small nor too large	Slightly too large	Moderately too large	Far too large

4. It was easy to incorporate the camera-based displays into my normal driving eye glance patterns.

1	2	3	4	5	6	7
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

5. The image displayed (image quality) by the camera-based system was clear.

1	2	3	4	5	6	7
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

6. Objects displayed by the camera-based system appeared distorted.

1	2	3	4	5	6	7
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

7. I could easily visually focus on objects displayed by the camera-based system.

1	2	3	4	5	6	7
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

8. I could *easily* discern other vehicles within the cameras' displayed images.

1	2	3	4	5	6	7
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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9. I was comfortable with the brightness of the camera-based system's visual display.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

10. Outside light conditions negatively affected the quality of the image displayed by the camera- based system.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

11. Environmental conditions (e.g., sun, clouds) made it difficult to use the camera-based system.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

12. I felt comfortable using the camera-based system to make lane changes to the left.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

13. I felt comfortable using the camera-based system to make lane changes to the right.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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14. I could accurately judge the distance to objects behind me on the left using the camera-based system.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

15. I could accurately judge the distance to objects behind me on the right using the camera-based system.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

16. I felt safe using the camera-based system when changing lanes.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

17. I felt as safe using the camera-based system as I do with mirrors when changing lanes.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

18. I would like to have a camera-based system with this field of view on my personal vehicle.

1	2	3	4	5	6	7
○	○	○	○	○	○	○
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree