



PUBLIC NOTICE

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DA 22-611

Released: June 7, 2022

WIRELESS TELECOMMUNICATIONS BUREAU AND PUBLIC SAFETY AND HOMELAND SECURITY BUREAU SEEK COMMENT ON A REQUEST FOR NATIONWIDE WAIVER OF INTELLIGENT TRANSPORTATION SYSTEM RULES TO USE C-V2X TECHNOLOGY IN THE 5.895-5.925 GHZ BAND

ET Docket No. 19-138

Comments Due: (30 days after date of publication in the Federal Register)

Reply Comments Due: (60 days after date of publication in the Federal Register)

By this Public Notice (PN), the Wireless Telecommunications Bureau and the Public Safety and Homeland Security Bureau (the Bureaus) seek comment on a joint filing by certain automakers, state departments of transportation (DOTs), and equipment manufacturers (collectively, the C-V2X Joint Waiver Parties),¹ requesting a waiver of the Commission's rules applicable to intelligent transportation system (ITS) operations in the upper 30 megahertz (5.895-5.925 GHz) portion of the 5.850-5.925 GHz Band (5.9 GHz Band) "to permit them to collectively deploy and facilitate deployment of Cellular Vehicle-to-Everything ('C-V2X') technology immediately."² Specifically, the C-V2X Joint Waiver Parties seek a waiver of 47 CFR § 2.106, NG160³ to allow nationwide use of the upper 30 megahertz of the 5.9 GHz Band for C-V2X operating in the Intelligent Transportation System (ITS), conditioned on the technical parameters set forth in Appendix 1 of their submission.⁴ They also seek a waiver of certain part 90 and part 95 rules (47 CFR §§ 90.375, 90.377, 90.379, 95.3159, 95.3163, 95.3167, and 95.3189)⁵

¹ This waiver request was submitted by Audi of America, Inc., Ford Motor Company, Jaguar Land Rover, the Utah Department of Transportation, the Virginia Department of Transportation, AAEON Technology Inc., Advantech Co., Ltd., Applied Information, Inc., Cohda Wireless Pty Ltd., Commsignia, Inc., Danlaw Inc., HARMAN International Industries, Inc., Kapsch TrafficCom USA Inc., and Panasonic Corporation of North America.

² 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) (*C-V2X Joint Waiver Request*): https://www.fcc.gov/ecfs/file/download/DOC-5f6d7d2ef3400000-A.pdf?file_name=C-V2X%20Waiver%20Request%2012%2013%202021.pdf. More recently, additional information on the request was submitted to the Commission. See Letter from the C-V2X Joint Waiver Parties to Marlene H. Dortch, Secretary, FCC, ET Docket No. 19-138 (filed Apr. 20, 2022) (*C-V2X Joint Waiver Request Supplement*): [https://www.fcc.gov/ecfs/search/search-filings/results?q=\(proceedings.name:\(%2219-138%22\)+AND+date_received:\[2021-12-01%20TO%202022-05-23\]\)](https://www.fcc.gov/ecfs/search/search-filings/results?q=(proceedings.name:(%2219-138%22)+AND+date_received:[2021-12-01%20TO%202022-05-23])).

³ "In the band 5895-5925 MHz, the use of the non-federal mobile service is limited to operations in the Intelligent Transportation Systems radio service." 47 CFR § 2.106, NG160.

⁴ *C-V2X Joint Waiver Request* at 2; see also *C-V2X Joint Waiver Request Supplement* at 3-4.

⁵ See 47 CFR §§ 90.375, 90.377, 90.379, 95.3159, 95.3163, 95.3167, and 95.3189.

governing the operation of roadside units (RSUs) and on-board units (OBUs) in the upper 30 megahertz of the 5.9 GHz Band.⁶

In its *5.9 GHz First Report and Order and Further Notice*, adopted on November 20, 2020, the Commission retained the upper 30 megahertz of the 5.9 GHz Band for ITS operations, and it required that, following a transition period, ITS operations transition from Dedicated Short-Range Communication (DSRC) technology to C-V2X technology rules. In the Further Notice portion of its decision, the Commission sought comment on the rules for the technical and logistical parameters of C-V2X that ultimately would govern ITS operations in the band.⁷ While part 90 ITS licensees operating in the upper 30 megahertz are authorized to operate ITS under DSRC-based rules pending adoption of final C-V2X rules, the Commission also recognized that licensees may wish to operate C-V2X-based ITS prior to adoption of those final rules.⁸ Accordingly, the Commission directed the Bureaus to issue a public notice providing guidance for licensees that may wish to obtain waivers of the existing DSRC-based rules to operate C-V2X operations, either through a streamlined waiver request process (if requesters qualify), or through our normal section 1.925 waiver process.⁹

