



NHTSA, FMCSA release advanced notices of proposed rule-making regarding autonomous driving systems

29 May 2019

The National Highway Traffic Safety Administration (NHTSA) and Federal Motor Carrier Safety Administration (FMCSA) each issued an advanced notice of proposed rule-making (ANPRM) regarding the removal of regulatory barriers to the safe introduction of automated driving systems (ADS) on public roads on 28 May.

The NHTSA's ANPRM

The [NHTSA's ANPRM](#) focuses on how to amend its crash avoidance (100-series) federal motor vehicle safety standards (FMVSS) to account for Level 4 and 5 autonomous vehicles (AV) that lack typical manual controls (e.g., steering wheels, foot-controlled accelerator, and brake pedals) but have traditional seating configurations. The 100-series FMVSS are designed to reduce the likelihood or severity of a crash and include standards relating to lighting, mirrors, braking requirements, tires, and advanced safety systems.

Building on various stakeholder outreach efforts, the NHTSA identified three main categories of potential regulatory barriers to widespread AV integration: (1) the standard itself requires manual controls; (2) the standard specifies that the agency will use manual controls in testing or verifying compliance; and/or (3) the definition or use of particular terms (such as "driver") become unclear and require clarification before certification and compliance testing is possible. The ANPRM addresses the first two categories and the NHTSA plans to address the third in a more comprehensive rule-making at a later date.

Specific regulations identified in the ANPRM as barriers include:

- **FMVSS No. 105:** Reference to devices that reduce operator effort and muscular force regarding brake power assist and manual controls used in testing hydraulic and electric brake systems.
- **FMVSS No. 108:** Hazard warning signal flasher or operating unit, beam switching device, and turn signal operating unit.
- **FMVSS No. 114:** References to parking brake and depressing the brake pedal.

- **FMVSS No. 121:** Service brake controls, actuation of parking brake control, and parking brake controls on trucks and buses.
- **FMVSS No. 126:** Electronic stability control (ESC) systems, steering machine mounted to vehicle steering wheel for agency tests.
- **FMVSS No. 135:** Light vehicle brake systems and reference to activation "by means of a foot control."
- **FMVSS No. 136:** Transmission and brake controls.
- **FMVSS No. 138:** Driving the vehicle on the Uniform Tire Quality Grade (UTQG) public roadways as part of compliance testing.

The NHTSA requests comment on six possible approaches to amending the existing 100-series FMVSS requirements and test procedures for compliance and verification testing on vehicles without manual controls. The six proposed approaches are:

- **Normal ADS-dedicated vehicles (DV) operation:** Manufacturers self-certify by operating the AV in the same condition as an individual purchaser would receive the vehicle, with no additional programming or equipment installed for testing purposes and with all operational restrictions and decision-making capabilities in place.
- **Test Mode with Pre-Programmed Execution (TMPE):** NHTSA engineers test the AV based on a preprogrammed, manufacturer-installed "compliance test library" from which the engineers can select and execute specific tests.
- **Test Mode with External Controls (TMEC):** NHTSA engineers use external controllers or a human remote operator to perform the actions generally required by a human driver.
- **Simulation:** Use of software- or hardware-in-the-loop based performance evaluations rather than on-road or track-based testing.
- **Technical documentation for system design and/or performance approach:** Verification of performance standards through submission of vehicle-specific technical design and/or build documentation (e.g., functional descriptions and logic/schematic diagrams).
- **Use of surrogate vehicle with human controls:** Use of a "sister" or "surrogate" vehicle with traditional manual controls that is identical in all other relevant aspects to the AV being tested.

The agency invites comments on general questions applicable to all six proposals (including possible advantages and disadvantages, the need for additional definitions, whether multiple approaches can be combined or offered as alternatives) and questions specific to each proposal.

This ANPRM is the first in a series of three notices the NHTSA will issue to begin the development and implementation of a comprehensive strategy to update the FMVSS. The NHTSA intends to issue two additional notices, one relating to crashworthiness (200-series) FMVSS and one relating to telltales, indicators, and warnings. Comments on the NHTSA's first ANPRM described above are due 29 July 2019.

The FMCSA's ANPRM

Relatedly, the [FMCSA's ANPRM](#) seeks public comment on how it should amend its federal motor carrier safety regulations (FMCSRs) to facilitate the safe introduction of ADS-equipped

commercial motor vehicles (CMVs) onto the road. The agency asserts in its notice that it "does not believe there is a need to revise the FMCSRs to accommodate the integration of Levels 1-3 equipment because a licensed CMV operator must be present at the controls of the vehicles at all times. FMCSA's driver-related rules would thus apply." As such, the agency invites comments on the following questions and topics primarily in relation to Level 4 and 5 ADS-equipped CMVs:

- **Restricted/prohibited CMV types or cargo:** Are there certain types of CMVs or cargoes for which fully automated operations should be restricted or prohibited?
- **Are human drivers required under FMCSRs:** Whether the FMCSRs as written require human drivers.
- **Commercial Driver's License (CDL) endorsements:** How to apply current CDL requirements to ADS systems and whether additional endorsements should be required.
- **Drivers' Hours of Service (HOS) rules:** Whether and how to apply the current HOS rules to human operators of ADS-equipped CMVs.
- **Medical qualifications for human operators:** Whether human operators of ADS-equipped CMVs should be subject to the same medical and physical fitness requirements as human drivers.
- **Distracted driving and monitoring:** Whether human operators of ADS-equipped CMVs should be subject to the same rules regarding distracted driving (e.g., texting, use of handheld electronic devices) as human drivers.
- **Safe driving and drug and alcohol testing:** Whether human operators of ADS-equipped CMVs should be subject to the same drug and alcohol restrictions and tests as human drivers.
- **Inspection, repair, and maintenance:** How should FMCSA amend its standards for inspecting, repairing, and maintaining ADS-equipped CMVs and the qualifications for those conducting inspections, repairs, and maintenance tasks?
- **Roadside inspection:** What additional requirements should apply for marking ADS-equipped CMVs, capacities for contacting emergency services, and interactions with federal and state enforcement officials?
- **Cybersecurity:** How to address safety and cargo security risks associated with integration of ADS capabilities.
- **Confidentiality of shared information:** To what extent should ADS performance data be treated as proprietary and withheld from the public? Are the agency's current processes for protecting confidential business information sufficient?

Comments on the FMCSA's ANPRM are due 26 August 2019.

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