Before the
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
Washington, D.C. 20590

In the Matter of	)	
	)	
Federal Motor Vehicle Safety Standards:	)	Docket No. NHTSA-2014-0022
Vehicle-to-Vehicle (V2V)	)	
Communications	)	

COMMENTS OF
THE COMPETITIVE ENTERPRISE INSTITUTE

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Introduction

On behalf of the Competitive Enterprise Institute ("CEI"), I respectfully submit these comments in response to the National Highway Traffic Safety Administration's ("NHTSA") advance notice of proposed rulemaking in the matter of Federal Motor Vehicle Safety Standards: Vehicle-to-Vehicle ("V2V") Communications ("ANPRM").[1] CEI is a nonprofit, nonpartisan public interest organization that focuses on regulatory policy from a market-oriented perspective.[2]

Our comments develop the following points:

1) It was inappropriate for NHTSA to issue its ANPRM prior to the Federal Communications Commission ("FCC") resolving the issues related to the rules governing the operation of Unlicensed National Information Infrastructure ("U-NII") devices in the 5.9 GHz band;

2) NHTSA should consider recent developments in competing V2V technology that could more rapidly achieve many of the theoretical safety benefits of V2V; and

3) NHTSA fails to adequately consider vehicle automation technology that may greatly reduce the potential benefits of a V2V mandate.

I. NHTSA Should Yield Until the FCC Resolves the Dispute over U-NII Device Use of the 5 GHz Band

In 1997, the Intelligent Transportation Society of America ("ITS America") petitioned the FCC to allocate 75 MHz of spectrum at 5.850–5.925 GHz for use by dedicated short-range communications ("DSRC") systems operating in the intelligent transportation systems ("ITS") radio service.[3] In 1998, Congress ordered the FCC and secretary of transportation to consider the "spectrum needs for the operation of intelligent transportation systems, including spectrum for the dedicated short range vehicle-to-wayside wireless standard."[4] A proceeding was opened shortly after the bill was signed into law.[5] In 1999, the FCC ordered that 75 MHz of spectrum at 5.850–5.925 GHz be allocated for the purposes requested by ITS America in 1997.[6]

When ITS America petitioned the FCC in 1997, there were two active DSRC services: electronic payment and commercial vehicle electronic clearance. Today, very

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[1] Federal Motor Vehicle Safety Standards: Vehicle-to-Vehicle (V2V) Communications, *Advance Notice of Proposed Rulemaking*, NHTSA-2014-0022, 79 Fed. Reg. 49270 (Aug. 20, 2014) [hereinafter ANPRM].

[2] *See* About CEI, http://cei.org/about-cei (last visited Oct. 16, 2014).

[3] Public Notice, DA 97-1106, RM 9096 (rel. May 28, 1997)

[4] Transportation Equity Act for the 21st Century, Pub. L. 105–178, 112 Stat. 457 § 5206(f) (Jun. 9, 1998).

[5] Dedicated Short Range Communications of Intelligent Transportation Services, *Notice of Proposed Rulemaking*, ET Docket No. 98–95, FCC 98–119, 63 Fed. Reg. 35558 (Jun. 30, 1998).

[6] Dedicated Short Range Communications of Intelligent Transportation Services, *Final Rule*, ET Docket No. 98–95, FCC 98–119, 64 Fed. Reg. 66405 (Nov. 26, 1999).

little has changed, although proponents are again claiming (as they have claimed for nearly two decades) that more sophisticated services, such as alerting drivers to imminent hazards, are nearing consumer availability.

In May 2014, the FCC issued its final rule which, among other changes, added 25 MHz of spectrum to the U-NII-3 band, extending its upper edge from 5.825 GHz to 5.85 GHz.[7] The FCC received six petitions for reconsideration in response to the final rule. One, filed by the Association of Global Automakers ("Global Automakers"), expresses concern that the decision to allow U-NII-3 devices to operate adjacent to DSRC devices at 5.85 GHz puts its DSRC "investments, and the critical public safety services that [intelligent transportation systems] will make available to millions of U.S. drivers, may be at substantial risk unless steps are taken to address and resolve potential harmful interference issues before it is too late."[8] Many proceeding participants, including Cisco Systems and the National Cable & Telecommunications Association, reject the claims of DSRC interference risk from Global Automakers and have opposed their petition for partial reconsideration.

