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U.S. Department of Transportation
National Highway Traffic Safety Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

Re: Docket No. NHTSA-2016-0126

To the National Highway Traffic Safety Administration:

OmniAir Consortium, Inc. ("OmniAir") appreciates the opportunity to provide its comments regarding the National Highway Traffic Safety Administration's ("NHTSA") *Notice of Proposed Rulemaking* ("*NPRM*")[1] in Docket No. NHTSA-2016-0126, which proposes the adoption of a new Federal Motor Vehicle Safety Standard ("FMVSS") #150 mandating that newly-manufactured light vehicles be equipped with Vehicle-to-Vehicle ("V2V") communications technology using Dedicated Short-Range Communications ("DSRC") wireless protocols and channel plan in the 5.9 GHz Band (5850-5925 MHz).

[1]National Highway Traffic Safety Administration, Notice of Proposed Rulemaking, Docket No. NHTSA-2016-0126, 82 *Federal Register* 3854 (Jan. 12, 2017) ("*NPRM*").

According to the *NPRM*, the purpose of the proposed FMVSS is "to ensure that new motor vehicles are able to transmit and receive standardized, authenticated Basic Safety Messages (BSMs), in order to create an information environment upon which a variety of safety applications can rely, which in turn can reduce deaths and injuries on the roads."[2] NHSTA's research has found that V2V technologies, in conjunction with Vehicle-to-Infrastructure ("V2I") technologies, could eliminate or reduce the severity of up to 80% of driver non-impaired vehicle crashes, thus potentially saving thousands of lives and injuries annually and the attendant economic costs to affected individuals and society.[3]

OmniAir strongly supports the adoption of FMVSS #150 and its mandate for equipping light vehicles with V2V DSRC capability.

II. BACKGROUND

Established in 2004, OmniAir is a 501(c)(6) industry association with a mission to promote interoperability and certification for Intelligent Transportation Systems ("ITS"), tolling, and Connected Vehicle technologies. OmniAir members include public agencies, private-sector companies, research institutions, and independent test labs. OmniAir provides independent testing and certification of ITS technology (radios, software, firmware, and transactions) to ensure their conformance, interoperability, reliability and utility for service providers and the traveling public.

OmniAir has a direct and substantial interest in this proceeding. As further described below, OmniAir will be launching this year its "Connected Vehicle Conformance Assessment" ("CVCA") Program, which both anticipates and directly responds to NHTSA's call in the *NPRM* for the creation of an industry-developed mechanism to certify V2V DSRC radio devices for conformance and interoperability across manufacturers and applications.

More generally, V2V DSRC technology is poised for national deployment, and NHTSA's proposed mandate will provide a critical market signal to industry, state and local governments, and the traveling public of significant safety benefits resulting from this technology. OmniAir's CVCA Program will directly support the deployment of V2V DSRC nationwide.

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[2] *NPRM*, Section XI ("Proposed Regulatory Text"), at 4011-19.

[3] National Highway Traffic Safety Administration, "NHTSA Issues Notice of Proposed Rulemaking and Research Report on Vehicle-to-Vehicle Communications," Fact Sheet, Doc # 11078-101414-v2a (Dec. 13, 2016), at 2.

I. OMNIAIR IS POSITIONED TO PROVIDE V2V DSRC DEVICE CERTIFICATION FOR INTEROPERABILITY

A. Device Certification is Needed to Ensure Interoperability

The *NPRM* rightly identifies that "interoperability" is the key enabler for V2V. According to NHTSA, V2V interoperability means that vehicles and devices from different manufacturers are able to communicate with one another using standardized messages that all vehicles can understand.[4] Without such interoperability, according to NHTSA, a manufacturer's vehicles will not necessarily be able to communicate with another manufacturer's, thus defeating the purpose of mandating V2V DSRC technology for light vehicles.[5] The *NPRM* recognizes the need for an industry-led, independent certification testing process to ensure interoperability among devices and vehicles, writing: "[NHTSA] currently believes the creation of a standardized test device should mitigate manufacturer to manufacturer communication variances to help ensure interoperability".[6] Any such standardized test device process should be well-defined and validated for both conformance and interoperability.

