



## **DEPARTMENT OF TRANSPORTATION**

### **National Highway Traffic Safety Administration**

**[Docket No. NHTSA-2025-0056]**

#### **Agency Information Collection Activities; Notice and Request for Comment; Driver Monitoring System (DMS) in SAE L2 Driver Support Systems**

**AGENCY:** National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

**ACTION:** Notice and request for comments on a new information collection.

**SUMMARY:** NHTSA invites public comments about the Agency's intention to request approval from the Office of Management and Budget (OMB) for a new information collection request. Before a Federal agency can collect certain information from the public, it must receive approval from OMB. Under procedures established by the Paperwork Reduction Act of 1995, before seeking OMB approval, Federal agencies must solicit public comment on proposed collections of information, including extensions and reinstatement of previously approved collections. This document describes a collection of information request titled "Driver Monitoring System (DMS) in SAE L2 Driver Support Systems," for which NHTSA intends to seek OMB approval to allow NHTSA to conduct a one-time study.

**DATES:** Comments must be submitted on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may submit comments identified by the Docket No. NHTSA-2025-0056 through any of the following methods:

- Electronic submissions: Go to the Federal eRulemaking Portal at <http://www.regulations.gov>. Follow the online instructions for submitting comments.
- Fax: (202) 493-2251.

- Mail or Hand Delivery: Docket Management, U.S. Department of Transportation, 1200 New Jersey Avenue SE, West Building, Room W12-140, Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except on Federal holidays. To be sure someone is there to help you, please call (202) 366-9322 before coming.

*Instructions:* All submissions must include the agency name and docket number for this notice. Note that all comments received will be posted without change to <http://www.regulations.gov>, including any personal information provided. Please see the Privacy Act heading below.

*Privacy Act:* Anyone is able to search the electronic form of all comments received into any of the Agency's dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the *Federal Register* published on April 11, 2000 (65 FR 19477-78) or you may visit <https://www.transportation.gov/privacy>.

*Docket:* For access to the docket to read background documents or comments received, go to <http://www.regulations.gov> or the street address listed above. Follow the online instructions for accessing the dockets via internet.

**FOR FURTHER INFORMATION CONTACT:** For additional information or access to background documents, contact Jeff Dressel, Office of Vehicle Safety Research (NSR-310), (202)-493-0492, National Highway Traffic Safety Administration, W46-439, U.S. Department of Transportation, 1200 New Jersey Avenue, SE, Washington, DC 20590.

**SUPPLEMENTARY INFORMATION:** Under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.), before an agency submits a proposed collection of information to OMB for approval, it must first publish a document in the Federal Register providing a 60-day comment period and otherwise consult with members of the public and affected agencies concerning each proposed collection of information. The OMB has promulgated regulations describing what must be included in such a document. Under OMB's regulation [at 5 CFR 1320.8(d)], an agency must

ask for public comment on the following: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility; (b) the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used; (c) how to enhance the quality, utility, and clarity of the information to be collected; and (d) how to minimize the burden of the collection of information on those who are to respond, including the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses. In compliance with these requirements, NHTSA asks for public comments on the following proposed collection of information for which the agency is seeking approval from OMB.

*Title:* Driver Monitoring System (DMS) in SAE L2 Driver Support Systems

*OMB Control Number:* New

*Form Number(s):* NHTSA Forms 1830, 1831, 1832, 1833, 1834, 1835, 1836, 1837, 1838, and 1839.

*Type of Request:* Approval of a new information collection request

*Type of Review Requested:* Regular

*Requested Expiration Date of Approval:* 3 years from date of approval

*Summary of the Collection of Information:* This information collection request (ICR) is to request approval to conduct 14 new voluntary information collections as part of a one-time research study of drivers' interactions with SAE Level 2 (L2) systems (i.e., provide longitudinal [adaptive cruise control] and lateral [lane centering] control of the vehicle) equipped with driver monitoring systems (DMSs). The National Highway Traffic Safety Administration (NHTSA) of the U.S. Department of Transportation is seeking to conduct the research study involving up to 264 licensed drivers aged 18 and above from Phoenix, Arizona and across the US. There are two portions of the study: one portion of the information collection will be from focus groups, and

