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

Dear Petitioners:

We, the Public Safety and Homeland Security Bureau, the Office of Engineering and Technology, and the Wireless Telecommunications Bureau (collectively, the Bureaus) have before us eleven individual waiver requests submitted by (1) certain state, local, and municipal transportation authorities, including the Pennsylvania Department of Transportation (PADOT), the Louisiana Department of Transportation and Development (LADOTD), the Illinois State Toll Highway Authority (ISTHA), Prince George's County Maryland (PG County), the Contra Costa Transportation Authority, and the Maine Department of Transportation (MEDOT); (2) Battelle Memorial Institute (Battelle), a contractor for the Federal Railroad Administration¹; (3) equipment manufacturers Ettifos Co. (Ettifos), Continental Automotive Systems, Inc. (Continental), IT-Telecom Co., Ltd. (IT-T), and Nissan Technical Center North America (NTCNA), (also collectively, the "Waiver Applicants" or "Applicants").² For the reasons stated below, and subject to the technical parameters and conditions set forth herein, the Bureaus grant each of the Applicants' waiver requests to deploy Cellular Vehicle-to-Everything (C-V2X) technology within the 5.895–5.925 GHz band.

I. Background

Each Waiver Applicant³ seeks a waiver of certain Commission rules applicable to intelligent transportation systems (ITS) operations to allow C-V2X technology to be used in the upper 30 megahertz portion (5.895–5.925 GHz) of the 5.9 GHz (5.850–5.925 GHz) band prior to adoption of final C-V2X-based rules.⁴ The C-V2X equipment subject to the Waiver Requests would operate in the 5905–5925 MHz portion of the 5.9 GHz band using a 20-megahertz channel.

Waiver Requests. The Applicants seek a waiver of the Commission's rules to allow the 5.905–5.925 GHz band to be used for C-V2X safety systems operating in the Intelligent Transportation System

¹ Battelle is under contract with the Federal Railroad Administration (FRA) to develop a Rail Crossing Violation Warning Connected Vehicle application. See Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of Cellular Vehicle-to-Everything Technology, Battelle Memorial Institute, ET Docket No. 19-138 (filed Nov. 28, 2023) (hereafter, *Battelle Waiver Request*) at 2.

² See Appendix A: List of Waiver Petitions/Applicants, attached hereto.

³ Hereafter, individual waiver requests, as referenced in Appendix A, will be referred to as follows: (1) state, local, and municipal transportation authorities for Pennsylvania (*PADOT Waiver Request*), the Louisiana Department of Transportation and Development (*LADOTD Waiver Request*), the Illinois State Toll Highway Authority (*ISTHA Waiver Request*), Prince George's County Maryland (*PG County Waiver Request*), the Contra Costa Transportation Authority (*CCTA Waiver Request*), and the Maine Department of Transportation (*MEDOT Waiver Request*); (2) FRA contractor, Battelle Memorial Institute (*Battelle Waiver Request*); and (3) equipment manufacturers, Ettifos Co. (*Ettifos Waiver Request*), Continental Automotive Systems, Inc. (*Continental Waiver Request* or *Continental Waiver Supplement*), IT-Telecom Co., Ltd. (*IT-T Waiver Request*), and Nissan Technical Center North America (*NTCNA Waiver Request*).

⁴ See, e.g., *Ettifos Waiver Request* at 1; *PADOT Waiver Request* at 1; *Continental Waiver Request* at 1; *Continental Waiver Supplement* at 1; *Battelle Waiver Request* at 1; *ISTHA Waiver Request* at 1; *CCTA Waiver Request* at 1–2; *LADOTD Waiver Request* at 2; *PG County Waiver Request* at 2; *MEDOT Waiver Request* at 2; *IT-T Waiver Request* at 1–2; *NTCNA Waiver Request* at 1.

radio service.⁵ Specifically, each Applicant seeks a waiver of certain part 90 and part 95 rules⁶ (47 CFR §§ 90.375, 90.377, 90.379, 95.3163, 95.3167, and 95.3189)⁷ governing the operation of Dedicated Short-Range Communication (DSRC)-based roadside units (RSUs) and on-board units (OBUs) in the upper 30 megahertz of the 5.9 GHz band.

