**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, D.C. 20554**

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| In the Matter of | ) | |
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| Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band | ) | ET Docket No. 13-49 |
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# COMMENTS OF THE INTELLIGENT TRANSPORTATION SOCIETY OF AMERICA


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*Of Counsel*

The Intelligent Transportation Society of America ("ITS America") hereby respectfully submits its Comments regarding the *Public Notice* issued by the Federal Communications Commission ("FCC" or "Commission") in ET Docket No. 13-49, as captioned above.[1] ITS America's Comments concern the proposal in the underlying Notice of Proposed Rulemaking[2] to permit the operations of Unlicensed National Information Infrastructure ("U-NII") devices in the 5850-5925 MHz band ("5.9 GHz Band") (denominated the "U-NII-4 Band" in the NPRM) and the possible impact on Dedicated Short Range Communications ("DSRC"), which has a co-primary allocation in the 5.9 GHz Band.[3]

ITS America is the nation's largest advocacy group dedicated to advancing the deployment of Intelligent Transportation Systems ("ITS") to improve safety and increase sustainability of our nation's transportation infrastructure, as well as to promoting research, development and deployment of advanced vehicle technology, connectivity, integrated mobility and smart cities. ITS America membership is unique in that it is composed of public agencies, private companies, research institutions and academia, and includes auto, telecommunications, traditional IT and emerging technology, consumer apps and industrial electronics, road, transit

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[1] *The Commission Seeks to Update and Refresh the Record in the "Unlicensed National Information Infrastructure (U-NII) Devices in the 5 Ghz Band" Proceeding*, Public Notice, FCC 16-68, ET Docket No. 13-49 (2016) ("*Public Notice*"). ITS America is a party to the Joint Comments submitted concurrently with the Association of Global Automakers, Inc., the Alliance of Automobile Manufacturers, and DENSO International America, Inc., and addresses with particularity there the questions posed by the FCC in its *Public Notice*. *See, generally*, *Public Notice*.

[2] *Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, Notice of Proposed Rulemaking, FCC 13-22, ET Docket No. 13-49, 28 FCC Rcd 1769 (2013).

[3] *See "About DSRC"* (available at: http://wireless.fcc.gov/services/index.htm?job=about&id=dedicated_src) (explaining that certain federal government radiolocation and fixed satellite operations are co-primary allocations in the 5.9 GHz Band) (last visited July 6, 2016).

and other transportation infrastructure operators and the research community focused on bringing new technology from the lab to our roads, cars, buses and trucks.

Following enactment of the landmark Intermodal Surface Transportation Efficiency Act of 1991 ("ISTEA"),[4] the United States Department of Transportation ("US DOT"), state and local transportation authorities, private sector interests and academia embarked on ISTEA's challenge of establishing a surface transportation ecosystem in the United States that integrated wireless and other emerging technologies into our roadways. The benefits included improved mobility, more efficient use of the roadways, a lessened need for new construction, enhanced international competitiveness, reduced vehicle emissions, improved environmental quality and, most compellingly, a substantial reduction in the cost of human lives lost and injuries sustained. Many building blocks were needed to develop the ITS ecosystem, including research and standards development, the enactment of legal and policy measures, capital formation, prototype development and testing, removal of institutional barriers and building the public's trust and acceptance of the fundamental transformation of our surface transportation network, among others.

Through the auspices of the US DOT, a national ITS architecture and a national ITS program plan were developed to provide the framework for the deployment of the ITS ecosystem. The architecture was developed to be an open living system capable of accommodating new requirements, applications and technological evolution. It identified as a core requirement a need for a backbone short range communications network to support and tie together the many different public and private sector applications needed to equip our roadways and vehicles and to reach the public travelling upon them with ITS services. This was the

[4] Intermodal Surface Transportation Efficiency Act of 1991, Pub. L. No. 102-240, 105 Stat. 1914.

foundational requirement of the ITS ecosystem, the need for which has been confirmed by the safety and other benefits realized as a result of the ITS technologies and services that have been deployed, including vehicular radars, navigation systems, electronic toll systems and the growing presence of DSRC systems. With the introduction of these services, lives have been saved, injuries avoided and the travelling public's safety has been enhanced. With the increasing level of investment and activity on connected and autonomous vehicle technology, the future is in view.

