OmniAir Consortium, Inc.
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March 9, 2020

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW Room TWA325
Washington, DC 20554

Re: Use of the 5.9 GHz Band (ET Docket No. 19-138)

Dear Ms. Dortch,

OmniAir Consortium® ("OmniAir") appreciates the opportunity to provide its comments in response to the FCC's Notice of Proposed Rulemaking ("*NPRM*") and its spectrum rebanding proposal for the 5.9 GHz Band (5.850-5.925 GHz) in the above-referenced docket.[1]

OmniAir has a direct interest in this proceeding. As further described below, OmniAir has implemented and is currently operating the only interoperability and conformance certification testing program for Vehicle-to-Everything ("V2X") radio devices operating in the 5.9 GHz Band to provide "trusted communications" for transportation. Any Commission decision regarding the amount and location of available spectrum in the 5.9 GHz Band currently allocated to V2X communications will impact the deployment and availability of these critical transportation safety applications in the United States. OmniAir previously participated in the earlier proceeding regarding the 5.9 GHz Band in FCC Docket No. 13-49.[2]

We therefore continue to urge the Commission to preserve the availability of the full 75 MHz in the 5.9 GHz Band and ensure its availability for current and future transportation safety applications. Regardless of the wireless technology deployed in the band for V2X services, it is critical that the FCC preserve sufficient reliable and secure spectrum for these life-saving services.

[1] Use of the 5.9 GHz Band, *Notice of Proposed Rulemaking*, ET Docket No. 19-138, FCC Doc No. 19-129 (rel. Dec. 17, 2019) ("*NPRM*").

[2] *See, e.g.*, OmniAir Consortium, *Comments*, ET Docket No. 13-49 (July 7, 2016); OmniAir Consortium, *Notice of Ex Parte Meeting*, ET Docket No. 13-49 (April 9, 2014), OmniAir Consortium, *Comments*, ET Docket No. 13-49 (May 28, 2013).

Reallocating only 30 MHz for V2X does not provide sufficient spectrum resources for current and future applications – and not in the public interest.

OmniAir also provides its comments on several additional issues raised in the *NPRM*.

I. Description and Mission of OmniAir Consortium

Established in 2004, OmniAir Consortium is a 501 (c)(6) industry association promoting interoperability and certification for Intelligent Transportation Systems ("ITS"), tolling, and Connected Vehicle technologies, including V2X. OmniAir's membership includes public agencies, private companies, research institutions, and independent test laboratories.

OmniAir Consortium's 82 members from around the world include key stakeholders representing both public and commercial interests in the Connected Vehicle ecosystem: automotive OEMs, device manufacturers, Tier 1 Suppliers, chipset manufacturers, engineering firms, local governments, deploying agencies, test laboratories, test tool providers, and research institutions.[3] Through its growing network of nine OmniAir Authorized Test Laboratories, OmniAir offers independent, third-party testing and certification for DSRC-V2X radios and RFID tolling tags and readers, using qualified test tools and validated test cases. OmniAir Certified devices conform with industry standards, per test cases, and meet minimum interoperability and security requirements.

OmniAir and its members are also developing a certification program for C-V2X radio, offering the same conformance assessment and interoperability and security testing currently offered for DSRC-V2X devices. OmniAir expects to launch this new C-V2X certification program later this year.

OmniAir members are also developing, testing and deploying Connected Vehicle technologies based on DSRC and/or C-V2X.

II. OmniAir's Activities

Since its inception, OmniAir Consortium has focused on testing and certification programs for ITS, tolling, and connected vehicle technologies. For example, OmniAir led the development of DSRC device qualification testing for the U.S. Department of Transportation's Safety Pilot Model Deployment in Ann Arbor, MI.

OmniAir also led National Toll Interoperability Testing, in cooperation with the International Bridge, Tunnel and Turnpike Association ("IBTTA"), under a contract with the Federal Highway Administration ("FHWA"). In 2012, OmniAir started its first certification program for the 6C-for-Tolling Program for tolling devices compliant with requirements based on ISO/EC 18000-6C (Type C) RFID protocol.

[3] A list of OmniAir's current members is provided in the attached Exhibit A.

