AUTONOMOUS VEHICLES

NHTSA AUTOMATED VEHICLE GUIDANCE 3.0 – PROMOTE AUTONOMOUS VEHICLES/MUDDY THE WAY FOR CONNECTED VEHICLES AND INFRASTRUCTURE

by Richard A. Wilhelm

NHTSA just published the third iteration of its policy/guidance for automated vehicles. The focus of the guidance continues to evolve.

In its initial form, the most significant focus of the guidance was on the safe performance of automated vehicles. The guidance requested that AV manufacturers voluntarily provide reports to NHTSA, in the form of safety assessment letters, explaining whether the manufacturer considered 15 safety elements relating to AV safety, security and performance. Though voluntary, NHTSA "expected" manufacturers to submit their letters to the agency so it could review them and monitor the development and safety of such technologies *before* vehicles with automated driving systems (ADS) were tested on the road. Thus, the initial guidance contemplated at least some level of safety oversight by NHTSA.

The focus of guidance 2.0 veered away from the concept of safety oversight and focused more on the promotion of AVs. The guidance continued to request voluntary safety assessment letters, although the number of safety elements to be addressed in the letters decreased slightly (excluded elements included vehicle owner privacy and ethical decision-making by the ADS). But, instead of requiring that the safety assessment letters be submitted to NHTSA before testing, it told manufacturers to target the letters to states and consumers to "showcase their approach to safety." To date, only four AV manufacturers and developers have published assessment letters.

In guidance 3.0, the idea of the safety self-assessment letters survives but it is referenced in only 3 paragraphs of the 65 page document. The purpose of the letters continues to be making the motoring public more comfortable with autonomous vehicles ("building public trust, acceptance and confidence"). In the rest of the guidance, NHTSA sets out a game plan for extending automation to other modes of transportation (commercial vehicles, transit vehicles). It also focuses on the coordination it believes is required among various government agencies and other stakeholders (cities/states/highway departments) to facilitate the integration of all forms of autonomous motor vehicles into the US as quickly as possible. Finally, NHTSA describes its own role going forward. Included is making it quicker and easier for manufacturers to get waivers from compliance with existing safety standards that automated vehicles without steering wheels and foot pedals cannot meet and then ultimately revising those standards to eliminate such requirements altogether. Finally, NHTSA begins an initial discussion about the process of developing AV related safety standards.

While NHTSA has clearly taken on the role of promoting and facilitating the deployment of AVs on America's roads, it appears to be backing away from doing the same in the context of connected vehicles. In early 2017, NHTSA issued a Notice of Proposed Rulemaking for a proposed safety standard (FMVSS 150) that would require the phase-in of Dedicated Short Range Communication (DSRC) units into new passenger vehicles. These communication devices permit V2V and V2I communications. In the V2V context, they would transmit a basic safety message containing information about the vehicle's speed, heading, brake status and the like to other vehicles. They would also receive like messages from other vehicles. Through these communications, vehicles can detect accident threats before their on-board systems can, enhancing a vehicle's autonomous capabilities. In the V2I context, the transportation infrastructure itself can use DSRC to communicate warnings and other information to vehicles and drivers to make driving safer. V2I applications include things like red light violation warnings, curve speed warnings, reduced speed warnings, and stop sign violation warnings. Key stakeholders for V2I infrastructure development include local public agencies, state highway departments and transit operators. NHTSA has taken no action to advance its rulemaking.

Currently, DSRC is the only existing technology that meets the performance requirements necessary for V2V and V2I communications. And, the FCC has set aside the 5.9 GHz bandwidth exclusively for DSRC. However, there is another communications technology, a cellular option (C-V2X) based on 4G cellular standards, that may prove to be as good as if not better than DSRC for V2V and V2I. A more advanced 5G-based version is also being discussed, although 5G has yet to be deployed on any significant basis in the U.S.

In its guidance 3.0, NHTSA discusses V2X (V2V + V2I) communications. It notes that "there are over 70 active deployments of V2X communications utilizing the 5.9 GHz band. U.S. DOT currently estimates that by the end of 2018, over 18,000 vehicles will be deployed with aftermarket V2X communications devices and over 1000 infrastructure V2X devices will be installed at the roadside." NHTSA goes on to note the large number of other planned future deployments by infrastructure stakeholders. NHTSA expressly encourages continued development of the technology but, at the same time, it expressly declines to endorse DRSC over Cellular V2X.

NHTSA's we take no position-stance creates a problem. That problem arises because DSRC and C-V2X presently cannot communicate with one another. They are not interoperable. It's one or the other. And, all those deployments by infrastructure stakeholders described by NHTSA, use DSRC. What should they do now? Continue to invest in DSRC-based systems or wait to see which technology emerges the victor. NHTSA says only, anyone considering future deployments should "engage with the US DOT for *guidance* and assistance." What that guidance will be is not clear. However, infrastructure stakeholders should note that two FCC Commissioners recently hinted to Toyota that it should reconsider its planned rollout of DSRC in new vehicles noting the potential availability of 5G technology. More recently, one FCC commissioner derisively commented that "[i]t is pure folly to believe that DSRC will ever work as envisioned."[1] Unlike NHTSA, the FCC appears willing to promote one technology over another and, the FCC determines who gets to use the 5.9 GHz band currently devoted to DSRC.

Bottom line, NHTSA is doing all that it can to actively facilitate the deployment of automated vehicles in the U.S. Also, NHTSA has outlined how it envisions the autonomous future will develop providing

some degree of encouragement and certainty to the auto industry. However, for V2I infrastructure stakeholders, the future, at least in the near term, is less certain.

[1] Statement of Commissioner Michael O'Rielly on NCTA 5.9 GHz Letter, October 16, 2018.

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