

October 20, 2014

The Honorable David J. Friedman
Acting Administrator
National Highway Traffic Safety Administration
1200 New Jersey Ave SE
Washington, DC 20590

RE: [Docket No. NHTSA–2014–0022] Advanced Notice of Proposed Rulemaking on Federal Motor Vehicle Safety Standards: Vehicle-to-Vehicle (V2V) Communications

COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

I. Introduction

The Telecommunications Industry Association (“TIA”) hereby submits comments to the National Highway Traffic Safety Administration (“NHTSA”) in the above-referenced docket. TIA is accredited by the American National Standards Institute (“ANSI”) and has developed over two thousand information and communication technology (“ICT”) standards, through the input and engagement of 500+ member companies from the global community of ICT manufacturers, vendors, and suppliers. TIA recognizes the importance of the development and use of new communications technologies to further the safety of all American drivers and appreciates the opportunity to provide comments on NHTSA’s advanced notice of proposed rulemaking (“ANPRM”) on Federal Motor Vehicle Safety Standards (“FMVSS”) for vehicle-to-vehicle (“V2V”) communications.¹

As a standards-development organization, TIA recognizes the important role that technical standards can play in advancing technologies and increasing adoption. TIA has led efforts to develop and contribute to international vehicular telematics standards through its TR-48 Committee and has consistently urged policymakers to avoid technology mandates and to adopt technology neutral rules. These views stem from the lessons learned in the telecommunications sector, in which a regulatory embrace of a particular technology shackled innovation and prevented the best technologies from coming to market. TIA’s policy views have been adopted as a best practice at the world’s leading regulatory agencies in the communications sector. As will be discussed below, TIA recognizes that policymakers nevertheless mandate technology when they believe there are overriding public policy reasons to do so, but the onus is on the agency to articulate clearly why it must use a mandate instead of a market-based approach to solve a problem. With the release of an Advanced Notice of Proposed

¹ Federal Motor Vehicle Safety Standards: Vehicle-to-Vehicle Communications, 79 Fed. Reg. 49270 (proposed August 20, 2014) (to codified at 49 C.F.R. pt. 571) (“V2V ANPRM”).

Rulemaking (ANPRM), NHTSA has given itself a future opportunity to more precisely define its intentions and rationale, along with a defensible rationale of its legal authority. In our comments, below, TIA discusses some of its concerns with NHTSA's report, "Vehicle-to-Vehicle Communications: Readiness of V2V Technology for Application,"² (hereinafter, "V2V Readiness Report") and offers its thoughts for how future NHTSA action, if deemed appropriate in this area, could be improved.

As an initial matter, TIA commends NHTSA for its analysis of its thinking on V2V technology in the form of the V2V Readiness Report.³ NHTSA's recitation of areas for further study provides insight into the work that is left to be done, while at the same time pointing out the significant effort to date to develop Dedicated Short Range Communications ("DSRC") technology to save lives and avoid injuries. TIA is sympathetic that NHTSA is wading into one of the most fast-paced technology upheavals in the history of transportation, and appreciates the difficulty of trying to find a "sweet spot" that will leave the driving public safer. Connecting vehicles to the Internet and to cloud-based data sources is rapidly increasing, and raises the prospect of new ways to solve safety problems.⁴ And just as this new connectivity – from mobile cellular systems, Wi-Fi, and satellite – is competing to provide a variety of safety features to drivers, so too is the rapid rise of autonomous technologies. Each of these new forms of technology is already enabling vehicular safety improvements. It is imperative, therefore, that the NHTSA provide a clear articulation of what unique role DSRC technology would provide in a rapidly evolving technology environment. Indeed, it must do so to pass muster under federal rulemaking processes.