A. V2X Certification Program – DSRC Devices

In October 2017, OmniAir Consortium launched the industry's first DSRC-V2X device certification program ("Certification Program"), based on ISO-17065 certification body requirements and ISO-17067 certification scheme guidelines. The purpose of the Certification Program is to verify the interoperability and conformance of Connected Vehicle technology devices to industry-defined, standards-based requirements.

Companies completing certification may display the OmniAir Certified® mark to demonstrate to consumers, customers and partners that they have created a high-quality device for "trusted" communications. Functionality, consistency and interoperability are key drivers of V2X deployment. OmniAir certification plays a similar role to that of other certification bodies for wireless communications devices, ensuring conformance and interoperability, and faster deployment of vital services.

Device manufacturers seeking OmniAir certification submit their devices to an OmniAir Authorized Test Laboratory (OATL) for certification testing. Each OATL must be an accredited ISO 17025 Test Laboratory, following ISO standards for laboratory auditing and accreditation, using OmniAir Qualified Test Equipment (OQTE), to ensure accuracy and consistency of test results.

In addition, each OATL must prove it can execute the relevant protocol to test and verify user requirements of the underlying technology using qualified test equipment and test systems. To date, eight test laboratories, including four in the United States, three in Asia, and one in Europe, have been authorized to provide certification testing for V2X radios. In addition, OmniAir has one laboratory authorized for RFID Tolling testing. Five entities have been approved as Qualified Test Equipment Providers, three in the United States, and one each in Asia and Europe.[4]

This first-generation Certification Program encompasses test case verification generated from key technical standards for DSRC-based V2X, including vehicle-to-vehicle ("V2V") and vehicle-to-infrastructure ("V2I"), wireless communications:

- 802.11p – Wireless Access in Vehicular Environments (WAVE) protocol stack[5] (DSRC)

[4] A list of the current OmniAir Authorized Test Laboratories and OmniAir Qualified Test Equipment Providers appears in the attached Exhibit B.

[5] IEEE 802.11p/WAVE is the successor interoperability standard to the Commission-adopted standard in the FCC's rules for DSRC in the 5.9 GHz Band: American Society for Testing and Materials (ASTM) E2213-03, Standard Specification for Telecommunications and Information Exchange Between Roadside and Vehicle Systems – 5 GHz Band Dedicated Short Range Communications (DSRC) Medium Access Control (MAC) and Physical Layer (PHY) Specifications, published September 2003. *See* 47 CFR § 90.379.

- IEEE 1609 – Higher layer standard addressing Network Services, Security and Multi-Channel Operations.
- SAE J2735 – Dedicated Short Range Communications (DSRC) Message Set Dictionary
- SAE J2945/1 – Dedicated Short Range Communications (DSRC) Common Performance Requirements – V2V Minimum Performance
- FHWA-JPO-17-589 (RSU 4.1) – Roadside Unit Specification

Despite the ongoing uncertainty regarding the status of the 5.9 GHz Band, the need for device certification continues to be driven by ongoing deployments of DSRC-based V2X. For example, DSRC devices used in the US Department of Transportation's ("USDOT") Connected Vehicle Pilot Deployment Projects in Tampa, New York City, and Wyoming are required to be certified. The list of V2X certified devices can be found on OmniAir's website.[6]

In addition, on November 16, 2018, FHWA awarded a contract to OmniAir to provide "Next Generation V2X Certification." Specifically, OmniAir is charged with three tasks under the contract:

- Task #1: Identify and define minimum security requirements for devices in the V2X ecosystem.
- Task #2: Develop a coordination process among certification members, standards development organizations ("SDOs"), and USDOT to ensure that certification test suites remain in sync with the latest standards and market developments.
- Task #3: Provide limited technical support to the USDOT (and its contractors) during the development and finalization of next generation V2X test procedures, particularly regarding identifying new test cases for V2I radio devices and connected infrastructure.[7]

B. <u>V2X Certification Program – C-V2X Devices</u>

OmniAir is preparing to launch later this year a companion Certification Program for V2X radio devices using Cellular-V2X (C-V2X) technologies.[8] OmniAir's C-V2X Certification program will be structured similarly to the program for DSRC: providing conformance, interoperability, and security testing and certification for C-V2X devices using many of the same test cases as developed for DSRC certification, as well as new test cases, specific to C-V2X. Currently, OmniAir is developing a suite of test cases anticipating approval of C-V2X OBU and RSU standards.