Guidance PN. The *Guidance PN*, issued on August 6, 2021, provided the following guidance to waiver applicants who elect to use the normal section 1.925 process:

“If an ITS waiver applicant that seeks authority to operate C-V2X-based roadside units or on-board units in the 5.895-5.925 GHz band is unable to comply with the existing ITS technical rules found in 47 CFR §§ 90.371-90.383 or 47 CFR §§ 95.3167-95.3189, respectively, they should include in their general waiver request the certifications from the streamlined waiver process outlined in this PN that they are unable to meet, the specific existing rules that they are unable to comply with, along with a specific proposal of the technical specifications they seek to use instead, and an explanation of why a waiver is warranted under Section 1.925. To facilitate granting of qualifying waiver requests, and in light of the alternate technical specifications proposed in their waiver, we would generally expect the ITS waiver applicant to include a demonstration showing that their requested waiver would not cause a greater potential for interference to other users operating in the 5.895-5.925 GHz band than DSRC-based operations in this band, and otherwise to address how the public interest would be served by such a waiver under Section 1.925. Based on the proposed change in technical parameters, the waiver request should also address any conditions (e.g., coordination zone radius, per 47 CFR § 90.371(b)) necessary to protect Federal Government Relocation Services.”¹⁰

C-V2X Joint Waiver Request. In the *C-V2X Joint Waiver Request*, the automakers (Audi, Ford, and Jaguar Land Rover) seek a waiver in order to introduce C-V2X into their vehicle fleets throughout the United States as soon as possible.¹¹ As noted in their request, the C-V2X Joint Waiver Parties further

⁶ See *C-V2X Joint Waiver Request* at 2.

⁷ *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, 13464-65, para. 55 (2020) (*5.9 GHz First Report and Order and Further Notice*). The Commission has not yet rendered a decision on the rule changes proposed in the Further Notice of Proposed Rulemaking.

⁸ *5.9 GHz First Report and Order*, 35 FCC Rcd at 13464, para. 55.

⁹ 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), at 2 (*Guidance PN*).

¹⁰ *Guidance PN* at 2-3, n.10.

¹¹ *C-V2X Joint Waiver Request* at 3-4.

seek permission for nationwide C-V2X OBU operations.¹² Specifically, they ask that the Commission waive its rules to the extent necessary to allow the Utah and Virginia DOTs to deploy C-V2X RSUs throughout their respective states, both RSUs and OBUs, under the FCC ITS licenses each currently holds,¹³ and allow each of the identified automakers to deploy C-V2X-based OBUs in all of its cars sold in the United States.¹⁴ The C-V2X Joint Waiver Parties also request that the Commission waive its rules to the extent necessary to allow the identified equipment manufacturers to obtain the necessary equipment certifications for their C-V2X equipment.¹⁵ The C-V2X Joint Waiver Parties state that while the automakers and state departments of transportation will initially deploy C-V2X technology based on LTE technology (3GPP Releases 14 and 15), the parties request the flexibility to deploy 5G-based C-V2X (3GPP Release 16), as well.¹⁶ If granted, the net effect of the waiver would be to allow C-V2X operations in Utah and Virginia and the equipping of vehicles nationwide with C-V2X OBUs.

In their request, the C-V2X Joint Waiver Parties ask the Commission to permit C-V2X-based operations on 20 megahertz (5905-5925 MHz) in the ITS band, pending adoption of final C-V2X-based rules, which meet the technical parameters set forth in the tables below.¹⁷

C-V2X OBU and RSU Operations Under C-V2X Joint Waiver Request

Frequency Range	Channel Bandwidth	OBU Transmitter Output Power/EIRP* Limits	RSU EIRP Limit	RSU Antenna Center Line Height Above Roadway Bed Surface
5905-5925 MHz	20 MHz	20 dBm/33 dBm	33 dBm	For heights of 8 meters or less Or in the alternative, the RSU EIRP is reduced by a factor of $20 \times \log(\text{height}/8)$ for heights 15 meters or less (but greater than 8 meters)

*EIRP (equivalent isotropically radiated power)

C-V2X Joint Waiver Request Out-of-Band Emissions (OOBE) Limits

Frequency Offset (MHz From Channel Edge)	OOBE Power Spectral Density Offset Relative to 33 dBm/20 MHz (or 10 dBm/100 MHz)	OOBE Power Spectral Density for C-V2X Transmissions (dBm/100 kHz)
0.0	-26.0	-16.0
1.0	-32.0	-22.0
10.0	-40.0	-30.0
20.0	-50.0	-40.0

¹² *C-V2X Joint Waiver Request Supplement* at 4.

