DEPARTM

National Highway Traffic Safety Administration

[Docket No. NHTSA-2025-0056]

Agency Information Collection Activities; Submission to the Office of Management and Budget for Review and Approval; 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 request for approval of a new information collection.

SUMMARY: In compliance with the Paperwork Reduction Act of 1995 (PRA), this notice announces that the Information Collection Request (ICR) summarized below will be submitted to the Office of Management and Budget (OMB) for review and approval. The ICR describes the nature of the information collection and its expected burden. This ICR is for a new collection of information for which NHTSA intends to seek OMB approval for a one-time voluntary experiment on drivers' interactions with SAE Level 2 (L2) systems equipped with Driver Monitoring Systems (DMS). A Federal Register notice with a 60-day comment period soliciting public comments on the following information collection was published on August 5, 2025 (Docket No. NHTSA-2025-0056), and NHTSA received one comment.

DATES: Comments must be submitted on or before [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Written comments and recommendations for the proposed information collection, including suggestions for reducing burden, should be submitted to the Office of Management and Budget at www.reginfo.gov/public/do/PRAMain. To find this particular

information collection, select "Currently under Review – Open for Public Comment" or use the search function.

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 PRA (44 U.S.C. 3501 *et seq.*), a Federal agency must receive approval from the Office of Management and Budget (OMB) before it collects certain information from the public, and a person is not required to respond to a collection of information by a Federal agency unless the collection displays a valid OMB control number. In compliance with these requirements, this notice announces that the following information collection request will be submitted OMB

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

OMB Control Number: New

Form Number(s):

There are multiple forms for this new information collection, including:

- NHTSA Form 1830: Eligibility Questionnaire—Focus Groups
- NHTSA Form 1831: Informed Consent—Focus Groups
- NHTSA Form 1832: Outline—Focus Groups
- NHTSA Form 1833: Eligibility Questionnaire—On-Road Study
- NHTSA Form 1834: Informed Consent—On-Road Study
- NHTSA Form 1835: Perception of Risk
- NHTSA Form 1836: Grip Strength Measurement
- NHTSA Form 1837: Trust in Automated Systems
- NHTSA Form 1838: Onboard Monitoring System Acceptance Survey
- NHTSA Form 1839: System Understanding Questionnaire

- NHTSA Form 2189 – Study Drive Form
- NHTSA Form 2190 – Debriefing Form

Type of Request: Approval of a new information collection request

Type of Review Requested: Regular

Requested Expiration Date of Approval: Three years from date of approval

Summary of the Collection of Information: This is a new information collection request (ICR) seeking 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 U.S. 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 types of information collections: (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 would 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 from 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.

Description of the Need for the Information and Proposed Use of the Information: Vehicles equipped with Advanced Driver Assistance Systems have the potential to 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 their glances to 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.[1]

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

[1] E.g., see: "inadequate safety culture created conditions . . . that contributed to the circumstances of the crash . . . ." National Transportation Safety Board, Collision Between Vehicle Controlled by Developmental Automated Driving System and Pedestrian, viii. (Nov. 19, 2019), available at https://www.ntsb.gov/investigations/accidentreports/reports/har1903.pdf

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.[2] 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 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.

60-Day Notice: NHTSA received one public comment from the Alliance for Automotive Innovation that included several statements in response to the 60-day notice. Each of these is addressed below.

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

Alliance for Automotive Innovation voiced concern that "the pace of innovation by manufacturers may limit the utility of the agency's findings, depending on how quickly the research can be completed."

NHTSA appreciates and understands the rationale behind this recommendation and will make efforts to ensure the research will reflect the DMS approaches taken by manufacturers in the most recent model years available and will be conducted as quickly as feasible.

Alliance for Automotive Innovation voiced concern that the scope and duration of the naturalistic driving portion of the study may reduce the overall usefulness of the data. Alliance for Automotive innovation also voiced concern that "the proposed 55-minute planned drive may not be sufficient to determine how drivers interact with L2 systems and results could be potentially misleading due to the potential for measured responses (*e.g., glance behaviors*) that differ from those that the same driver might exhibit if they had more time and exposure to the system."