[6] *See* https://omniair.org/certified-products/ (viewed March 6, 2020).
[7] To date, Task 3 has resulted in SPaT and MAP test cases being developed and implemented.
[8] Cellular-V2X (C-V2X): PC5 Sidelink V2X (Mode 4) communications link as defined in 3GPP Release 14. *See* https://www.3gpp.org/release-14 (viewed March 9, 2020).

OmniAir's C-V2X Certification Program will leverage the maturity of the existing DSRC conformance testing program and test cases. The C-V2X Certification Program is expected to launch formally later in 2020, which will be a significant step to bringing trusted C-V2X devices to market. The Connected Vehicle Technical Working Group within OmniAir is finalizing these certification test specifications.

In addition, OmniAir has executed a Memorandum of Understanding ("MOU") with the 5G Automotive Association ("5GAA") to cooperate in the development and adoption of a global certification program for C-V2X devices.

C. Connected Vehicle "Plugfests"

In support of its V2X Certification Programs, OmniAir hosts "Plugfests" that bring together device manufacturers and leading test labs and test equipment providers from around the world.

Each OmniAir Plugfest is a week-long event where device manufacturers, test labs and test equipment manufacturers gather to conduct bench testing and field testing (on vehicles in closed tracks) of Connected Vehicle devices. The intent is to provide an informal and nonbinding process for participants to determine their prototype devices' readiness to seek OmniAir Certification.

Participants test in both bench and field environments for:

- Minimum radio performance
- Device and Message conformance and interoperability
- High precision location-based testing
- Message security signing and authentication using multiple root-certificates
- Standards compliance testing:
    - For DSRC: IEEE 802.11p Physical Layer, IEEE 1609.4 Multi-Channel Operations
    - For both DSRC and C-V2X: IEEE 1609.2 Security and IEEE 1609.3 Network
    - For SCMS Certificates Loadings with multi-providers.
    - For V2V (OBU) Functionality: SAE J2945/1 (DSRC) and SAE J3161/1 (C-V2X)
    - For V2I (RSU) Functionality: FHWA-JPO-17-589 (RSU 4.1 - DSRC) and corresponding C-V2X Standard
- Roadside Unit (RSU) SNMPv3 MIB Testing

To date, OmniAir has organized six OmniAir Plugfests, in the United States, Canada, and in Europe. Both DSRC and C-V2X devices are rotated though bench conformance, interoperability, security, and field testing. These week-long events attract on average 200-250 attendees, along with 25-30 V2X devices tested across 15-20 test stations operated by leading test laboratories and test equipment providers from around the world. OmniAir Plugfests offer testing for both DSRC-V2X and C-V2X devices.

At OmniAir's most recent Plugfest, seven of 25 devices tested were C-V2X devices. Approximately half of the devices tested were RSUs and half were OBUs.

Prior OmniAir Plugfests include:

- October 2017: Freemont, CA, in partnership with UL and the Metropolitan Transportation Commission
- May 2018: Detroit, Michigan in partnership with Intertek Test Laboratory and American Center for Mobility (ACM) Test Track
- October 2018: Texas A&M Transportation Institute. College Station, TX
- May 2019: Blainville, Quebec, in partnership with Transport Canada and Propulsion Quebec.
- September 2019: Málaga, Spain, in partnership with DEKRA Test Laboratory

The next OmniAir Plugfest is scheduled for summer 2020 in Austin, TX. The OmniAir Lone Star Plugfest, hosted by NXP and in partnership with the City of Austin, will include testing of DSRC and C-V2X devices in laboratory and live traffic environments.

D. International Developments

OmniAir has also taken steps to support V2X development internationally. OmniAir has executed two MOUs with industry associations in China and South Korea, the China-ITS Industry Alliance and the Intelligent Transport Society of Korea ("ITS Korea"), respectively.