the other portion of the information collection will be from on-road driving with the L2 DMS. For the focus group portion of the study, the information collections involve reporting and include (1) an eligibility questionnaire to be administered to up to 500 potential research respondents; (2) an informed consent form to be administered to up to 192 research participants; and (3) a total of 12 virtual focus group sessions with 12 respondents per focus group. For the on-road portion, the information collections involve reporting and include (1) an eligibility questionnaire to be administered to up to 500 potential research respondents; (2) an informed consent form to be administered to up to 160 research participants. The research participants will be asked to complete the following type of information collection: (3) a risky driving questionnaire; (4) a grip strength assessment; (5) eye tracker calibration and setup; (6) a vehicle familiarization and training briefing; (7) a planned drive; (8) a trust questionnaire; (9) a system acceptance questionnaire; (10) a system understanding questionnaire; and (11) a final debrief. Respondents are not required to participate in this study; it is wholly voluntary. The collection is considered a reporting collection using focus groups, multiple questionnaires, a grip strength measurement, and one on-road in-study drive. The selected respondents will be trained on one vehicle followed by the in-study drive. The questionnaires will be administered upon enrollment in the study, during the focus groups, prior to the in-study drive, and upon completion of the study overall. Each of these collection components will only be collected once and the full study will only be completed once. The focus group portion of the data collection will probe respondents' opinions via discussion and a questionnaire regarding DMS features, capabilities, strengths/weaknesses, uses/strategies that deviate from intended purposes, reactions to human-machine interface (HMI) strategies, and changes in their behavior associated with DMSs. For the on-road driving portion of the study, respondents' naturalistic driving data will be collected in the study-provided vehicles using GoPro cameras and a device to measure where drivers are looking (eye tracker). The questionnaires will assess respondents' risky driving behavior and system trust, acceptance, and understanding.

NHTSA will use the information to produce a technical report that will provide summary figures and tables, as well as the results of data analysis of the information. No identifying information or individual responses connected to identifiers will be reported. The technical report will be shared across the Department of Transportation, and members of the general public will have access to the aggregated information when the final report is published. The report may also be of interest to vehicle manufacturers and component suppliers (e.g., developers of DMSs). This project involves approval by an institutional review board, which the contractor has obtained. This collection will be used to identify how the DMS ensures active engagement when L2 automation is activated, strengths and weaknesses of different DMS approaches and mitigation strategies when driver behaviors deviate from the intended purpose of the system, how DMSs are implemented to minimize misuse and abuse, and how DMSs support compliant driver behaviors. For the focus groups, the total annual burden is estimated to be 155 hours. For the on-road portion of the study, the total annual burden is estimated to be 163 hours.

*Description of the Need for the Information and Proposed Use of the Information:* Vehicles equipped with Advanced Driver Assistance Systems (ADAS) have the potential to greatly decrease crashes and save lives. However, a safety concern with some such vehicles is the changing role of the driver from being an active operator to being a passive supervisor. With SAE International's definition of Level 2 (L2) automated driving, acceleration, braking, and steering support features are available to the driver; however, drivers are supposed to remain alert, attentive, and engaged with the driving task and external conditions at all times, but they do not always do so. Disengagement from the active driving task can result in the potential loss of system state information, environmental awareness, and driving context that is available to an engaged driver (Campbell et al., 2018). Such a loss of active engagement could lead to drivers becoming distracted with secondary tasks, reducing the frequency of their glances at relevant portions of the roadway, or even sleeping. Disengaged drivers pose a safety concern because they may be unprepared to resume vehicle control when needed, even though they are still

responsible for taking over the L2 Dynamic Driving Task (DDT) if the partial driving automation functions cease (SAE J3016, 2021). This is not a theoretical problem, as crashes and fatalities have already occurred in which driver disengagement under L2 driving was a likely contributing factor.<sup>1</sup>

In response to these concerns and incidents, automakers have included driver monitoring systems (DMSs) as part of their L2 offerings. DMSs are part of a broader approach to attention management and are designed to detect when the driver is disengaged from the driving task while using L2 driving automation (Mueller et al., 2021). Current implementations of L2 DMSs are designed to infer driver state and include both vehicle (e.g., speed, road type) and trip-level data (time of date, time on road, weather), as well as incorporate strategies that provide more direct measures of driver state by detecting whether or not the driver's hands are on the wheel, or detecting (using cameras) whether or not the driver is attentive to the roadway.<sup>2</sup> Critically, assessing the efficacy of a particular approach to implementing a DMS must be considered holistically with respect to the larger L2 ecosystem, including considerations of the driving environment and conditions under which L2 driving can take place, design features of the L2 technology itself (including the HMI), mitigation strategies if disengagement is detected, and known methods that drivers use to circumvent the DMS.