The Federal Communications Commission ("FCC") in its adoption in late 2003 of the technical and service rules for DSRC also identified the need for interoperability "so that [DSRC radio devices] are interchangeable" and that a device manufactured by one vendor "would be able to communicate and exchange information" with a device manufactured by another vendor.[7] To achieve this interoperability, the FCC adopted into its rules a single communications standard.[8] Pointedly, the FCC called for industry to develop test procedures to demonstrate compliance with the DSRC standard.[9] OmniAir was created in 2004, in part, to address certification and interoperability with DSRC and other relevant standards.

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[4] *NPRM* at 3856.

[5] *Id*.

[6] *Id.* at 3868.

[7] "Amend Rules Regarding Dedicated Short Range Communications Services and rules for Mobile Service for Dedicated Short Range Communications of Intelligent Transportation Services," *Report and Order*, FCC 03-324, 19 FCC Rcd 2458, ¶ 44 (2003) ("*FCC DSRC R&O*").

[8] 47 CFR §§ 90.379 and 95.1509. The formal name of the FCC-adopted DSRC standard is: American Society for Testing and Materials (ASTM) E2213-03 Standard Specification for Telecommunications and Information Exchange Between Roadside and Roadside – 5 GHz Dedicated Short Range Communications (DSRC) Medium Access Control (MAC) and Physical Layer (PHY) Specifications (published Sept. 2003).

[9] *FCC DSRC R&O*, at ¶ 44.

B. OmniAir Will Launch Its Connected Vehicle Certification Assessment in 2017

OmniAir is pleased to use these comments to announce that it will be launching its Connected Vehicle Certification Assessment ("CVCA") Program this year. The CVCA Program will be an independently-operated, third-party testing and certification program to verify conformance of Connected Vehicle devices to industry-defined, standards-based requirements, including the V2V DSRC Basic Safety Message. The concept and practice of an impartial, third-party certification will provide an objective evaluation and attestation that a product complies with applicable standards-based requirements.[10]

OmniAir's CVCA Program will be a conformity assessment program that verifies a Connected-Vehicle product has met industry consensus protocols and minimum performance requirements. Certification will be awarded to an applicant for a device that fully meets all requirements, and can also be used in the security certificate authority process proposed by NHTSA.[11] The applicant may then display the "OmniAir Certified" trademark as evidence of device conformance.

The CVCA Program requirements have evolved from the initial product qualification testing developed for the U.S. Department of Transportation's Connected Vehicle Safety Pilot program, in which some 3000 vehicles (light cars, trucks, buses and commercial vehicles) were equipped with DSRC radio equipment and operated in and around Ann Arbor, Michigan. The CVCA Program has been adapted to meet the certification needs of government transportation entities, Connected Vehicle technology implementers, other consortia, and Connected Vehicle product manufacturers. The CVCA uses foundational elements from ISO/IEC 17065 and ISO/IEC 17067 for third-party product conformity assessment certification bodies.

In addition, the CVCA Program encompasses key technical standards for DSRC-based V2V, V2I and V2X communications:

- **IEEE Std 802.11** - Wireless Access in Vehicular Environments (WAVE)[12] protocol stack
- **IEEE Std 1609 Series** - Higher layer standards used with IEEE Std 802.11
- **SAE J2735** - Dedicated Short Range Communications (DSRC) Message Set Dictionary
- **SAE J2945/1** - Dedicated Short Range Communications (DSRC) Common Performance Requirements

[10] The *NPRM* uses the term "standardized test device" to describe the interoperability certification process. *See, e.g.*, *NPRM* at 3868. OmniAir contends that its CVCA Program would be representative of this "standardized test device."

[11] *See generally id.* at 3934-56.

[12] IEEE Std 802.11p/WAVE is the successor interoperability standard to the FCC-adopted DSRC standard and has now been incorporated into the IEEE Std 802.11 standard.