The primary intent of these MOUs is for the parties to cooperatively develop a Connected Vehicle V2X certification program in each country to promote conformance and interoperability, based on OmniAir's V2X Certification Programs.

OmniAir has also licensed the use of its V2X specifications to ITS Korea for use in certifying DSRC-V2X devices for the Korean marketplace. OmniAir and ITS Korea also are developing a joint certification trademark to indicate mutual recognition of certified devices; similar licensing and joint activities with ITS Korea also are anticipated for C-V2X. These partnerships will help to drive global interoperability for Connected Vehicle technologies.

The MOUs envision the parties working together in several key supporting activities, including identifying authorized test laboratories, organizing Plugfests, and implementing local requirements adaptation for conformance and certification programs in each country.

III. Comments on FCC's 5.9 GHz Rebanding Proposal

A. The full 75 MHz of the 5.9 GHz Band should remain available for V2X transportation safety wireless communications

OmniAir reiterates its long-standing support for maintaining the full 75 MHz in the 5.9 GHz for V2X communications. Accordingly, OmniAir opposes the FCC's proposal to reallocate the 5.9 GHz by providing 45 MHz to unlicensed operations at 5.850-5.895 GHz ("lower 45 MHz"), thus leaving 30 MHz at 5.895-5.925 GHz ("upper 30 MHz") to V2X. OmniAir, its members, partners and the ITS industry generally, have focused deployment efforts on utilizing the full 75 MHz for V2X. The FCC adopted band plan identifies seven channels of 10 MHz each (leaving a 5 GHz guard band at 5.850-5.855 GHz). The FCC's rebanding proposal would completely upend the existing band plan by squeezing 70 MHz into only 30 MHz, imposing new costs and further delaying V2X deployment efforts.[9] Despite the FCC's claim to the contrary,[10] limiting V2X only to 30 MHz does not provide a sufficient spectrum to account for the future growth of these services.[11] On the contrary, 30 MHz will not provide enough spectrum for next generation V2X services, especially if the 30 MHz is further divided between DSRC and C-V2X. For example, V2X may be an enabling technology for automated vehicles.[12]

Further, the FCC notes that it has recently made available additional spectrum for vehicle radar applications, at 76-81 GHz.[13] Long-range radars in this new spectrum will certainty enhance vehicle safety, as the FCC contends, but they should be seen as complementary to and not substitutes for V2X communications. V2X uniquely offers non-line-of-sight applications, particularly at longer distances, where vehicles are literally "talking" to each other about their current and near-term anticipated actions, particularly valuable for intersection collision avoidance. With their short-read range, vehicle radars are not a substitute

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[9] Despite the continued uncertainty regarding the availability of the 5.9 GHz Band for V2X and DSRC, on January 15, 2020 , USDOT announced a new program to provide some $38 million in funding grants for a First Responder Safety Technology Pilot Program to equip first responder vehicles with V2X communications technologies operating in the 5.9 GHz Band. "U.S. Transportation Secretary Elaine L. Chao Announces New Initiatives to Improve Safety on America's Roads," Press Release (Jan. 15, 2020) (available at https://www.transportation.gov/briefing-room/us-transportation-secretary-elaine-l-chao-announces-new-initiatives-improve-safety) (viewed March 6, 2020).

[10] *See NPRM* at para. 23.

[11] The 5G Automotive Association states that 60 MHz is needed for C-V2X's future growth: 20 MHz (5.905-5.925 GHz) for basic safety applications and an additional 40 MHz (5.865-5.905 GHz) for advanced safety applications. Letter from 5G Automotive Association, GN Docket No.18-357, ET Docket No. 13-47, at p. 11 (April 3, 2019).

[12] US DOT's Automated Vehicles Guidance (Version 3.0) specifically noted that communications between vehicles is a complementary technology that will enhance the benefits of vehicle automation. "Preparing for the Future of Transportation: Automated Vehicles 3.0", US Department of Transportation, at 7 (2018) (available at https://www.transportation.gov/av/3/preparing-future-transportation-automated-vehicles-3) (viewed March 6, 2020).

[13] *NPRM* at para. 4.

for V2X communications. Accordingly, allocating new spectrum at 76-81 GHz for these applications should not be construed as a "substitute" spectrum for V2X.