The FCC has been a full partner in this endeavor, encouraging and promoting the development and deployment of new ITS systems and technologies through, for example, the provision of spectrum for vehicular radar systems, the assignment of dialing code "511" for a national traveler information system and, of course, the allocation of spectrum for DSRC. The DSRC spectrum allocation was a critical decision by the Commission that was needed to ensure public and private sector parties that their efforts and capital invested in developing new products and applications designed to save lives would not be wasted for lack of a spectral home. The Commission's decision has paid off. For example, New York has been particularly active, installing approximately 40 roadside units for urban application and traffic management, as has Virginia, which installed 44 roadside units on I-495 and I-66 — major highways in Fairfax County.[5] It is likely that the Commission's efforts in this area will bring even greater dividends.

In 1997, ITS America petitioned the FCC to allocate the 5.9 GHz Band to DSRC. Since that time, ITS America has played a key role in facilitating the development and deployment of DSRC equipment, services and applications, in partnership with the US DOT, state DOTs, and its many private sector, academic and other members. From 2000 to 2003, ITS America, its

[5] *OmniAir Consortium Notice of Ex Parte at Attachment*, Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band, ET Docket No. 13-49 (Apr. 9, 2014).

members, US DOT, and others worked with the Commission to develop the appropriate licensing and service rules for DSRC in the 5.9 GHz Band, culminating in the release of a Report and Order adopting these rules.[6] ITS America, along with the American Association of State Transportation Officials and the Satellite Industry Association have worked together to develop a spectrum sharing protocol between DSRC and Fixed Satellite Earth stations operating in the 5.9 GHz Band.

The world of ITS has expanded beyond early interpretations of the industry. Today, ITS America counts as its members an array of technology firms, many of which have made considerable investments in ITS product and application development, most of which did not exist at the time of the FCC's completion of the technical and service rules in 2004. These firms include telecommunications equipment suppliers, traffic control and other industrial device makers, integrated mobility providers, app and on-demand mobility services, automotive vehicle and automotive aftermarket suppliers, and consumer electronics and apps developers. The FCC allocation and technical and service rules also spurred enormous efforts by standards bodies to develop cooperative crash avoidance and active traffic management applications. US DOT expanded the ITS architecture to include "Connected Vehicle" services and new organizations developed to provide certification services. A number of industry and academic/research consortiums were founded to create an open ITS product and application ecosystem that took advantage of the FCC's established framework for interoperability. "Vehicle-to-X" (known as V2X, where the "X" represents more than one of the following: vehicles, pedestrians and/or

[6] *See generally, Amendment of the Commission's Rules Regarding Dedicated Short-Range Communication Services in the 5.850-5.925 GHz Band (5.9 GHz Band); Amendment of Parts 2 and 90 of the Commission's Rules to Allocate the 5.850-5.925 GHz Band to the Mobile Service for Dedicated Short Range Communications of Intelligent Transportation Services*, Report and Order, FCC 03-324, WT Docket No. 01-90, ET Docket No. 98-95, RM-9096, 19 FCC Rcd 2458 (2004).

road infrastructure elements) application open messaging standards such the “Basic Safety Message” and “Basic Infrastructure Message” (a composite of a number of past infrastructure-to-vehicle standards), were developed by our members. The Crash Avoidance Metrics Partnership, a consortium of our automaker members, developed basic Vehicle-to-Vehicle (“V2V”) applications. The Cooperative Transportation System Pooled Fund Study and a number of other academic and research institutions developed Vehicle-to-Infrastructure applications based on concepts of operation developed by the US DOT, state and local transportation agencies and industry. The Vehicle Infrastructure Integration Consortium developed technical policy, such as privacy principles and security architecture that could support multiple ITS applications.

