

STUDY: Drivers' Use of Camera-Based Rear Visibility Systems Versus Traditional Mirrors
 STERLING IRB ID: 7786-EMazzae
 DATE OF IRB REVIEW: 02/03/20

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-NEW (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 20 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-Monitoring 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
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

3. The physical size of the cameras was acceptable.

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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Agree

3a. If the size of the camera-based displays was not acceptable, what was wrong with it (e.g., was it too large or too small)?

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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. The size of the field of view displayed by the camera-based system was acceptable.

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

4a. If the size of the field of view was not acceptable, what was wrong with it (e.g., was it too large or too small)?

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Far too small	Moderately too small	Slightly too small	Neither too small nor too large	Slightly too large	Moderately too large	Far too large

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

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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Agree

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

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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 left using the camera-based system.

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

16. 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
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree

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

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Moderately Agree	Strongly Agree