

CLIENT ALERT

NHTSA Continues its Focus on Advancing Autonomous Vehicle Technologies

Jun.25.2020

On June 15, the National Highway Traffic Safety Administration (NHTSA) announced its new Automated Vehicle Transparency and Engagement for Safe Testing initiative (AV TEST), a new online log that will track the status of Autonomous Vehicles' (AVs) public roadway efforts nationwide. Specifically, the log will track submissions of state and federal AV activity as well as AV developer testing activities.

Participation in the AV TEST log will be voluntary, but open to all stakeholders involved in the safe development and testing of automated driving system (ADS) vehicles. Automotive industry participants may include developers, manufacturers, suppliers, operators, and testers. Thus far several AV companies have signed-up to use the new AV TEST log, including Beep, Cruise, Fiat Chrysler Automobiles, Local Motors, Navya, Nuro, Toyota, Uber, and Waymo. Government participants may include departments of motor vehicles, departments of transportation, highway safety offices, and city governments. To date, eight states signed up to participate in the log: California, Florida, Maryland, Michigan, Ohio, Pennsylvania, Texas, and Utah.

The general public can register to receive e-mail updates of AV testing activities and other safety-related information reported to the logs. This will allow the public to stay apprised of AV efforts within their communities, including those involving cars, low-speed shuttles, trucks, and driverless electric delivery vehicles. One especially important feature of the new log is an online, public-facing mapping tool that will allow the public to zoom-in on where public roadway testing efforts are taking place at the local, state, and national levels as well as testing activity data, which may include dates, frequency, vehicle counts, and routes.

This initiative will also include a series of public events across the country intended to improve transparency and safety in the development and testing of automated driving systems. AV TEST participants will attend these events to share information on their activities to increase the public's awareness of testing, centralize NHTSA's role in promoting safety and innovation, and build stronger relationships among Federal, State, and local governments and stakeholders.

Further demonstrating its ongoing commitment to modernizing its regulations to accommodate AV technologies, in April, NHTSA released a report from the Virginia Tech Transportation Institute (VTTI) on Federal Motor Vehicle Safety Standards' (FMVSS). This project follows on [NHTSA's March NPRM](#), which focused on the 200 series FMVSS on crashworthiness. NHTSA's recent joint report with VTTI similarly focuses on twelve FMVSS. Specifically, the report provides research findings on potential regulatory barriers on the 100 series FMVSS on crash avoidance (FMVSS Nos. 102, 108, 114, 118, 138, and 141), but also touches on crashworthiness as well, in addition to test procedures; telltales; and warnings (FMVSS Nos. 201, 202a, 203, 204, 205, and 206). The report also evaluates NHTSA's test procedures and identifies possible options to address unnecessary/unintended regulatory barriers for ADSs that lack manually operated driving controls. Here are a few highlights from the report:

- **Suggestions for Test Procedure Adjustments:**
 - The report noted that some test procedures could be performed via simulation or technical design documentation rather than through vehicle-based testing. For example, FMVSS No. 114 requires a specific order of service brake application and release in addition to transmission control. The report suggests that instead of

requiring vehicle-based testing to verify compliance with this standard the standard may utilize documentation instead to show ADS software compliance with rollaway prevention standards.

- Because FMVSS No. 102, on brake and transmission requirements, requires driver interaction with the vehicle's transmission the report suggests changing the language for FMVSS No. 102 to not explicitly refer to the driver, and to instead refer to the action or state of the transmission rather than the manipulation of the control.

- **Suggestions for Technical Translations of FMVSS:**

- The research suggests reframing regulatory language addressing seating positions since there would be no driver in ADS vehicles.
- The research suggests that defining the front and rear of the vehicle may be critical to the technical translation implementation of numerous provisions of FMVSS No. 108 (e.g., the headlamps provide illumination forward of the vehicle and indicate the forward travel direction, and the taillamps illuminate the road to the rear of a vehicle and indicate when the vehicle is/will back up). These considerations are also pertinent to FMVSS No. 141 sound requirements, which are likewise associated with both forward and reverse vehicle movement. To address this, the report suggests differentiating between a conventional vehicle, which can travel in reverse at relatively low speeds, and a true bidirectional vehicle, but ultimately states that additional research will need to be done in this arena.
- The report also states that standards on telltales and indicators will need to undergo additional research because there is no longer a human driver, so it is uncertain who would be responsible for receiving such information from the vehicle. For example, some FMVSS explicitly state to whom the information in question should be communicated, and some specify the expected response (e.g., S4.5 (a) of FMVSS No. 138, requires owner's manual language that describes the expected response: "when the low tire pressure telltale illuminates, you should stop and check your tires as soon as possible, and inflate them to the proper pressure"). Meanwhile, other provisions do not explicitly specify an expected response (e.g., FMVSS No. 108, S9.3.6 sets forth requirements to indicate to the driver a turn signal lamp failure, but there is nothing in the standard that specifies what the driver should do following such a malfunction indicator).

NHTSA and VTTI are currently working on Phase 2 of their guidance, which will provide recommendations on nine additional FMVSS (Nos. 101, 103, 104, 110, 111, 113, 124, 125, and 126).

As demonstrated by this report, NHTSA is actively engaged in the research of unintended regulatory barriers to AV development and plans to update the FMVSS and associated hurdles so that both accurately reflect new AV technology. NHTSA's virtual launch of its AV TEST initiative included a kickoff event with opening remarks from U.S. Department of Transportation (DOT) Secretary Elaine L. Chao, NHTSA Deputy Administrator James C. Owens, Federal Highway Administration Administrator Nicole Nason, and U.S. DOT Deputy Assistant Secretary for Transportation Policy Finch Fulton. The launch continued with a discussion moderated by Mitchell S. Kominsky, NHTSA's Special Assistant for Policy, Governmental, and Public Affairs, and featured panelists Mr. Matthew Lipka, Head of Public Policy at Nuro; Mr. Joe Moyer, Chief Executive Officer at Beep; Dr. Matthew Schwall, Head of Field Safety at Waymo; Ms. Chris Mullen, Director of Self Driving Vehicle Safety Standards at Uber Advanced Technologies Group; Dr. Jennifer Dawson, Senior Manager for Functional Safety, at Toyota Research Institute. This discussion focused on different use cases of ADSs, including developers, testing companies, passenger-less delivery, and other innovative companies and touched on opportunities and challenges in safe on-road testing, design for inclusivity, and emerging technologies that are being used among industry stakeholders.

NHTSA's virtual series also included a discussion moderated by NHTSA's Associate Administrator, Dr. Cem Hatipoglu, and featured panelists Dr. Chris Gerdes, Director Center for Automotive Research at Stanford (CARS), Dynamic Design Lab Stanford University; Dr. Sandeep Neema, Program Manager, Assured Autonomy DARPA; Mr. George Nicols, Advanced Technology Standards Engineer, Toyota Motor North America, On-Road Automated Driving (ORAD) Committee Chair, SAE International; and Dr. Chris Urmson, Co-founder and Chief Executive Officer, Aurora. This discussion delved into a broad overview for the need, role, and history of on-road testing of automotive technologies, and specifically into the ongoing development of ADSs toward their eventual safe deployment, and also touched on the current state of development and prototype testing in the U.S. with a focus on technical progress achieved to date, key remaining challenges, and activities underway.

As the AV industry continues to rapidly develop, the law, and regulators, are playing catch-up, and like NHTSA's AV TEST initiative, looking to innovative tools to assist in the regulation of new technologies. AV developers should be forward-looking as well as regulators continue to catch-up; legislative obstacles are likely to continue to fall, offering ample opportunities for innovation.

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