This data collection will directly support NHTSA's research efforts regarding 1) DMS implementation strategies to ensure active engagement by drivers, 2) DMS approaches to address driver behaviors that deviate from the intended purpose of the system including misuse and abuse, and 3) the relationships between the underlying L2 technology, the supporting DMS technology and the HMI that is intended to aid and encourage proper driving behavior and potentially discourage misuse or abuse. If the proposed study is not conducted, NHTSA will

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<sup>1</sup> E.g., see: 'Inadequate Safety Culture' Contributed to Uber Automated Test Vehicle Crash - NTSB Calls for Federal Review Process for Automated Vehicle Testing on Public Roads'

<sup>2</sup> These L2 DMSs are distinct from DMSs that do not support L2 operation, and measure driver state (e.g., fatigue, drowsiness, impairment) more generally.

have unanswered questions regarding the interrelationships among the broader L2/DMS/HMI ecosystem, and how well DMSs in SAE L2 implement distraction detection strategies, detect unintended uses of the system, and are efficacious under known use cases involving drivers trying to circumvent the DMS.

*Affected Public:* For the focus group portion of the study, the potential respondent universe is comprised of all residents of the United States who are between the ages of 18 and 64 and for the on-road driving portion of the study, the potential respondent universe is comprised of study volunteers in the greater Phoenix, Arizona area who are between the ages of 18 and 64.

*Estimated Number of Respondents:* For the focus group portion of the study, the study anticipates screening 500 potential participants to obtain the target sample of 144 research participants who meet study inclusion criteria and fully participate in the study. While the goal is 144 final participants, the research team will ensure eligibility and interest of 192 participants to account for potential attrition. However, while NHTSA estimates 500 potential research participants screened and up to 192 in the research study, NHTSA's burden estimates are based on the average number of respondents to each information collection in each year of the three-year project. Accordingly, NHTSA has estimated that, on average, there are 167 respondents to the eligibility questionnaire ( $500 \text{ potential participants} \div 3 \text{ years}$ ) and 64 respondents to each of the other information collections ( $192 \text{ research participants} \div 3 \text{ years}$ ) annually. As such, we anticipate conducting a maximum of 500 individual eligibility interviews to recruit the necessary participants for the information collection.

For the on-road driving portion of the study, the study anticipates screening 500 potential participants to obtain the target sample of 120 research participants who meet study inclusion criteria and fully participate in the study. While the goal is 120 final participants, the research team will ensure eligibility and interest of 160 participants to account for potential attrition. However, while NHTSA estimates 500 potential research participants screened, and up to 160 in the research study, NHTSA's burden estimates are based on the average number of respondents

for each information collection in each year of the three-year project. Accordingly, NHTSA has estimated that, on average, there are 167 respondents to the eligibility questionnaire (500 potential participants ÷ 3 years) and 53 respondents to each of the other information collections (160 research participants ÷ 3 years) annually.

*Frequency:* This study is a one-time information collection.

*Estimated Total Annual Burden Hours:* The estimated annual burden is 341 hours (155 hours for focus groups and 186 for on-road portion).

The estimated total burden is 946 hours (461 total hours for focus groups and 485 total hours for on-road portion). As stated above, the research team will ensure eligibility and interest of 192 participants for the focus groups portion of the study and 160 participants for the on-road portion of the study. This estimate includes 125 hours for 500 potential participants to complete the initial screening for the focus groups and the on-road driving portions of the study. The burden estimate for the focus groups portion of the study includes 32 hours for the consented participants and 304 hours for the enrolled participants to complete all focus group study tasks. The burden estimate for the on-road portion of the study includes 32 hours for the 160 consented participants and 328 hours for the enrolled participants to complete all study tasks above and beyond the driving they would normally complete during the naturalistic driving observation periods. The on-road driving study tasks include a 12-minute introduction procedure, a 10-minute questionnaire that assesses the participants' risky driving behavior in the past 12 months, a 3-minute assessment of the participants' grip strength, a 15-minute eye tracker setup and calibration, a 10-minute vehicle familiarization and training briefing, one 55-minute planned drive, an 8-minute questionnaire addressing trust, an 8-minute acceptance questionnaire, a 10-minute system understanding questionnaire, and a 4-minute final debriefing. The total burden is the sum of both the focus groups and the on-road driving activities and includes screening, consenting, and completing all of the focus groups and on-road driving activities for a total estimate of 946 hours.

To calculate the opportunity cost to participants in this study, NHTSA used the average (mean) hourly earnings from employers in all industry sectors in the State of Arizona, which the Bureau of Labor Statistics lists at \$30.31 per hour.<sup>3</sup> NHTSA estimates that the total annual opportunity cost is approximately \$9,540.46 (\$4,660.42 for the focus groups portion of the study, and \$4880.04 for the on-road driving portion of the study). The details are presented in Tables 1 through 4 below.