In the comments that follow, TIA discusses its policy concerns with technology mandates. TIA also takes issue with portions of NHTSA's legal authority analysis, which TIA believes is overbroad. TIA also argues that NHTSA needs to sharpen its safety cost-benefit analysis to take into account the uptake by the automotive and technology industries in autonomous crash avoidance technologies, as well as the V2V safety potential of other current and future ubiquitous technologies in which TIA companies are also invested like 4G/LTE, 5G, Wi-Fi, and satellite. TIA then highlights a few areas from the Report where there is clearly more work to be done, and emphasizes the importance of that work. Finally, TIA notes that NHTSA, independent of V2V, should consider how to more directly support the research and development of autonomous technologies, which already are starting to improve the safety of our roads. TIA looks forward to working with both NHTSA and the Department of Transportation ("DOT") on ensuring that the aforementioned risks can be avoided, should NHTSA determine that a mandate is needed, and that efforts to improve safety on our Nation's roadways bear fruit.

² U.S. Dep't of Transp., Nat'l Highway Traffic Safety Admin., *Vehicle-to-Vehicle Communications: Readiness of V2V Technology for Application* (Aug. 2014) ("V2V Readiness Report"), available at <http://www.nhtsa.gov/staticfiles/rulemaking/pdf/V2V/Readiness-of-V2V-Technology-for-Application-812014.pdf>

³ See *id.*

⁴ The number of cars connected to the Internet worldwide will grow more than sixfold to 152 million in 2020 from 23 million now, according to researcher IHS Automotive. For example, "At the 2014 North American International Auto Show in Detroit, General Motors ... tout[ed] its 4G LTE-connected Chevys while Ford introduce[d] more applications that work with its voice-activated Sync system, ..." <http://www.autonews.com/article/20140110/OEM06/301109910/the-race-to-market-the-connected-car>

II. TIA Has Consistently Urged Policymakers To Avoid Technology Mandates; Onus Is On NHTSA To Justify A Mandate

In the V2V ANPRM, NHTSA asks whether there is “a concern that by mandating V2V NHTSA may ‘crowd out’ other promising technologies.”⁵ The short answer is yes. TIA has long believed that policy actions that mandate technologies and allow regulators to pick technology winners and losers can inhibit and crowd out other promising technologies and de-incentivize market innovation and research and development investments, such that potentially better solutions can be left behind. Additionally, government decision-making rarely keeps up with the pace of technology, and technological regulation in that environment can stagnate the market. The fundamental problem with these types of evaluations is that they are often out of date even before the ink is dry.⁶ Mobile technologies, for example, are rapidly advancing in capability and latency to the point that many criticisms rendered even a few years ago are no longer valid.⁷

In TIA’s view, therefore, technology mandates stand on treacherous ground, with plenty of opportunity for negative consequences. That said, there are circumstances in which policymakers have embraced a technology when they believe that there are compelling public policy reasons to do so. However, as NHTSA itself knows, a technology-neutral approach is preferred. In March, NHTSA amended FMVSS111, mandating that rear visibility technology be included in all new vehicles under 10,000 pounds by May 2018.⁸ The public purpose was preventing the nearly 210 fatalities and 15,000 injuries caused annually by backover crashes in the U.S. Initially, when NHTSA began its research in 2007, the agency had been focused solely on backup camera technology, but industry developments in

⁵ V2V ANPRM ¶ 6.

⁶ It is important to understand not just the characteristics of today’s technologies, but also the trajectory for future change. For example, DSRC technology has a latency of about 100 milliseconds. In the cellular world, “5G” technology latency is expected to be just a few milliseconds to support V2V safety applications, as well as a variety of other use cases. *See, e.g.,*

<https://itunews.itu.int/en/5228-Towards-converged-5G-mobile-networks-Challenges-and-current-trends.note.aspx>, http://www.itu.int/dms_pub/itu-r/oth/0a/06/ROA0600005F0001PDFE.pdf (5G Forum Slides illustrating a reduction in latency to 1/10th that of 4G networks)

and

<http://www.fiercewireless.com/tech/story/ericsson-cto-claims-north-america-driving-5g-development/2014-05-26>. *See also* http://www.itu.int/dms_pub/itu-r/oth/0a/06/ROA0600005F0001PDFE.pdf (Slide 13 of 5G Forum Slides, showing how “5G” technology could be used for V2V and V2I.)