The FCC focuses on 30 MHz as sufficient spectrum for V2X based on reports that other countries have successfully deployed V2X using 30 MHz or less. For example, the FCC states that Japan has allocated a 10 MHz channel at 760 MHz for intersection collision avoidance applications using a technology similar to DSRC.[14] In addition, according to the FCC, Europe has adopted a harmonized 30 MHz channel for V2X at 5.875-5.905 MHz.[15] This is an incomplete picture, however. Below is a more complete listing of the V2X spectrum allocations (including for future developments) in the European Union, Canada, South Korea, Australia and Japan.

- European Union: 70 MHz total:[16]
    - 20 MHz at 5855-5875 MHz: ITS non-safety applications
    - 30 MHz at 5875-5905 MHz: ITS Road Safety
    - 20 MHz at 5905-5925 MHz: Future ITS operations
- Canada: 75 MHz at 5850-5925 MHz[17]
- South Korea: 70 MHz total at 5855-5925 MHz
- Australia: 70 MHz total at 5855-5925 MHz
- Japan: 80 MHz total at 5770–5850 MHz (currently used for electronic tolling) and additional 10 MHz channel at 760 MHz

Each of these developed regions or countries have allocated at least 70 MHz to ITS/V2X and in spectrum bands consistent with the US allocation at 5.9 GHz. In addition, the 3rd Generation Partnership Program (3GPP), an international standards-setting organization for mobile

[14] *Id.* at para. 21.

[15] *Id.*

[16] In footnote 46 of the *NPRM*, the FCC includes the following quotation from a European Commission technical report regarding spectrum availability to V2X: "*There is no evidence that spectrum availability is currently a constraint on the development of ITS, and there is no immediate need to take regulatory action in this regard.*" (italics in original) *NPRM* at fn. 46 (citing European Conference of Postal and Telecommunications Administrations, CEPT Report 71 at 7 (2019). This quotation refers only to the 30 MHz allocation at 5875-5905 MHz. However, the *NPRM* fails to include the remainder of that paragraph in which CEPT acknowledges future spectrum expansion for ITS (safety and non-safety) in the 20 MHz above and below this 30 MHz as listed above: "However, given the momentum of policy and standardization development for ITS, RSPG recommends `that the options for ITS to expand to share spectrum for safety-related ITS in the 20 MHz above the existing designation and, for non-safety ITS, in the 20 MHz below, should be kept available for the time being'." *Id*.

[17] Canada followed the United States and adopted the same band plan in the 5.9 GHz Band. Industry Canada: RSS-242 – Intelligent Transportation Systems – Dedicated Short Range Communications (DSRC) – On-Board Unit (OBU) (Sept. 2017), available at https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11325.html#s5.2 (viewed March 6, 2020).

telephony, recommends the 70 MHz at 5855-5975 MHz for C-V2X V2X communications, among several candidate bands.[18]

OmniAir reiterates its position that the full 75 MHz be retained for V2X in the 5.9 GHz Band. However, if the FCC were to adopt its rebanding proposal, OmniAir encourages the FCC to consider other bands to provide the necessary spectrum resources for V2X. 30 MHz is not sufficient for current applications nor the future growth of these proven public safety services.

B. Continued Interoperability and Certification Requirement

OmniAir takes no position regarding the relative merits or drawbacks of either DSRC or C-V2X as the wireless technologies to provide V2X communications. (Similarly, OmniAir takes no position regarding the question in the *NPRM* whether to reserve the 10 MHz channel at 5.895-5.905 GHz exclusively for DSRC.[19]) OmniAir's mission is to ensure that V2X communications are "trusted" communications, regardless of technology. Accordingly, OmniAir contends that all V2X radio devices should be subject to independent interoperability and conformance certification testing. All vehicles deploying V2X must be able to "speak" to one another and the roadside infrastructure.[20] The FCC's DSRC rules adopted in 2004 included an equipment certification requirement to realize interoperability, although it was left to industry to determine how best to achieve this goal.[21] (This requirement was the basis, in part, behind the establishment of OmniAir in 2004.) The FCC's final rules adopted in this proceeding should include a similar interoperability and certification requirement for all V2X radio devices regardless of technology.[22] While OmniAir believes all V2X devices should be certified, it is not OmniAir's position that DSRC and C-V2X must be interoperable at the lower layers.