With the FCC technical and service rules describing interoperability and priority between different categories of ITS applications (“Safety-of-Life,” “Public Safety” and “other intelligent transportation service applications”), automotive and traffic engineers synthesized requirements across four major elements – 1) low latency and ability to function at highway speeds in very complex road and environmental conditions; 2) interoperability across vehicles (V2V) and traffic control systems (V2I) as well as international harmonization; 3) “expandability” to allow for multiple V2X applications to be provisioned from one or more app service platforms utilizing multiple channels to reduce interference; and 4) security and privacy — i.e., the ability to establish secure “safety” connections among vehicles and between vehicle and traffic management systems such as traffic lights in an ad-hoc fashion, while maintaining the privacy of the drivers.

The FCC technical and service rules for DSRC established a foundation for short range communications for all vehicles and traffic control systems, and kickstarted industry standards development on new applications. One suite of standards, built upon the FCC’s technical and service rules, has driven economies of scale and scope in R&D and deployment and lowers the

cost of ITS. All of these organizations and the US DOT have spent more than a billion dollars over the last five years deploying or preparing to deploy DSRC. In addition to the financial investment by American taxpayers and the private sector, the implementation of connected vehicle technology will create thousands of jobs while significantly reducing the $300 billion per year in economic costs associated with vehicle crashes on our nation's roads. But with over 35,000 deaths and millions of serious injuries in motor vehicle crashes on our nation's roads in 2015 alone,[7] we also believe that all efforts to improve traffic safety are critically important to pursue. Traffic fatalities, long on the decline, have recently risen.[8] According to early estimates from the National Traffic Safety Administration ("NHTSA"), the 2015 fatality estimate rose 8.1 percent from the same period the previous year.[9] Subsequent estimates by NHTSA put the fatality rate increase even higher, at "a steep 9.3 percent increase for the first nine months of 2015."[10] The National Safety Council asserts that this increase in 2015 motor vehicle deaths was

[7] *Motor Vehicle Deaths Increase by Largest Percent in 50 Years*, Press Release, National Safety Council (available at: http://www.nsc.org/Connect/NSCNewsReleases/Lists/Posts/Post.aspx?ID=103) (Feb. 17, 2016) (last visited July 6, 2016). *See U.S. Traffic Deaths, Injuries and Related Costs Up in 2015*, US Newsweek (available at: http://www.newsweek.com/us-traffic-deaths-injuries-and-related-costs-2015-363602) (Aug. 17, 2015) (last visited July 6, 2016).

[8] *U.S. DOT Announces Steep Increase In Roadway Deaths Based On 2015 Early Estimates And Convenes First Regional Summit To Drive Traffic Safety Behavior Changes*, Press Release, National Highway Traffic Safety Administration (Feb. 5, 2016) (available at: http://www.nhtsa.gov/About+NHTSA/Press+Releases/nhtsa-sees-roadway-deaths-increasing-02052016) (noting that "[t]he estimated increase in highway deaths follows years of steady, gradual declines. Traffic deaths declined 1.2 percent in 2014 and more than 22 percent from 2000 to 2014").

[9] *Traffic fatalities fall in 2014, but early estimates show 2015 trending higher*, Press Release, National Highway Traffic Safety Administration (available at: http://www.nhtsa.gov/About+NHTSA/Press+Releases/2015/2014-traffic-deaths-drop-but-2015-trending-higher) (Nov. 24, 2015) (last visited July 6, 2016).

[10] *See supra* note 8.

the largest year-over-year percent in 50 years.[11] According to NHTSA and the Centers for Disease Control and Prevention ("CDC"), the leading cause of death for ages 8 to 34 are motor vehicle traffic crashes.[12] Notwithstanding this steep and apparently historic increase in motor vehicle deaths, CDC designated prevention of motor vehicle–related injuries as one of ten "Winnable Battles."[13]

Policymakers appear to agree with the CDC's assessment. The National Transportation Safety Board recommended in 2013 that the federal government require all new vehicles to come equipped with connected-vehicle technology. In "*A Strategy For American Innovation*," a report released in October 2015, the White House National Economic Council and the Office of Science and Technology called for a doubling of federal investments in autonomous vehicle technology research to develop performance and safety standards for autonomous, connected, and self-driving vehicles on public roads, as well as an effort to "ensur[e] every lightweight vehicle has the ability to communicate critical life-saving information."[14] In addition, NHTSA seeks to establish a Federal Motor Vehicle Safety Standard ("FMVSS") addressing vehicle-to-vehicle communications this year.[15] The Federal Highway Administration is also in the process

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[11] *See supra* note 7.