⁷ *See generally* “Enabling Vehicular Safety Applications Over LTE Networks,” Hitachi Labs and AT&T Labs, available at http://www.research.att.com/techdocs/TD_101260.pdf; 4G Americas, *Mobile Broadband Explosion* (Aug. 2013), available at <http://www.4gamericas.org/UserFiles/file/White%20Papers/4G%20Americas%20Mobile%20Broadband%20Explosion%20August%202013%209%205%2013%20R1.pdf>; Wi-Fi Alliance, *15 Years of Wi-Fi*, available at http://www.wi-fi.org/download.php?file=/sites/default/files/private/Infographic_15_Years_of_Wi-Fi.pdf.

⁸ *See* <https://www.federalregister.gov/articles/2014/04/07/2014-07469/federal-motor-vehicle-safety-standards-rear-visibility>

alternative technologies (including laser and radar detection), led to the creation of a technology-neutral final rule that allows for innovation and industry standardization of different technologies to achieve the same objective. In the present case, there is acknowledgment of a compelling public purpose – saving lives and preventing injury – although it is less clear why a market-based approach to technology selection is an unacceptable or impractical way to achieve the safety objective. Moreover, simply asserting the theory of “network effects” does not itself explain the rejection of a purely market-based approach or performance-based regulations that would allow market participants to define standards and a method for achieving compliance with those standards, collectively or individually.⁹ As is recognized in the V2V Readiness Report, the Safety Act prefers an approach of minimum safe performance standards, not the manner in which compliance is achieved.¹⁰ NHTSA would be well served to consider these issues and articulate a more fulsome rationale, if it intends to propose a V2V mandate.

The V2V Readiness Report nevertheless contains some useful insights on the role of the federal government in technology selection. For example, although the report assumes that DSRC would be adopted as a Federal Motor Vehicle Safety Standard (“FMVSS”), it also notes that if NHTSA were to take a slightly different approach of adopting individual safety applications (such as Forward Collision Warning or Blind Spot Lane Change Warning), then vehicle manufacturers could decide which technology would best meet the FMVSS requirement.¹¹ The latter approach is friendlier to future technology development, should NHTSA deem a mandate is necessary. Any Federal standards for V2V communications, if deemed appropriate, ideally should be focused on setting minimum performance-based requirements (e.g., data latency, data size, data format interoperability) that are entirely technology agnostic and can be applied to any technologies that automotive and ICT manufacturers use to achieve safety objectives. This will allow standards-setting organizations like TIA and the rest of the automotive and technology industries to build specifications that meet and exceed NHTSA’s performance criteria, while continuing to develop to meet the market need for these safety technologies, and adapt as quickly as the communications technologies evolve. To the extent NHTSA concludes a mandate is necessary, it must explain why it should deviate from that path in this case, and its thinking should be explicitly exposed at each step of the NPRM process.

In addition, the report acknowledges that other radio technologies may have a role to play if DSRC is ultimately used for V2V safety applications, but limits those technologies such as cellular or Wi-Fi to being used in some circumstances to download DSRC software to vehicles.¹² TIA members believe that these competing technologies could have a much greater role in V2V safety applications and encourage NHTSA as it moves forward in this proceeding to take a broader view of technology possibilities in pursuing its safety mission. These types of policies maximize the opportunity for industry

⁹ V2V Readiness Report at 46.

¹⁰ V2V Readiness Report at 47.

¹¹ V2V Readiness Report at 54, 130 (noting the need to think about adoption of separate FMVSSs covering the basic safety message and the individual applications).