OmniAir further suggests that the band rules adopted in 2004 be updated. In particular, the adopted ASTM standard[23] is out-of-date, having been transferred to IEEE and is now three generations old.[24] The FCC should take this opportunity to drop the reference in the band rules

[18] European Technical Standards Institute, LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception (3GPP TS 36.101 version 14.3.0 Release 14 (2017-04)), at Table 5.5-G-1 V2X operating band.

[19] *NPRM* at para. 28.

[20] To this end, OmniAir is currently developing the procedures for testing and certifying dual-mode V2X radio devices using both DSRC and C-V2X.

[21] Amendment of the Commission's Rules Regarding Dedicated Short-Range Communications Services in the 5.850-5.925 GHz Band (5.9 GHz Band), *Report & Order*, WT Docket No. 01-90, ET Docket No. 98-95, RM 9096, 19 FCC Rcd 2458, para. 44 (2004).

[22] However, to be clear, it is not proposed that there will be interoperability between DSRC and C-V2X devices.

[23] American Society for Testing and Materials (ASTM) E2213-03 DSRC standard (the ASTM-DSRC Standard)

[24] IEEE 802.11p approved in 2010 for wireless access in vehicle environments. The most current version of IEEE 802.11p was approved in 2016.

to any specific V2X standard as it potentially "locks in" a specific technology.[25] Moreover, referencing a specific standard in the FCC's rules is not needed to ensure interoperability, which was the FCC's primary rationale for adopting the ASTM standard in the first place. OmniAir maintains that the band rules should continue to include the interoperability requirement, but again leave it to industry to determine how to achieve this goal. OmniAir's CVCA Programs, both for DSRC and C-V2X, are designed to serve in this role.

C. The FCC's Rebanding Proposal Implicates Significant Interference Risks to V2X Communications

Regardless of the location and amount of spectrum allocated to V2X, FCC is obligated to ensure that V2X communications do not suffer harmful interference. If the FCC adopts the rebanding proposal as presented, there is a significant risk that V2X operations in the upper 30 MHz would suffer from harmful interference from unlicensed operations in the lower 45 MHz.[26] As many V2X applications include safety-of-life communications, protecting the V2X spectrum from harmful interference is critical. The FCC's adopted rebanding plan should therefore ensure that unlicensed operations in the lower 45 MHz do not cause harmful out-of-band emissions to adjacent V2X spectrum.

For example, Wi-Fi proponents have suggested that vehicles could be equipped with Wi-Fi "hotspots" (e.g., smartphones operating as a Wi-Fi hotspot in a vehicle) in the lower 45 MHz. It is very likely, however, that out-of-band emissions from such vehicle "hotspots" would render V2X radio devices in that same, and adjacent vehicles, completely inoperable. This risk is especially true for V2X radio transmissions – whether DSRC or C-V2X – in the 10 MHz channel at 5.595-5.905 GHz. OmniAir therefore proposes several steps. First, all unlicensed transmissions in the lower 45 MHz should be limited to indoor only. Second, the spectrum mask currently applicable to unlicensed devices in the lower 45 MHz (-27 dBm/MHz) is not sufficient to protect V2X in vehicles if there is a Wi-Fi hotspot in that same vehicle operating in these frequencies. The applicable spectrum mask for the lower 45 MHz needs to be reconsidered to account for this potential interference scenario. Finally, a further remedy would be to consider implementing a guard band between the lower 45 MHz and upper 30 MHz to further protect V2X operations from harmful interference.

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[25] See 47 CFR §§ 90.379 and 95.3159 (incorporating by reference the ASTM-DSRC Standard). The FCC asks in the *NPRM* whether to incorporate by reference in any updated rules for V2X the updated IEEE standard or the 3GPP standards for C-V2X. *NPRM* at para. 44.