Significantly, the CVCA Program also will support the security needs of V2V, namely the proposed Security Credential Management System ("SCMS"). The *NPRM* makes this point as well, suggesting that provider(s) of SCMS require V2V DSRC radio devices be certified for conformance and interoperability "to ensure the reliability of message content."[13] In other words, an interoperability and conformance certification program is a prerequisite to realizing "trusted" messages and transmissions between all communicating vehicles. The SCMS certificate authority should issue security certificates only to devices certified for interoperability.

Finally, OmniAir notes that it has previously and successfully developed and launched an interoperability testing and certification program in the transportation sector for electronic tolling devices. A significant segment of OmniAir's members include toll authorities, vendors, and system integrators supporting this industry. When electronic tolling was first deployed for highways, bridges, and tunnels, different toll authorities deployed RFID toll tags based on proprietary systems and technologies. These systems and technologies were not interoperable, meaning that a vehicle would need to be equipped with multiple tags to use electronic toll facilities across the country, even regionally.

OmniAir established the OmniAir 6C Certification Program in 2012, supporting the tolling industry. This certification program continues today, and OmniAir has applied lessons learned from this effort in developing its CVCA Program.

C. NHTSA Should Require V2V Interoperability Certification in FMVSS #150

OmniAir strongly recommends that the adopted FMVS #150 explicitly require V2V DSRC devices to be certified as interoperable. It is clear that interoperable, trusted devices are the foundation to the success of nationwide V2V deployment. While the *NPRM* understands that there is a need to ensure interoperability between and among the devices produced by different manufacturers,[14] it does not require that these devices be confirmed as interoperable before deployment.

Any such requirement need not identify and approve one or a group of specific certification programs (or "standardized test devices"). Rather, NHTSA should let industry develop these programs. It is possible that multiple and programs could become available. It is also not necessary for NHTSA to establish the process and requirements for interoperability certification. Again, industry is in the best position to determine how to certify that a V2V DSRC device is interoperable. OmniAir CVCA is one such program; there could be others. Finally, all such programs should make their services available on a non-discriminatory basis to any and all applicants.

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[13] *NPRM* at 3868. The *NPRM* further anticipates that third-party laboratories will confirm hardware security of V2V communications devices. *Id*. at 3916.

[14] *Id.* at 3868.

III. V2V DSRC IS READY FOR DEPLOYMENT NOW

At this time, there is no demonstrable reason to delay adoption of FMVSS #150 and its mandate for deployment of V2V DSRC in light vehicles. Alternative technologies for V2V hold promise, but they are not yet ready for national deployment. While there are current efforts to develop V2V using cellular technology, for example, applicable standards remain in development. There are also open questions of how to provide for interoperability among cellular V2V devices that need to be answered before national deployment can proceed.

In contrast, V2V DSRC is ready for national deployment – now. After some two decades of research, testing and small-scale deployment programs, there is a clear consensus supporting V2V DSRC among government (federal and state), vehicle OEMs, device manufacturers, and researchers. Key national standards for V2V DSRC, such as SAE J2735 and SAE J2945/1, determined through a consensus-based process, are in place. OmniAir's proposed CVCA Program will provide critical conformance and interoperability certification. The Connected Vehicle Safety Pilot in Ann Arbor, Michigan proved the viability of V2V and V2I safety applications in real-world conditions. Research data from the Safety Pilot informed NHTSA's decision to propose FMVSS #150 and confirmed the critical role of interoperability.[15] The *NPRM* includes a robust plan to address data privacy and cybersecurity issues. No other proposed V2V technology, including cellular, has come as far as V2V DSRC in answering the key technical, policy, and institutional issues.

Very recent market signals are further evidence that DSRC is poised for national deployment. In early March of this year, Cadillac announced that its model year 2017 CTS sedans will now come equipped with V2V DSRC capability.[16] The CTS sedans will be able to exchange as many as 1000 messages per second with nearby similarly-situated vehicles. Drivers will be alerted to these hazards via the car's instrument panel with warning messages such as "Hard Braking Ahead."