NHTSA will ensure that limitations of this study will be documented during the conduct of the research project. NHTSA clarifies that participants in the on-road portion of the study will include individuals with L2 experience. Specifically, 50% *must not* have driving experience with the L2 ADS driver support features that their test vehicle is equipped with, nor previous driving experience with the test vehicle model, and 50% *must* have driving experience with the L2 ADS driver support features that their test vehicle is equipped with, or previous driving experience with the test vehicle model. This design element may not have been apparent in the 60-day notice. NHTSA believes this participant sampling strategy will provide insights to both novice and experienced drivers of vehicles equipped with SAE L2 capabilities, as well as DMS. In addition, while the 60-day notice described as a 55-minute drive for the on-road experiment, this detail is preliminary and NHTSA notes that the duration of the drive will be further considered during upcoming detailed study planning and consider both study objectives, procedural feasibility, and study budget. Moreover, NHTSA

will further emphasize focus group probing questions to seek insights and data from drivers who are more experienced with SAE L2 system interactions and with DMS.

Alliance for Automotive Innovation voiced concern that "surveying consumers about their normal driving behavior (*i.e. when not supported by a L2 system*) may not provide an accurate baseline for comparing their driving behavior when the L2 system is active."

NHTSA appreciates this comment and concurs. NHTSA will ensure findings from the survey are appropriately qualified. In addition, NHTSA will further emphasize focus group probing questions to seek insights and data from drivers more experienced with L2 system interactions and with DMS.

Alliance for Automotive Innovation voiced concern that "it may not be possible to discern whether the observed results are attributable to DMS or whether they are influenced by other participant-specific attributes or vehicle and environmental factors."

NHTSA appreciates this comment and will ensure that relevant DMS features, other participant-specific attributes, and other vehicle and environmental factors will be documented and – as appropriate – included in the analyses performed as part of this research.

Alliance for Automotive Innovation stated that "follow on research, with more extensive on-road evaluations, will likely be needed to develop a comprehensive understanding of long-term driver behaviors."

NHTSA concurs and clarifies that the study is not intended to provide a comprehensive understanding of long-term driver behaviors with DMS. NHTSA believes the study will provide valuable insight to novice DMS and L2 system users' initial experiences with such systems. Moreover, NHTSA will further emphasize focus group probing questions to seek insights and data from drivers more experienced with L2 system interactions and with DMS.

Alliance for Automotive Innovation voiced concern that "while DMS may share some attributes across vehicle manufacturers, systems may vary based on the design characteristics and operational capabilities of the L2 systems they are designed to support. […] In other words, it may not be possible to directly compare DMS systems in all cases."

NHTSA appreciates this comment and concurs. Direct comparison of DMS without regard to the L2 systems they may support will not be expressed as a result of this study. NHTSA will take steps to ensure reported findings are couched in the context of differing L2 system designs and capabilities.

Alliance for Automotive Innovation voiced concern that the posted research plan offers "no indication about the extent to which the agency plans to control for differences in the environmental conditions that drivers experience under real-world conditions, including nighttime evaluations." The Alliance requested that NHTSA consider these factors when conducting its research.

NHTSA clarifies that the study does not intend to control for all differences in the environmental conditions that drivers experience under real-world conditions, such as nighttime evaluations. Relevant environmental conditions that drivers experience in the study (e.g., traffic levels) will be noted during data collection, and the absence of exhaustive environmental conditions tested will be listed in a section of the report describing limitations. Furthermore, data collection will not be conducted in conditions of greater than minimal precipitation of any form to ensure that L2 operation is equally available to all participants throughout the planned drive and that road conditions do not affect participants' willingness to engage L2. NHTSA believes the study will provide valuable insight to drivers' DMS and L2 system interactions under nominal conditions.