[26] In December 2019, US DOT released a Preliminary Technical Assessment of out-of-band emissions from unlicensed operations in the lower 45 MHz into V2X into the upper 30 MHz. The laboratory testing concluded that there is a "clear risk" of potential adjacent band interference from unlicensed operations to V2X. US DOT suggests that the FCC's rebanding proposal may need reconsideration. US Department of Transportation, "*Preliminary Testing*: *Out-of-Channel Interference (Out-of-Band Emissions)*," Preliminary Technical Assessment (Dec. 6, 2019) (available at: https://www.transportation.gov/sites/dot.gov/files/docs/research-and-technology/360181/oobe-energy-59-safety-band-final-120619.pdf) (viewed March 6, 2020).

D. A Transition Plan is Needed for Existing DSRC Devices

OmniAir advocates that the FCC should implement a transition plan for relocating existing DSRC devices as a result of any reallocation of the 5.9 GHz Band. However, without knowing now what the new band plan is, it is very difficult to adequately address with certainty what a transition plan should include. While it is true there is not ubiquitous, national deployment of DSRC, the number of deployed devices (both on vehicles and roadside) are not insignificant.[27] Another complicating factor is that the majority of roadside DSRC deployments are by public agencies, which continually face funding constraints. If the final Report and Order does not preserve the entire 75 MHz of V2X spectrum, then a transition plan needs to be outlined that would allow existing deployments to either: (i) upgrade RSUs to use C-V2X technology, or (ii) if permitted in the Report and Order, modify existing DSRC equipment to operate in Channel 180.

Any transition plan should include a realistic timeline (six months is clearly not sufficient), defined milestones to track progress, and identification of associated costs (including for modifying and/or replacing existing equipment, among other costs) and their validation. A transition plan should also consider possible reimbursement for existing DSRC devices to vacate their spectrum for unlicensed operations. There are precedent spectrum relocation programs that might serve as models for relocating existing DSRC devices to a new spectrum (e.g., 800 MHz rebanding program[28] and UTAM Plan for Financing and Managing 2 GHz Relocation[29]). The FCC is proposing to reallocate the lower 45 MHz to unlicensed operations, which will get access to this spectrum without any licensing costs or limits on spurious out-of-band emissions. The FCC should consider requiring entities (device manufacturers and deploying entities) seeking to use the lower 45 MHz for unlicensed operations to reimburse existing DSRC devices to vacate and move to a new spectrum. If DSRC technology is included in the final Report and Order, any transition plan should also require that DSRC operations moved to a new spectrum be re-certified to meet applicable interoperability and conformance standards, which would be a further cost imposed on affected existing DSRC devices. Existing DSRC devices may need to transition to C-V2X, thus imposing additional costs and time. Any transition plan should also consider these factors as well.

E. Channel 172 and Channel 184

In 2005, the FCC designated Channel 172 (at 5.855-5.865 GHz) for vehicle-to-vehicle safety communications (i.e., no commercial or vehicle-to-roadside communications) and channel 184 (at 5.915-5.925 GHz) for higher powered public safety communications (e.g., first

[27] *See NPRM* at fn. 41 for a listing of DSRC licensees and currently deployed DSRC radio devices (as of November and December 2019, respectively).

[28] *Improving Public Safety Communications in the 800 MHz Band*, WT Docket 02-55, Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order, 19 FCC Rcd 14969 (2004).

[29] UTAM Plan for Financing and Managing 2 GHz Microwave Relocation, GEN Docket No. 90-314 (Aug. 1, 1994).

responder emergency vehicles). The *NPRM* asks what effect the FCC's rebanding proposal would have on these services as they would need to be relocated to the upper 30 MHz.[30] Any adopted rebanding plan must accommodate both services in the spectrum reserved for V2X, whether in the upper 30 MHz or otherwise. At a minimum, the FCC should remove the restrictions in the band rules requiring use of obsolete specifications such as the ASTM DSRC Standard, thus giving industry more flexibility to meet the broadest needs for Intelligent Transportation Systems in the future, including V2V and public safety. Accomplishing this further argues in favor of maintaining a larger spectrum footprint for V2X, including maintaining, at a minimum, the original 75 MHz allocation.[31]

IV. Conclusion

In sum, OmniAir opposes the FCC's proposal to reallocate the 5.9 GHz by providing 45 MHz to unlicensed operations at 5.850-5.895 GHz and leaving only 30 MHz at 5.895-5.925 GHz to V2X communications. Regardless of the underlying technology, it is critical that sufficient and reliable spectrum resources are available to enable these life-saving technologies. The public interest would be served by maintaining the full 75 MHz in the 5.9 GHz Band currently allocated to V2X communications.