¹² V2V Readiness Report at 69 (roadside equipment could use DSRC, Wi-Fi or cellular technologies).

to develop and evolve the use of public safety technology. TIA urges NHTSA to give strong consideration to policies such as these that give manufacturers flexibility in V2V technology selection and architectures.

Finally, TIA urges NHTSA to consider how to promulgate technology-neutral requirements that will allow new technologies to enter the V2V marketplace and current technologies to evolve over time. Given the rapid developments in cognitive radio, antenna technologies, software-defined radios, the growth in vehicles connected to the Internet, and computing innovations such as cloud computing, the last thing NHTSA should do is use regulations to lock in a specific technology, or lock in any technology as it exists now. A future-proof ecosystem allows new technologies to enter the marketplace and current technologies to evolve. Crafting rules that limit technology to capabilities available in 2014 or 2016 would be a mistake. Regulators, if they do issue a mandate, should enable technologies that exist today to be replaced by something better tomorrow.¹³

III. NHTSA's Regulatory Framework Must Be Scoped Within to Its Legal Authority

In the V2V Readiness Report, NHTSA states that its legal authority to issue a mandate extends to "V2V communications or safety applications reliant on V2V communications." Whether a V2V technology is originally installed in a vehicle, added in the aftermarket, or consists of software that supports or improves V2V functionality, NHTSA concludes that its legal authority to regulate exists under the Safety Act.¹⁴

NHTSA's report provides two other relevant conclusions. First, that NHTSA's view of its authority extends broadly to consumer devices that are carried into the car "if a substantial portion of its expected use were in conjunction with motor vehicles."¹⁵ Second, that NHTSA's authority to issue federal regulations over some V2I communications is limited to the extent that the V2I application is not safety-related.¹⁶

With respect to the first issue, NHTSA seeks comment on the determination that its authorizing statute, the National Traffic and Motor Vehicle Safety Act,¹⁷ gives the agency the authority to regulate

¹³ For example, when the Congress authorized the creation of a first-ever national broadband network for public safety, the legislative called out a "single, national network architecture that evolves with technological advancements" and required use of "commercial standards." Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96 (2012), 126 Stat. 156, 206-207. When the FCC's technical advisory group delivered up recommendations for how to implement those provisions, it recommended an LTE network constructed based on a specific version of the 3GPP Standard or "a future evolved equivalent of that standard." Recommended Minimum Technical Requirements To Ensure Nationwide Interoperability for the Nationwide Public Safety Broadband Network, Recommendations of the Technical Advisory Board for First Responder Interoperability, Final Report, Released May 22, 2012.

¹⁴ See V2V Readiness Report at 33-36.

¹⁵ V2V Readiness Report at 39.

¹⁶ V2V Readiness Report at 36.

¹⁷ 49 U.S.C. §§ 30101 et seq.

some forms of non-integrated aftermarket equipment.¹⁸ The V2V Readiness Report states “[d]epending on their design and apparent purpose, non-integrated or ‘nomadic’ devices, which can be carried into and out of vehicles at the driver’s whim, may still be covered by the Safety Act.” TIA has strong concerns about this interpretation and believes it bootstraps legislative language originally intended to give NHTSA authority over motorcycle helmet standards to expand NHTSA’s authority over multipurpose consumer technologies that NHTSA has no statutory basis to regulate, such as smartphones or wearable technologies. To the extent NHTSA is attempting to exert authority over any device carried into the vehicle by drivers, its assertion of authority is inappropriate and is the start of a slippery slope that would have the agency attempting to regulate consumer and other products that are not within its legal span of authority.

Simply put, the ICT industry believes that mobile devices do not fall within NHTSA’s jurisdiction. In the ANPRM, NHTSA states that its only intends to assert authority over devices “where a substantial portion of its suspected use is in conjunction with motor vehicles.”¹⁹ In TIA’s view, this description does not fit mobile devices as consumers have a host of reasons and uses for these items in the vehicle that exceed this narrow category. However, NHTSA should not use this test in any form as it presents a subjective balancing approach that will result in significant uncertainty.