These facts suggest NHTSA has moved with excessive haste in issuing its ANPRM in two ways. First, NHTSA knew an active proceeding at the FCC could impact the spectrum currently allocated to DSRC services. Second, if the FCC's final rule stands and leading DSRC advocate Global Automakers is correct in worrying about harmful interference with DSRC safety services from U-NII-3 devices, then NHTSA proceeding with the presumption that DSRC services at the 5.9 GHz band are safe runs counter to the public interest. Both suggest NHTSA's current approach to this proceeding is flawed.

II. NHTSA Should Better Consider Competing V2V Technology

For DSRC to be effective, roadside equipment ("RSE") units would need to be installed perhaps as close as 400 meters apart. The cost of such a system, presumably publicly funded, makes it an unattractive option. After all, merely reconstructing current Interstate Highway System infrastructure to meet basic modern standards is estimated to cost in the $600 billion–$1 trillion range over the next 20 years.[9] It remains to be seen how federal and state transportation agencies will pay for new DSRC RSE units, as current revenue sources are proving inadequate for basic infrastructure maintenance and reconstruction.

One potential alternative to DSRC V2V connection is cellular. NHTSA does contemplate this alternative, although it does not mention recent advancements in Long-Term Evolution ("LTE") cellular services that may be able to offer more rapidly

[7] Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band, *Final Rule*, ET Docket No. 13–49, FCC 14–30, 79 Fed. Reg. 24569 (May 1, 2014).

[8] Petition for Partial Reconsideration from the Association of Global Automakers, ET Docket No. 13–49, FCC 14–30 (May 1, 2014), at iv.

[9] Robert W. Poole, Jr., *Interstate 2.0: Modernizing the Interstate Highway System via Toll Finance*, REASON FOUNDATION POLICY STUDY 433 (Sep. 2013), *available at* http://reason.org/files/modernizing_interstates_toll_finance.pdf.

deployable V2V systems at lower costs. For instance, Nokia earlier this year announced its Liquid Applications LTE network system. This would rely on edge computing to transform, in Nokia's words, "a regular LTE base station into a roadside unit for vehicle-to-infrastructure (V2I) communications."[10]

Furthermore, harnessing existing wireless networks will not only reduce costs, it will harness the superior expertise of the wireless industry. As Roger Lanctot of Strategy Analytics notes, "The U.S. Department of Transportation needs to take a closer look at wireless phones as a means for achieving communications between vehicles or between vehicles and their drivers and infrastructure. Mandating a module is a dead end deal."[11]

NHTSA should be aware that selecting a single communications standard, particularly one that relies on expensive new infrastructure, risks locking in first-generation technology for the long-run. Markets tend to be quite adept to the selection of standards while still allowing innovative competitors to unseat the standards of an incumbent.[12] If innovation renders this technology obsolete, it will be extremely difficult for new competitors offering superior traffic safety technologies to gain entry to a V2V market defined by rigid technical regulations. For this reason, NHTSA should reject a DSRC mandate.

III. NHTSA Should Consider the Impact of Forced V2V on Vehicle Automation Systems

In the ANPRM's Question 56, NHTSA asks,

> Self-driving vehicles have the potential to dramatically reduce motor vehicle collisions. Even though these vehicles do not exist for sale to the public, how should we take account of this in evaluating the potential safety benefits of V2V? Is V2V an essential input into developing a viable self-driving car, an alternative technology that might compete with or discourage development of self-driving vehicles, or a complementary technology that can enable self-driving vehicles over time? Please explain why or why not.[13]

Advanced vehicle automation systems developers, including Google and Bosch, are developing their prototypes in a manner that does not assume widespread connected vehicle technology. Such systems use onboard sensors and computers to map the surrounding world in real-time and to make direction decisions. Google, for instance,

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[10] Dirk Lindemeier, *LTE edge computing advances Connected Car road hazard alerts*, NOKIA NETWORKS BLOG (Sep. 10, 2014), *available at* http://blog.networks.nokia.com/mobile-networks/2014/09/10/lte-edge-computing-advances-connected-car-road-hazard-alerts/.