Safety benefits will grow exponentially as more vehicles become equipped with V2V DSRC, the so-called "network effect." While the DSRC-equipped 2017 Cadillac CTS is an important market indicator that should incentivize other vehicle OEMs to equip their light vehicles with V2V DSRC, it also proves the value of FMVSS #150. The mandate clearly will spur deployment of V2V

[15] *Id.* at 3880 ("The Safety Pilot Model Deployment demonstrated that interoperability is possible and directly informed the requirements of FMVSS #150 and also in SAE standards such as J2735 and J2945.").

[16] "2017 Cadillac CTS Now Standard With V2V Technology," *Motor Trend*, March 9, 2017 (available at: http://www.motortrend.com/news/2017-cadillac-cts-now-standard-v2v-technology/ (viewed April 5, 2017)).

DSRC, thus accelerating the "network effect." Requiring V2V DSRC deployment will also better ensure that interoperability between manufacturers is realized.

OmniAir therefore urges NHTSA to proceed without delay in issuing a final rule for FMVSS #150 and the deployment mandate. FMVSS #150 when V2V DSRC is proven and ready for national deployment.

IV. DATA PRIVACY AND CYBERSECURITY; SPECTRUM AVAILABILITY

A. OmniAir Supports NHTSA's Program to Address Cybersecurity and Data Privacy Concerns

The *NPRM* rightly addresses the issues of data privacy and cybersecurity implicated by V2V. It is not possible to completely eliminate these concerns in any network, but they can be effectively managed and risks identified and mitigated. OmniAir supports NHTSA's proposed Security Credential Management System ("SCMS"),[17] built on commonly used Public Key Infrastructure concepts, as an effective mechanism to manage cybersecurity and data privacy implications. The SCMS will enable that only "trusted" messages are exchanged between vehicles. OmniAir contends that only devices that have obtained interoperability certification should be authorized.

Privacy-by-Design attributes, minimizing data privacy risks are included in the V2V DSRC architecture. Importantly, there is no need for specific vehicles, drivers or vehicle owners to be identified by the system, and the structure of the SCMS reflects this fact. For example, the Basic Safety Message includes no Personally Identifiable Information that can identify a vehicle, the vehicle owner, the driver, or passengers. Randomized and temporary security credentials are further protection against any such identification. System operational data, which would be useful to transportation authorities and for planning and incident management would be based on the same random identifiers, effectively anonymizing all data. Even with these and other data privacy protections designed into the V2V DSRC system and the SCMS, OmniAir encourages NHTSA and all deployers and operators to remain cognizant of these data privacy concerns and seek to minimize their impact at all times.

B. V2V DSRC Needs Full 5.9 GHz Band and Spectrum Sharing Must Not Cause Harmful Interference to DSRC

OmniAir takes this opportunity to reiterate its position that the full 75 MHz of spectrum allocated by the FCC in the 5.9 GHz Band should remain available for transportation safety and licensed DSRC protocol communications. OmniAir has submitted comments to the FCC opposing

[17] *See generally NPRM* at 3934-56.

any spectrum sharing with unlicensed operations in the band.[18] The FCC-adopted band plan for DSRC contemplates access to the full band to ensure that there is sufficient and reliable access to spectrum. If the FCC does ultimately decide to permit sharing in the band, OmniAir agrees with other commenters that sharing must be proven not to cause harmful interference to DSRC safety messages. Regardless, OmniAir urges NHTSA to adopt FMVSS #150 without waiting for the FCC spectrum sharing proceeding to conclude. Every month of delay prevents this technology from saving lives.

IV. CONCLUSION

V2V DSRC is ready to deploy now. The underlying communications and other technical standards are in place and are supported by government and industry. Multiple tests and pilot deployments have proven the feasibility of this technology. OmniAir's CVCA Program will provide critical assurances that these devices will be interoperable, conform to the consensus-based standards and support necessary data privacy and cybersecurity protections. For these reasons, OmniAir supports NHTSA's proposed FMVSS #150 and its mandate that light vehicles be equipped with V2V DSRC.

OmniAir and its members appreciate the opportunity to support this NHTSA *NPRM*.

Sincerely,

Jason M. Conley

Jason M. Conley
Executive Director
OmniAir Consortium, Inc

[18] *See, e.g.*, Comments of OmniAir Consortium, Inc., "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 (July 7, 2016).