UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and
Information Administration
Washington, D.C. 20230

April 14, 2023

Mr. Ronald T. Repasi
Acting Chief, Office of Engineering and Technology (OET)
Federal Communications Commission
45 L Street, NE
Washington, DC 20554

Re: Request for Waiver of 5.9 GHz Band Rules to Permit Initial Deployment of Cellular Vehicle-to-Everything Technology (ET Docket No. 19-138)

Dear Mr. Repasi:

On behalf of the National Telecommunications and Information Administration (NTIA), I am pleased to submit the information below in response to the above-noted waiver request. As you will see, we have identified operational limits that would protect federal incumbent operations in the 5.895-5.925 GHz (5.9 GHz) band upon the grant of the requested waiver.

Background

On November 20, 2020, the Commission released the *5.9 GHz First Report and Order, Further Notice of Proposed Rulemaking, and Order of Proposed Modification*, which adopted new rules for the 5.9 GHz band.[1] The Report and Order (*5.9 GHz First R&O*) made spectrum available for unlicensed uses by designating the lower 45 megahertz of the band (5.850-5.895 GHz) for unlicensed operations while continuing to dedicate the upper 30 megahertz (5.895-5.925 GHz) for intelligent transportation systems (ITS).[2] The *5.9 GHz First R&O* said the Commission would permit existing and future Part 90 ITS licensees to operate Cellular Vehicle-to-Everything (C-V2X) based roadside units (RSUs) in the 5.895-5.925 GHz band within their geographic licensing areas if they first obtained waivers of the Commission's rules, subject to specific conditions. The *5.9 GHz First R&O* also said that manufacturers would need waivers to obtain equipment certification of C-V2X on-board units (OBUs), as well as waivers permitting the operation of such devices, prior to the Commission adopting final rules for C-V2X-based on-board Units (OBUs). On August 6, 2021, the Wireless Telecommunications Bureau and Public Safety and Homeland Security Bureau issued a joint Public Notice providing guidance and additional guidelines for

[1] *Use of the 5.850-5.925 GHz Band*, ET Docket No. 19-138, First Report and Order, Further Notice of Proposed Rulemaking, and Order of Proposed Modification, 35 FCC Rcd 13440 (2020), *petitions for review denied sub nom. Intelligent Transp. Soc'y of America v. FCC,* 45 F.4th 406 (D.C. Cir. 2022) (*5.9 GHz First R&O*).

[2] *Id.*

waivers requesting early deployment of C-V2X operations, and for the equipment certification process for C-V2X equipment.[3]

C-V2X Joint Waiver Parties Request

On December 13, 2021, the C-V2X Joint Waiver Parties, including several automakers, State Departments of Transportation, and equipment manufacturers, sought waivers of 47 CFR §§ 90.375, 90.377, and 90.379 for RSUs and 95.3163, 95.3167, and 95.3189 for OBUs to allow the use of C-V2X-based technology in the band and to provide adjustments to the technical parameters where the two technologies differ.[4] These rule sections establish the technical requirements mandating Dedicated Short-Range Communication (DSRC) based technology in the upper 30 megahertz of the 5.9 GHz band.

In their request, the C-V2X Joint Waiver Parties ask the Commission to permit C-V2X-based operations on 20 megahertz (5905-5925 MHz) and with an increase in EIRP (to 33 dBm) in the ITS band, pending adoption of final C-V2X-based rules. C-V2X operations under such a waiver would be authorized on a secondary basis to the federal radiolocation service operating within the 5.895-5.925 GHz band and would have to protect these federal operations from harmful interference.

Analysis of Waiver Conditions

The 5895-5925 MHz (5.9 GHz) band has been reserved for federal radar systems and non-federal ITS operations. There are primary allocations for the federal radiolocation service and non-federal mobile service, where a coordination process was implemented to protect federal radar operations.

As part of NTIA's ongoing effort to accommodate non-federal ITS, NTIA worked with the Department of Transportation (DOT), Department of Defense (DOD), the National Aeronautics and Space Administration (NASA), and the National Science Foundation (NSF) on a technical analysis to determine the protections needed to permit new safety C-V2X services in the 5.9 GHz

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[3] *See Wireless Telecommunications Bureau and Public Safety and Homeland Security Bureau Provide Guidance for Waiver Process to Permit Intelligent Transportation System Licensees to Use C-V2X Technology in the 5.895-5.925 GHz Band*, Public Notice, DA 21-962 (WTB, PSHSB Aug. 6, 2021) (*Guidance PN*).

[4] *See* Request for Waiver of 5.9 GHz Band Rules to Permit Initial Deployments of Cellular Vehicle-to-Everything Technology, Ford Motor Company, et al., ET Docket No. 19-138, at 1 (filed Dec. 13, 2021) (*Joint Waiver Request*), https://www.fcc.gov/ecfs/file/download/DOC-5f6d7d2ef3400000-A.pdf?file_name=C-V2X%20Waiver%20Request%2012%2013%202021.pdf; *see also* https://www.federalregister.gov/documents/2022/06/28/2022-13793/the-federal-communications-commission-seeks-comment-on-a-request-for-nationwide-waiver-of.

band without causing harmful interference to incumbent operations. The analysis relied upon NTIA Technical Report TR-21-551.[5]

We are pleased to report that if this waiver request is granted, C-V2X OBU operations would adequately protect the primary 5.9 GHz band for federal radiolocation services, were the following C-V2X OBU limitations imposed:

- For operation at the maximum EIRP of 33 dBm, limit the EIRP to **27 dBm at ± 5 degrees** in elevation from the horizontal plane; and
- Limit spectrum usage to **5905-5925 MHz**.

NTIA would like to acknowledge the technical work done by the federal agencies, and the peer review done by the 5G Automotive Association stakeholders, which made this outcome possible.

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NTIA looks forward to continuing its collaboration with the Commission and the agencies to protect the federal systems operating in the 5.9 GHz band, as well as supporting non-federal ITS services designed to improve the safety and efficiency of the Nation's roadways. Should you have any questions, please contact the undersigned or Edward Drocella, Chief, Spectrum Engineering and Analysis Division, Office of Spectrum Management, at edrocella@ntia.gov or (202) 482-2608.

Sincerely,

Charles Cooper Digitally signed by Charles Cooper Date: 2023.04.12 17:16:03 -04'00'

Charles Cooper
Associate Administrator
Office of Spectrum Management

[5] NTIA Technical Report 21-551 *Compatibility of Federal Systems Operating in the 5850-5925 MHz Band with Intelligent Transportation Systems and Unlicensed National Information Infrastructure Devices* (October 2020), https://its.ntia.gov/umbraco/surface/download/publication?reportNumber=TR-21-551.pdf.