¹³ *C-V2X Joint Waiver Request* at 4-5. Utah DOT holds FCC license WQCE200. Virginia DOT holds FCC license WQCU200.

¹⁴ *C-V2X Joint Waiver Request* at 4-5.

¹⁵ *Id.* at 5.

¹⁶ *C-V2X Joint Waiver Request Supplement* at 4, notes 15, 16.

¹⁷ *C-V2X Joint Waiver Request* Appendix 1 at 10-11; *C-V2X Joint Waiver Request Supplement* at 3. The *C-V2X Joint Waiver Request Supplement* did not change the technical parameters proposed in the *C-V2X Joint Waiver Request*.

In their filings, the C-V2X Joint Waiver Parties provide additional discussion and explanation, asserting that the public interest would be served if the Commission were to permit C-V2X operations pending adoption of final C-V2X-based rules, and that these materials provide sufficient support for the Commission to grant waiver(s) of its rules to the extent necessary to permit the proposed C-V2X operations.¹⁸ They contend that their proposed technical parameters for C-V2X operations are generally consistent with DSRC parameters and unlikely to raise interference concerns to existing licensed services in the band.¹⁹ They also agree, as a condition of any waiver grant, they would be obligated to comply with any final rules that the Commission adopts for C-V2X operations.²⁰

Public Comment on Waiver. Prior to evaluating the merits of the *Joint C-V2X Waiver Request*, and in order to assist in assessing the request, the Bureaus seek comment on this waiver request, including whether the request contains sufficient information for the Commission to grant their request or whether additional modifications or clarifications would be appropriate.

Procedural Matters

To develop a complete record on the issues presented by this request, the proceeding will be treated, for *ex parte* purposes, as a “permit-but-disclose” proceeding in accordance with Section 1.1200(a) of the Commission’s rules, subject to the requirements under Section 1.1206(b). Parties should file all comments and reply comments in **ET Docket No. 19-138**.

Filing Requirements. Parties may file comments, identified by **ET Docket No. 19-138**, by any of the following methods:

- Electronic Filers: Comments may be filed electronically using the internet by accessing the ECFS: <https://www.fcc.gov/ecfs/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing.

Filings can be sent by commercial courier or by the U.S. Postal Service. All filings must be addressed to the Commission’s Secretary, Office of the Secretary, Federal Communications Commission.

- Commercial deliveries (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.
- U.S. Postal Service First-Class, Express, and Priority mail must be addressed to 45 L Street, NE, Washington, DC 20554.
- Effective March 19, 2020, and until further notice, the Commission no longer accepts any hand or messenger delivered filings. This is a temporary measure taken to help protect the health and safety of individuals, and to mitigate the transmission of COVID-19. See FCC Announces Closure of FCC Headquarters Open Window and Change in Hand-Delivery Policy, Public Notice, DA 20-304 (March 19, 2020). <https://www.fcc.gov/document/fcc-closes-headquarters-open-window-and-changes-hand-delivery-policy>.
- During the time the Commission’s building is closed to the general public and until further notice, if more than one docket or rulemaking number appears in the caption of a proceeding, paper filers need not submit two additional copies for each additional docket or rulemaking number; an original and one copy are sufficient.

¹⁸ See generally *C-V2X Joint Waiver Request; C-V2X Joint Waiver Request Supplement*.

¹⁹ See, e.g., *C-V2X Joint Waiver Request Supplemental* at 4.

²⁰ *Id.* at 4.

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Additional Information. For further information regarding this Public Notice, please contact Thomas Reed, Attorney Advisor, Mobility Division, Wireless Telecommunications Bureau, at Thomas.Reed@fcc.gov or (202)418-0531, or Roberto Mussenden, Senior Attorney, Policy and Licensing Division, Public Safety and Homeland Security Bureau, at Roberto.Mussenden@fcc.gov or (202)418-1428.

By the Acting Chief, Wireless Telecommunications Bureau, and the Chief, Public Safety and Homeland Security Bureau.

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