

Getting Highly Automated Vehicles on the Road

A number of current vehicle safety standards are blocking the development of the more sophisticated self-driving cars and trucks.

The National Highway Traffic Safety Administration promulgates Federal Motor Vehicle Safety Standards (FMVSS) that all vehicles sold in the U.S. must meet. Many of these standards are incompatible with highly automated vehicles (HAVs) — especially those designed to be operated exclusively by the vehicle's software control system.

For example, existing standards include requirements for brake pedals, manually controlled turn signals and many other vehicle design elements. For HAVs to move beyond developer testing and into deployment, either NHTSA will need to promulgate specific FMVSS for HAVs

or Congress will need to enact another mechanism to facilitate deployment.

With rapidly evolving technology, it is likely that any standards for HAVs issued in the next few years would quickly be rendered irrelevant and could be counterproductive to the development of this technology in the U.S. In recent months, NHTSA and the U.S. House of Representatives have taken steps toward developing a regulatory framework for self-driving cars and trucks. NHTSA has recently issued a revised guidance to encourage HAVs developers to share safety data with the Department of Transportation and the public. The House of Representatives has passed H.R. 3388, with bi-partisan support, to expand a FMVSS exemption mechanism in the current law to allow sales of HAVs

in advance of promulgated FMVSSs.

2017 NHTSA Guidance

On Sept. 12, NHTSA issued a guidance document on the safety regulation of HAVs titled "Automated Driving Systems: A Vision for Safety 2.0." As the "2.0" in the title suggests, the 2017 guidance updates the guidelines issued by the previous administration in September 2016. The current guidance document focuses on automated vehicle testing rather than deployment.

The 2017 guidance is voluntary and encourages developers to disclose to the public Voluntary Safety Self Assessments on 12 key safety elements: system safety; operational design domain; object and event detection and response; fallback (minimal risk condition); validation methods; human machine

interface; vehicle cybersecurity; crashworthiness; post-crash automated driving system behavior; data recording; consumer education and training; and federal, state and local laws.

The 2017 guidance devotes significant attention to the role of state legislatures and highway safety officials in the testing of automated vehicles. It includes a mild warning against states establishing automated vehicle safety standards independent of NHTSA, but continues to leave the decision whether to allow testing on public roads to the states.

It is unclear whether the voluntary and public record data reporting under the 2017 guidance will provide a useful basis for NHTSA to develop formal safety standards for HAVs. However, the guidance will probably facilitate public understanding of how developers seek to make HAVs safer than human operated vehicles.

The SELF DRIVE Act

The automated vehicle bill passed by the House of Representative on Sept. 6 expressly preempts states from enacting

any laws or regulations regarding the design, construction or performance of HAVs that deviate from federal standards and offers a mechanism to move beyond testing to the deployment of HAVs.

Similar legislation is being introduced in the U.S. Senate.

Under existing law, NHTSA has the authority to allow exemptions from FMVSS if the exemption would facilitate the development or field evaluation of a new motor vehicle safety feature providing a safety level at least equal to the safety level of the relevant FMVSS standard. In effect, the exemptions allow beta testing of safety innovations in the real world. Manufacturers with exemptions must report information about crashes for which they have knowledge to NHTSA.

Under current law, each manufacturer's exemption is limited to 2,500 vehicles sold in the U.S. each year. H.R. 3388 increases the exemption for HAVs to 25,000 in the first year, 50,000 vehicles in the second year and 100,000 vehicles in the third and fourth years. The highly automated vehicle exemptions

under H.R. 3388 terminate after four years.

Pros and Cons

The annual caps built into H.R. 3388 provide potential advantages and downsides. By capping the number of HAVs a given manufacturer can sell each year, the bill will mute "first mover" advantage to the developer with the first, best or best hyped HAV. This may allow the emergence of a less concentrated market for HAVs.

The flip side disadvantage is that consumers may be denied access to the best (or, at least, the preferred) HAVs for a number of years. The approach in H.R. 3388 may also buy time for NHTSA to develop FMVSS for HAVs that do not backfire or for Congress to devise another solution to regulating an emerging technology.

Ironically, the incremental approach in H.R. 3388 may facilitate the development of breakthrough automotive technology better than a more radical form of regulation that could force a new technology into less than optimal paths. □

Federal Automated Vehicle Legislation

H.R. 3388

Short Title: SELF DRIVE Act

Status: Passed

Number of highly automated cars authorized for sale: 25,000 in the first year, 50,000 in the second year, and 100,000 in the third and fourth years. Preemption: Preempts states and local government from establishing design or performance criteria for highly automated vehicles (HAVs) different from federal requirements.

Use of Crash Data: Requires manufacturers to provide its HAV data privacy policy to consumers, but does not expressly address use of recorded crash data.

S. 1885

Short Title: AV START Act

Status: Voted out of Senate Commerce, Science & Technology Committee

Number of highly automated cars authorized for sale: 50,000 in the first year, 75,000 in the second year, and 100,000 in each year until NHTSA promulgates safety standards for HAVs. Preemption: Same as H.R. 1185

Use of Crash Data: Requires manufacturers to comply with the event data recorder provisions of the 2015 FAST Act (Public Law 114-94), which does not allow insurers access to crash data without the permission of the vehicle's owner or lessee.



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