If, however, the FCC moves forward with its rebanding proposal, OmniAir urges the FCC to ensure that the available spectrum be protected from harmful interference from unlicensed operations in the lower 45 MHz. In addition, the band rules should be updated to (1) eliminate the reference to the ASTM-DSRC Standard, and to (2) continue the existing interoperability and certification requirement for V2X devices. OmniAir's Certification Program provides this critical function to ensure that V2X communications are "trusted" communications for DSRC devices. OmniAir intends to provide this same function for C-V2X devices.

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[30] *NPRM* at para. 31.

[31] In footnote 66 of the *NPRM*, the FCC writes: "We note that under our proposal, the amount of spectrum we would retain for ITS purposes (30 megahertz) would still be greater than the amount that was dedicated for public safety purposes on Channels 172 and 184 (20 megahertz)." *NPRM* at fn. 66. However, other public safety applications can operate elsewhere in the band and are not limited only to these two channels, effectively giving public safety applications access to the entire band.

Respectfully submitted,

/s/ Jason M. Conley

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EXHIBIT A – OmniAir Consortium Members

3M Company
Bureau Veritas
AECOM
ALPS Electric Co. LTD
Altran
Autotalks
Aptiv
Blackberry
Burlington County Bridge Commission
Chemtronics
City of Austin
Cohda Wireless America, LLC
Commsignia, Inc.
Danlaw, Inc
DEKRA Testing & Certifications, SAU
DENSO International America Inc.
DriveOhio
E-470 Public Highway Authority
ESCRYPT
Electronic Transaction Consultants
Eurofins | MET Labs
E-ZPass Group
FETC International
Ficosa
Ford Motor Company
Gannett Fleming
GEO TOLL
General Motors
GTT Wireless
HNTB Corporation
Hitachi Solutions Ltd.
IBI Group
Integrity Security Services
Intertek
Invengo Technology
ITS Korea
IT-Telecom
Kapsch TrafficCom
KATECH
Keysight Technologies
Korea Electronics Technology Institute
Lear Corp
Marben
Metric Engineering
MTA Bridges and Tunnels
Metropolitan Transportation Commission
Mixon Hill
Neology
Nordsys GmbH
North Carolina Turnpike Authority
North Texas Tollway Authority
NoTraffic
NXP Semiconductors
Orange Traffic
Oregon Department of Transportation
Panasonic R&D Co of America
Penta Security Systems Inc
Port Authority of New York and New Jersey
Qualcomm Technologies Inc.
ROHDE & SCHWARZ GmbH & Co. KG
Savari, Inc.
S.E.A. Datentechnik
SGS North America Inc.
Siemens
Sirius XM
Southwest Research Institute
Spirent Communications
Sporton International, Inc.
Star Systems International, Ltd
TagMaster
Telecommunications Technology Association
TollPlus, LLC
Toyota North America
TransCore
Transportation Corridor Agencies
TUV SUD
u-blox
UL, LLC
Vector North America Inc.
Wayties, Inc.
Wistron NeWeb Corporation
WSP USA

EXHIBIT B

OmniAir Authorized Test Laboratories

Bureau Veritas	Irvine, CA
Bureau Veritas	Seoul, Korea
DEKRA	Malaga, Spain
Eurofins/MET Labs	Baltimore, MD *
INTERTEK	Lexington, KY
SGS	San Diego, CA
Underwriters Laboratories (UL)	Novi, MI
Telecommunications Technology Association (TTA)	Seongnam, Korea
Korea Automotive Technology Institute (KATECH)	Cheonan, Korea

* Authorized only for RFID Tolling Certification Testing

OmniAir Qualified Test Equipment Providers

3M	St. Paul, MN
Danlaw	Novi, MI
Keysight Technologies	Santa Rosa, CA
Rohde and Schwarz	Seoul, Korea
Spirent Technologies	Berlin, Germany