[12] *Motor Vehicle Traffic Crashes as a Leading Cause Of Death in the United States, 2008 and 2009*, Traffic Safety Facts Research Note (available at: https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/811620) (last visited July 6, 2016).

[13] *Winnable Battles*, Centers for Disease Control and Prevention website (available at: https://www.cdc.gov/winnablebattles/) (last visited July 6, 2016).

[14] *A Strategy For American Innovation*, Report, White House National Economic Council and the Office of Science and Technology (available at: https://www.whitehouse.gov/sites/default/files/strategy_for_american_innovation_october_2015.pdf) (last visited July 2016).

[15] *U.S. Department of Transportation Issues Advance Notice of Proposed Rulemaking to Begin Implementation of Vehicle-to-Vehicle Communications Technology*, Press Release (Aug. 18, 2014) (available at: http://www.nhtsa.gov/About+NHTSA/Press+Releases/NHTSA-issues-advanced-notice-of-proposed-rulemaking-on-V2V-communications) (last visited July 6, 2016).

of issuing guidance on the deployment of V2I applications. State and local governments in California, New York, Florida, Michigan, Virginia, Arizona, Utah and Wyoming have all deployed DSRC roadside units to support their traffic operations.

Given the progress made by the auto industry, traffic technology suppliers, and road and public safety agencies that have deployed DSRC, there are larger technological and economic gains to be made in the near term. General Motors will deploy DSRC devices based on the FCC's existing DSRC rules in its Model Year 2017 Cadillac CTS. According to an ITS America DSRC market survey and adoption forecast to be released this summer, a number of companies have developed or are developing dashboard aftermarket or hand-held consumer electronics form factor devices that support DSRC V2X applications. With the establishment of a larger ITS DSRC application ecosystem by the auto industry and traffic technology providers, ITS America foresees DSRC growth in dashboard automotive aftermarket and consumer electronics categories of devices that will likely fill the gap between DSRC equipage in new vehicles that comply with a potential future NHTSA FMVSS and existing vehicles that are excluded from this standard.

The forecast in this upcoming report matches historical growth patterns for past auto technologies. Adoption of new auto technology in consumer electronics channels is not instantaneous, requiring substantial research, testing, and preparation for deployment, but can be dramatic when it does take off. For example, the time between the introduction of GPS navigation technology as optional equipment (in the 1990s), to when GPS technology saturated the personal navigation device market in the consumer electronics product category (in the latter 2000s) was more than a decade. In a similar fashion, the creation of a market for aftermarket/consumer electronics DSRC V2X applications will be spurred by progress made in

the auto industry following the NHTSA V2V rulemaking,[16] as well as resolution of the above captioned proceeding.

Consistent with our auto industry members' position, we agree that sharing the 5.9 GHz (DSRC) Band with unlicensed devices should be permitted only if it can be shown that such sharing will not interfere with DSRC's ability to protect and save lives. Were the Commission to adopt the "re-channelization" approach, the evolving V2X standards and application ecosystem that depend on the existing FCC technical and service rules would be disrupted, imposing enormous costs and delays on the many companies that have invested in DSRC end-user equipment, services and standards. Like many "Internet-of-Things" technologies in other sectors, development of the application ecosystem for DSRC has made enormous progress to date. In developing the rules for U-NII use of the 5.9 GHz Band, we believe the Commission therefore should proceed cautiously to avoid the unintended regulatory consequences of setting back what has become substantial effort to advance transportation safety, sustainability and mobility.

Respectfully submitted,

Intelligent Transportation Society of America

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[16] *Federal Motor Vehicle Safety Standards: Vehicle-to-Vehicle (V2V) Communications*, Advance Notice of Proposed Rulemaking, 79 Fed. Reg. 161 (Aug. 20, 2014).