*Table 1: Total Study Burden Hours– Focus Groups*

<b>Form No.</b>	<b>Information Collection</b>	<b>Number of Respondents</b>	<b>Time per Response (minutes)</b>	<b>Frequency of Response</b>	<b>Total Burden Hours</b>
1830	Eligibility Questionnaire	500	15	1	<b>125</b>
1831	Informed Consent	192	10	1	<b>32</b>
1832	Focus Group Study	192	85	1	<b>272</b>
N/A	Debriefing	192	10	1	<b>32</b>
	<b>TOTAL</b>				<b>461</b>

*Table 2: Annual Burden Estimates – Focus Groups*

<b>Form No.</b>	<b>Information Collection</b>	<b>Number of Respondents</b>	<b>Time per Response (minutes)</b>	<b>Opportunity Cost per Response</b>	<b>Frequency of Response</b>	<b>Annual Burden Hours</b>	<b>Annual Opportunity Costs</b>
1830	Eligibility Questionnaire	167	15	\$7.58	1	41.75 hours <b>42 hours</b>	\$1265.86
1831	Informed Consent	64	10	\$5.05	1	10.67 hours <b>11 hours</b>	\$323.20
1832	Focus Group Study	64	85	\$42.94	1	90.67 hours <b>91 hours</b>	\$2,748.16
N/A	Debriefing	64	10	\$5.05	1	10.67 hours <b>11 hours</b>	\$323.20
	<b>Annual</b>					<b>155 hours</b>	\$4,660.42

<sup>3</sup> US Department of Labor, Bureau of Labor and Statistics, May 2023 State Occupational Employment and Wage Estimates Arizona: <https://www.bls.gov/oes/tables.htm#00-0000>

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Table 3: Total Study Burden Hours – On-Road Driving

Form No.	Information Collection	Number of Respondents	Time per Response (minutes)	Frequency of Response	Total Burden Hours
1833	Eligibility Questionnaire	500	15	1	125
1834	Informed Consent	160	12	1	32
1835	Perception of Risk/Frequency of Risky Behavior Questionnaire	160	10	1	26.67
1836	Grip Strength Measurement	160	3	1	8
N/A	Study Drive (Eye Tracker Setup & Calibration, Vehicle Familiarization/Training, Study Drive)	160	80	1	213.33
1837	Trust in Automated Systems Scale	160	8	1	21.33
1838	Onboard Monitoring System Acceptance Survey	160	8	1	21.33
1839	System Understanding Questionnaire	160	10	1	26.67
N/A	Debriefing	160	4	1	10.67
	<b>TOTAL</b>				<b>485</b>

Table 4: Annual Burden Estimates – On-Road Driving

Form No.	Information Collection	Number of Respondents	Time per Response (minutes)	Opportunity Cost per Response	Frequency of Response	Annual Burden Hours	Annual Opportunity Costs
1833	Eligibility Questionnaire	167	15	\$7.58	1	41.75 hours <b>42 hours</b>	\$1,265.86
1834	Informed Consent	53	12	\$6.06	1	10.60 hours <b>11 hours</b>	\$321.29

1835	Perception of Risk/Frequency of Risky Behavior Questionnaire	53	10	\$5.05	1	8.83 hours <b>9 hours</b>	\$267.65
1836	Grip Strength Measurement	53	3	\$1.52	1	2.65 hours <b>3 hours</b>	\$80.56
N/A	Study Drive (Eye Tracker Setup & Calibration, Vehicle Familiarization/ Training, Study Drive)	53	80	\$40.41	1	93.63 hours <b>94 hours</b>	\$2141.73
1837	Trust in Automated Systems Scale	53	8	\$4.04	1	7.06 hours <b>7 hours</b>	\$214.12
1838	Onboard Monitoring System Acceptance Survey	53	8	\$4.04	1	7.06 hours <b>7 hours</b>	\$214.12
1839	System Understanding Questionnaire	53	10	\$5.05	1	8.83 hours <b>9 hours</b>	\$267.65
N/A	Debriefing	53	4	\$2.02	1	3.53 hours <b>4 hours</b>	\$107.06
	<b>Annual Estimates</b>					<b>186 hours</b>	\$4,880.04

*Estimated Total Annual Burden Cost: \$0.*

NHTSA estimates the annual burden cost to participants to be \$0.

**Public Comments Invited:** You are asked to comment on any aspects of this information collection, including (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Department, including whether the information will have practical utility; (b) the accuracy of the Department's estimate of the burden of the proposed information collection; (c) ways to enhance the quality, utility and clarity of the

information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including the use of automated collection techniques or other forms of information technology.

**Authority:** The Paperwork Reduction Act of 1995; 44 U.S.C. Chapter 35, as amended; 49 CFR 1.49; and DOT Order 1351.29A.

**Cem Hatipoglu,**

*Associate Administrator,*

*Vehicle Safety Research.*

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