[11] Roger Lanctot, *V2V Stops Here - No Module Mandate Needed*, STRATEGY ANALYTICS BLOG (Aug. 20, 2014), *available at* http://blogs.strategyanalytics.com/AES/post/2014/08/20/Vehicle-to-vehicle-communication-and-a-lot-more-can-be-achieved-without-a-module-mandate.aspx.

[12] Stan J. Liebowitz and Stephen E. Margolis, *Market processes and the selection of standards*, 9 HARV. J.L. & TECH. 2 (1996), at 283-318.

[13] ANPRM, *supra* note 1, at 49275.

recently announced a fully self-driving prototype, where a human operator has no ability to retake manual control at any point.[14]

A number of vehicle automation scholars such as Princeton University professor Alain Kornhauser doubt a V2V mandate will provide long-run benefits vis-à-vis rapidly advancing automated vehicle development. He notes:

> Unfortunately, the mandated V2V architecture is likely to be obsolete before the entire fleet is equipped. Autonomous collision avoidance needs to be clearly prioritized ahead of V2V. Its safety implications accrue entirely to the vehicle on which the system is equipped. As long as the system remains turned on and functioning it reduces the probability of this vehicle being the cause of an accident. This is true for the first vehicle so equipped as well as the last of the fleet.[15]

One specific potential worry that a V2V mandate spawns in the context of automated vehicles relates to how the two systems might interact with one another. If the primary purpose of V2V, as NHTSA appears to express it in this ANPRM, is to alert drivers to hazards, how will automated systems interpret such warnings?

If both are required under a new Federal Motor Vehicle Safety Standard to interact with one another, then large and as yet uncontemplated cybersecurity, crash, and products liability risks are generated. Spoofing an audible or visual alert when a human driver still bears full responsibility for the core driving tasks presents a minimal crash risk; the risk is much more substantial if an automated vehicle system must somehow interpret transmitted messages and then direct the core driving functions based on the V2V data received.

But if such systems would be completely separated under a proposed rule, the best case scenario for a fully automated vehicle under a V2V mandate aimed at generating driver warnings is that the automaker would be required to install completely useless technology—translating to zero benefits and some non-trivial costs, which would certainly fail a basic benefit-cost analysis. After all, what good is an advanced collision audible warning if a driver has no ability to take manual control of the vehicle in response?

None of this is to say that V2V or V2I is without value in the context of automated vehicles. Indeed, cooperative automated systems that utilize V2X networks for purposes such as high-speed vehicle platooning offer some of the most promising potential benefits of automated systems. But mandating early V2V technology in a manner that negatively impacts automated vehicle development will harm both V2X and vehicle automation in the long-run.

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[14] Alistair Barr, *For Google's Self-Driving Cars, It's a Bumpy Trip*, THE WALL STREET JOURNAL (Aug. 24, 2014), *available at* http://online.wsj.com/articles/for-googles-self-driving-cars-its-a-bumpy-trip-1408921031.

[15] Alain Kornhauser, *Summary of the Testimony by the Witnesses* (Nov. 19, 2013), *available at* http://orfe.princeton.edu/~alaink/SmartDrivingCars/HouseHearing_119113/SummaryOfTestimony_HouseHearing_111913.pdf.

Conclusion

For these reasons, we urge NHTSA to reconsider its current approach and appreciate the harm it is capable of doing in the intelligent vehicle space through a misguided V2V mandate.

Respectfully Submitted,

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