NHTSA is also on less firm footing in asserting legal authority to mandate V2I. The Safety Act requirements limit the agency’s purview to “system, part or component of a motor vehicle” or “a device or an article or apparel” that is used on public streets with the apparent purpose of safeguarding users of motor vehicles against accidents.²⁰ While the report itself notes that this language does not give NHTSA authority to regulate stop signs, the report indicates that some infrastructure used to support V2I safety applications may qualify as within NHTSA’s safety authority to the extent that the V2I communication promotes V2V. TIA notes that there are at least some applications under discussion for V2I that would not appear to meet this test, such as parking applications or road tolling. TIA urges NHTSA to be more specific about how it will distinguish V2I applications under discussion or development using its proposed legal test. More fundamentally, TIA urges that NHTSA narrowly circumscribe its assertion of legal authority for V2I when the safety applications are not related to V2V. This approach will allow for competing technology platforms to emerge where economically possible.

IV. A Meaningful Cost/Benefit Analysis Must Account For Alternative Technologies

The ANPRM asks “Do commenters believe that the agency’s preliminary analysis of the potential for V2V to address vehicle crashes . . . seems accurate? If not, how would commenters suggest the agency change this analysis to more accurately estimate the likely safety improvements resulting from a nationwide requirement of V2V technology?”²¹ NHTSA also asks whether it should consider the benefits

¹⁸ See V2V ANPRM ¶ 7.

¹⁹ *Id.*

²⁰ V2V Readiness Report at 35.

²¹ V2V ANPRM ¶ 5.

that autonomous technologies offer for crash avoidance.²² TIA believes the cost-benefit analysis can and should be improved.

As the V2V Readiness Report recognizes,²³ NHTSA should understand how crash avoidance techniques involving other technologies than DSRC will provide benefits for driver safety. In the report, autonomous crash avoidance technologies are briefly listed and discussed, but the cost-benefit analysis presented later in the report fails to consider how autonomous technologies may themselves independently prevent collisions. Stated differently, the cost-benefit analysis is presented as if the choice is “DSRC or nothing.” However, most automakers already have implemented some form of autonomous collision avoidance system that does not require the driver to act – and consumers are eager to adopt these technologies, even if they had to pay more for these features.²⁴ These autonomous technologies are already avoiding accidents, and will continue to do so as more vehicles are equipped with advanced driver assistance systems, and as the technologies themselves continue to advance towards a fully autonomous vehicle. The reality is that the benefits of V2V technology is somewhat eroding in the face of the introduction of autonomous crash avoidance technology. The degree to which this is happening is worth investigation. Most automakers are voluntarily setting 2020 as the timeframe for deployment of fully autonomous technology, and it is incumbent upon NHTSA to understand the technology roadmap for this safety-of-life technology, as well as the projected safety benefits in both the near- and longer-term.²⁵ In addition, NHTSA must understand how autonomous on-

²² V2V ANPRM ¶ 56.

²³ V2V Readiness Report at ¶105.

²⁴ <http://www.freep.com/story/money/cars/2014/10/10/fuel-economy-autonomous-driving-autonomous-vehicle-aluminum/17055367/>