Alliance for Automotive Innovation expressed that the agency should also specify the extent to which the aforementioned detection methods will factor into its final vehicle make and model selection.

The detection methods and mechanisms mentioned in the comment (i.e., camera-based, steering wheel sensor-based, or hybrid systems, and underlying capabilities and technologies) will be important considerations for this study. Descriptions of these systems for the vehicles included in the study will be documented during the conduct of the research project, and described in the final report.

After thoughtful consideration of the above comments and the submission from Alliance for Automotive Innovation on the whole, NHTSA will further emphasize the focus group probing questions, and clarifies the recruitment of novice and experienced participants in the on-road portion of the study, to seek insights and data from drivers more experienced with L2 system interactions and with DMS, and will take steps to ensure reported findings are couched in the context of differing L2 system designs and capabilities. These modifications yield no changes in the participant burden estimate from that which was published in the 60-day notice.

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 potential participants ÷ 3 years) and 64 respondents to each of the other information collections (192 research participants ÷ 3 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 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 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 Number of Responses: This is a one-time data collection with 117 complete responses planned (i.e., one response per respondent; 64 responses to the focus group activity, 53 responses to the on-road driving activity).

Estimated Total Annual Burden Hours: The estimated annual burden is 318 hours (155 hours for focus groups and 163 for the 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 $31.61 per hour.[3] NHTSA estimates that the total annual opportunity cost is approximately $10,779.01 ($4,899.55 for the focus groups portion of the study, and $5,879.46 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

Form No.	Information Collection	Number of Respondents	Time per Response (minutes)	Frequency of Response	Total Burden Hours

[3] US Department of Labor, Bureau of Labor and Statistics, May 2024 State Occupational Employment and Wage Estimates Arizona: https://www.bls.gov/oes/tables.htm#00-0000

1830	Eligibility Questionnaire	500	15	1	**125**
1831	Informed Consent	192	10	1	**32**
1832	Focus Group Study	192	85	1	**272**
2190	Debriefing	192	10	1	**32**
	TOTAL				**461**

Table 2

Annual Burden Estimates—Focus Groups

Form No.	Information Collection	Number of Respondents	Time per Response (minutes)	Opportunity Cost per Response	Frequency of Response	Annual Burden Hours	Annual Opportunity Costs
1830	Eligibility Questionnaire	167	15	$7.90	1	41.75 hours **42 hours**	$1,327.62
1831	Informed Consent	64	10	$5.27	1	10.67 hours **11 hours**	$347.71
1832	Focus Group Study	64	85	$44.78	1	90.67 hours **91 hours**	$2,876.51
2190	Debriefing	64	10	$5.27	1	10.67 hours **11 hours**	$347.71
	Annual Estimates					**155 hours**	$4,889.55

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**
2190	Debriefing	160	4	1	**10.67**
	TOTAL				**485**

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	$7.90	1	41.75 hours **42 hours**	$1,327.62
1834	Informed Consent	53	12	$6.32	1	10.60 hours **11 hours**	$347.71
1835	Perception of Risk/Frequency of Risky Behavior Questionnaire	53	10	$5.27	1	8.83 hours **9 hours**	$284.49
1836	Grip Strength Measurement	53	3	$1.58	1	2.65 hours **3 hours**	$94.83
2189	Study Drive (Eye Tracker Setup & Calibration, Vehicle Familiarization/ Training, Study Drive	53	80	$55.84	1	70.6 hours **71 hours**	$2,971.34
1837	Trust in Automated Systems Scale	53	8	$4.21	1	7.06 hours **7 hours**	$221.27
1838	Onboard Monitoring System Acceptance Survey	53	8	$4.21	1	7.06 hours **7 hours**	$221.27
1839	System Understanding Questionnaire	53	10	$5.27	1	8.83 hours **9 hours**	$284.49
2190	Debriefing	53	4	$2.11	1	3.53 hours **4 hours**	$126.44
	Annual Estimates					**163 hours**	$5,879.46

Estimated Total Annual Burden Cost: $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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