²⁵ Recently, a number of automotive manufacturers have made announcements about newly developed automated features or their plans to invest further in this technology and have it integrated in their upcoming models. See *Cadillac Teases ‘Super Cruise’ Semi-Autonomous Car*, Mashable (Apr. 21, 2012), <http://mashable.com/2012/04/21/cadillac-super-cruise-car/>; see also Damon Lavrinc, *Ford Unveils Its First Autonomous Vehicle Prototype*, Wired (Dec. 13, 2013), <http://www.wired.com/2013/12/ford-fusion-hybrid-autonomous/> (discussing Ford’s automated vehicle prototype and its plans to begin research); David UnderCoffler, *Mercedes-Benz reveals recent test of self-driving car*, L.A. Times (Sept. 10, 2013, 5:00 AM), <http://www.latimes.com/business/autos/la-fi-hy-autos-mercedes-autonomous-car-20130909-story.html> (“In yet another sign that self-driving cars are rapidly approaching reality, Mercedes-Benz announced . . . that it had successfully driven an autonomous S-Class sedan.”); Wayne Cunningham, *Toyota rolling out near-autonomous cars in five years*, CNET (Oct. 10, 2013, 4:48 PM), <http://www.cnet.com/news/toyota-rolling-out-near-autonomous-cars-in-five-years/> (“Toyota is laying out specifics on autonomous car technologies it will put into production ‘in the mid-2010s’”); General Motors, *Emerging Technology: Driving Safety, Efficiency and Independence*, http://www.gm.com/vision/design_technology/emerging_technology.html (“The dream of a car that can drive itself is closer to reality than you might think. In fact, we expect semi-autonomous vehicles to be available to customers before the end of this decade and the technology for fully autonomous vehicles capable of navigating the roadways ready during the next decade.”); Nissan USA, *Nissan advances plans to have commercially viable autonomous drive vehicles on the road by 2020*, <http://www.nissanus.com/innovations/autonomous-car.article.html>; Richard Yarrow, *Driverless cars already on the road*, The Telegraph (May 6, 2014, 4:21 PM BST), <http://www.telegraph.co.uk/motoring/car-manufacturers/volvo/10804595/Driverless-cars-already-on-the-road.html> (discussing Volvos’ initiative with the Swedish government to test the benefits of autonomous driving); Andy Pasztor, *Tesla Unveils All-Wheel Drive, Autopilot for Electric Cars*, Wall Street Journal (Oct. 10, 2014),

board crash avoidance technology is likely to evolve, because if it becomes a far more important way to manage safety, the benefits of V2V could be more limited than the Report's analysis suggests.

V. DSRC Still Has Security Challenges Which Should Be Resolved Prior to Any NHTSA Action.

As the V2V Readiness Report acknowledges, there are security gaps and concerns with DSRC, including potential vulnerabilities with the proposed IEEE 1609.2 Security Services for Applications and Management Messages and the inclusion of public key infrastructure ("PKI") in the proposed Security Credential Management System.²⁶ A relatively recent report summed up the concerns as follows: The current protocol lacks support for a mechanism to allow root authorities to change keys, and for the SCMS manager to change signature algorithms and the use of PKI for credential management presents significant security risks. Also, this protocol has the likelihood to be subject to misbinding attacks, which should be considered a practical attack. The protocol needs to be revised to enhance encryption resiliency, as the ICT industry has done for Internet protocols over the last few years. Moreover, there is a potential susceptibility to worm-hole attacks.²⁷ In addition, NHTSA should examine the overall audit process of the certificate authorities that will be issuing, revoking, and providing new certificates to V2V devices. As NHTSA recognizes, ensuring that security is adequately enabled in the technology is a key step to deciding whether V2V should be mandated.

The automotive industry is beginning to confront security threats and the ICT industry would welcome the opportunity to share best practices on information security sharing mechanisms. TIA applauds the steps that DOT has taken to encourage the auto industry to form an information sharing and analysis center ("ISAC") or equivalent, but much more progress is needed to form a trusted information sharing environment for V2V solutions. Stakeholders should include automakers and the V2V supply chain.²⁸

VI. Autonomous Technology Is Critical to Improved Vehicle Safety in the Near-Term, Independent of V2V

In the ANPRM, NHTSA asks about alternative technologies that could be substitutes or complements to V2V.²⁹ While V2V – sharing data with other cars and consuming external data is

<http://online.wsj.com/articles/tesla-motors-shows-off-automated-driving-system-1412918991> (explaining Tesla's new model with autopilot features and how it was brought to market faster than expected).

²⁶ See Intelligent Transportation Systems Program Advisory Committee ("ITSPAC") Report to the U.S. Secretary of Transportation (2013) 5, available at http://its.dot.gov/itspac/pdf/ITSPAC_Final_Recommendations2013_12_20.pdf.

²⁷ See *id.*

²⁸ In reality, the ISAC needs to be much broader with many more stakeholders, including ICT industry, but that will not occur under NHTSA's limited legal authority, but by some other means.

²⁹ See V2V ANPRM ¶ 55.

important -- relying on a system that is based on external communications has risks. Thus, drivers must be able to rely on on-board autonomous technologies in the first instance.

It has long been recognized, including by NHTSA itself, that V2V technology will only have significant safety benefits if a substantial portion of car drivers accepts it. Existing and next-generation advanced driver assistance systems ("ADAS") technologies and upcoming fully autonomous technologies do not require a substantial portion of cars to have these technologies before yielding safety benefits; they immediately provide safety benefits to the car in which the technology is installed, regardless of whether other cars have the technology. Thus, autonomous will improve the safety of driving and protect drivers regardless of whether V2V technologies are deployed in all cars. Recognizing this opportunity, automakers are already voluntarily committing to aggressive time frames for the deployment of autonomous technologies, and consumers (the market) are already demanding ADAS/autonomous technologies in their new vehicles.³⁰ Multiple studies have recognized that autonomous vehicles have the potential to saved tens of thousands of lives,³¹ and researchers estimate that fully autonomous vehicles could save the U.S. economy approximately \$450 billion³² to 1.3 trillion annually.³³

In TIA's view, NHTSA should encourage autonomous innovations, and seek funding in upcoming MAP-21 discussions to explore and better understand the compelling safety benefits of fully autonomous vehicles. To demonstrate U.S. leadership, the results of this research should be released no later than year end of 2016.

³⁰ "A whopping 55% of buyers said they'd be very likely to buy a partially autonomous vehicle -- one that drove itself on the highway or in traffic jams, said Xavier Mosquet of Boston Consulting Group. Forty-four percent said they'd buy a fully autonomous vehicle that does all the driving, with more than 20% saying they'd pay \$4,000 for the feature. If regulations don't push the industry toward self-driving cars, customer demand will, Mosquet said." <http://www.freep.com/story/money/cars/2014/10/10/fuel-economy-autonomous-driving-autonomous-vehicle-aluminum/17055367/>. See also Mark Phelan, *Analysts praise autonomous vehicles, fuel savings techs*, Detroit Free Press (Oct. 10, 2014), <http://www.freep.com/story/money/cars/2014/10/10/fuel-economy-autonomous-driving-autonomous-vehicle-aluminum/17055367/>.

³¹ *Autonomous Vehicle Technology: A Guide for Policymakers*, Rand Corp., at xiv (2014) ("[Autonomous vehicle] technology can dramatically reduce the frequency of crashes."), available at http://www.rand.org/pubs/research_reports/RR443-1.html.

³² Eno Center, *Preparing a Nation for Autonomous Vehicles: Opportunities, Barriers and Policy Recommendations*, at 17 (Oct. 2013), available at <https://www.enotrans.org/store/research-papers/preparing-a-nation-for-autonomous-vehicles-opportunities-barriers-and-policy-recommendations>.

³³ See *Autonomous Cars: Self-Driving the New Auto Industry Paradigm*, Morgan Stanley Research (Nov. 6, 2013), available at <http://www.morganstanley.com/public/11152013.html>. The authors indicate that \$1.3 trillion is a base case estimate and indicate a bear case scenario of \$0.7 trillion savings per year in the U.S. and a bull case scenario of \$2.2 trillion per year.

VII. Consistent with the Presidential Memorandum, Successful Sharing of 5.9 GHz Band with Unlicensed Wireless is Feasible and NHTSA Should Support Testing

TIA is optimistic that approaches to successful sharing between V2V technologies and unlicensed wireless safety technologies can be implemented in the 5850-5925 MHz band (the “5.9 MHz Band”), with sharing techniques that protect the primary users in the 5 GHz band while enabling expanded unlicensed use. For example, the IEEE 802.11p standard that has been developed as the groundwork for DSRC has similarities to the general Wi-Fi standard.³⁴ This shared heritage will be helpful in identifying, understanding, and potentially developing sharing solutions, if all stakeholders work together in good faith to drive a successful sharing solution. Moreover, there are potential benefits in cost savings and innovation to DSRC technology, for example, by creating the opportunity for a single chipset/module.³⁵

Of course, TIA also believes, and has repeatedly told the Commission, that any new sharing rules permitting unlicensed wireless devices in the band should provide appropriate levels of priority access and protection to incumbent systems.³⁶ In particular, TIA recognizes that DSRC, or other V2V technologies coming out of a competitive marketplace, could facilitate vehicular safety applications through V2V and V2I communications. For this reason, TIA supports efforts to do further collaborative analysis and testing to determine how any identified risk factors can be mitigated and develop appropriate sharing solutions.

Most recently, TIA has advocated that interference testing and the adoption of sharing solutions be done more rapidly; efforts to delay fruitful sharing discussions, or more detailed testing, is not in anyone’s best interest, especially consumers. Of course, TIA and our member companies continue to hope they can work with the National Telecommunications and Information Administration and the Commission to expedite the process, and NHTSA could potentially play a useful role as well.

NHTSA, too, should support testing that could lead to a win-win scenario not merely for DSRC, but also for automakers generally as they are able to capitalize on new wireless technologies more broadly, whether unlicensed or otherwise. However, in the ANPRM, NHTSA did not ask about what its own role should be to incorporate sharing technologies in V2V testbeds, how the DSRC research agenda could support a complete understanding of the radio environment, or how the agency’s objectives with

³⁴ See RITA, *Connected Vehicles Dedicated Short Range Communications Frequently Asked Questions* (Nov. 15, 2012), http://www.its.dot.gov/DSRC/dsrc_faq.htm.

³⁵ See, e.g. Lansford and Kenney, *Coexistence issues between 802.11p and 802.11ac in the proposed UNII-4 band*, doc:IEEE 802.11-13/0552r0 (May 2013).

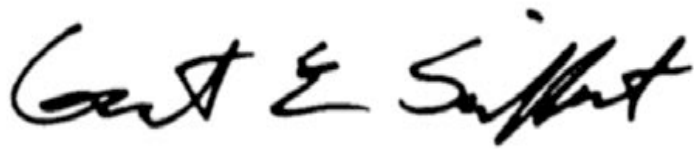
³⁶ See TIA Comments, filed May 28, 2013, in ET Docket 13-49, available at http://www.tiaonline.org/sites/default/files/pages/TIA_5_GHz_Comments_ET_Docket_No.13-49%20_May_28_2013.pdf; see also TIA Opposition to Association of Global Automakers, Inc. Petition for Reconsideration, filed August 14, 2014 in ET Docket 13-49, available at <http://www.tiaonline.org/sites/default/files/pages/TIA%205%20GHz%20Opposition%208-14-2014.pdf>.

the technology are aligning with Administration principles for spectrum sharing.³⁷ TIA encourages NHTSA to do so.

VIII. Conclusion

TIA and its member companies stand ready to work with NHTSA to find more effective ways to capitalize on the growing ITS marketplace to improve the safety of American motorists.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Grant E. Seiffert". The signature is fluid and cursive, with the first name "Grant" being the most prominent.

Grant Seiffert
President
Telecommunications Industry Association

³⁷ White House, *Presidential Memorandum – Expanding America’s Leadership in Wireless Innovation*, June 14, 2013, available at <http://www.whitehouse.gov/the-press-office/2013/06/14/presidential-memorandum-expanding-americas-leadership-wireless-innovatio>.