Each Waiver Applicant requests relief pursuant to section 1.925 of the Commission's rules.⁸ Specifically, PADOT, LADOTD, PG County, ISTHA, CCTA,⁹ MEDOT, and Battelle (hereafter, "the ITS licensees") seek certain rule waivers under section 1.925 to deploy C-V2X operations, including RSUs and OBUs, within and throughout their respective state, municipal, and/or local borders, or within the geographic areas authorized by their FCC ITS licenses each currently holds.¹⁰ Equipment manufacturers, Ettifos, Continental, IT-T, and NTCNA, seek certain rule waivers under section 1.925 to allow them to obtain the necessary equipment certifications for their C-V2X equipment.¹¹

Joint Waiver Order. On December 13, 2021, a group of public and private transportation stakeholders requested a waiver of the Commission's DSRC-based rules to allow them to use C-V2X

⁵ As part of their requests, Continental, CCTA, LADOTD, and PG County also seek a waiver of section 2.106(d)(160), which states that "[i]n the band 5895–5925 MHz, the use of the non-federal mobile service is limited to operations in the Intelligent Transportation Systems radio service." See 47 CFR § 2.106(d)(160); *Continental Waiver Request* at 1; *Continental Waiver Supplement* at 1; *CCTA Waiver Request* at 2; *LADOTD Waiver Request* at 2; *PG County Waiver Request* at 2. As the Bureaus previously noted in the Joint Waiver Order, section 2.106 merely limits operations in the upper 30 megahertz of the 5.9 GHz band to ITS services, so such a waiver is unnecessary. See Joint Waiver Order at 5. None of these Applicants contemplates deploying non-ITS operations in the upper 30 megahertz of the 5.9 GHz band. Therefore, their requests for a waiver of this provision are dismissed as moot.

⁶ See, e.g., *Ettifos Waiver Request* at 2, n.3; *PADOT Waiver Request* at 2, n.3; *Continental Waiver Request* at 2; *Continental Waiver Supplement* at 1; *Battelle Waiver Request* at 2, n.3; *ISTHA Waiver Request* at 1; *CCTA Waiver Request* at 2; *IT-T Waiver Request* at 1–2; *LADOTD Waiver Request* at 2; *PG County Waiver Request* at 2; *NTCNA Waiver Request* at 1–2; *MEDOT Waiver Request* at 2, n.3.

⁷ See 47 CFR §§ 90.375, 90.377, 90.379, 95.3163, 95.3167, 95.3189. CCTA, LADOTD, and PG County also seek a waiver of 47 CFR § 95.3159. See *CCTA Waiver Request* at 2; *LADOTD Waiver Request* at 2; *PG County Waiver Request* at 2. However, 95.3159 is a reserved section and does not presently contain any regulatory information. Thus, we dismiss this aspect of each of these waiver requests as moot.

⁸ 47 CFR § 1.925.

⁹ CCTA requests waiver relief on behalf of itself and nineteen other municipalities. *CCTA Waiver Request* at 2 & App. A (List of Contra Costa County Incorporated Municipalities). Only one of these municipalities currently possesses an active ITS license, Walnut Creek (WQWW597), and none are signatories to CCTA's waiver request. Accordingly, CCTA's request to extend its waiver to these entities is denied. These entities must first apply for ITS authorizations to which a waiver would apply and, thereafter, on their own behalf, request a waiver of the relevant ITS rules if they wish to operate ITS systems using C-V2X-based technology. Similarly, LADOTD requests a waiver "for itself and all eligible municipalities within the geographic borders of the State of Louisiana." *LADOTD Waiver Request* at 1–2. LADOTD's request to extend waiver relief to certain unnamed "municipalities within its geographic borders" is likewise denied.

¹⁰ See, e.g., *PADOT Waiver Request* at 2–3 (WRBM305); *LADOTD Waiver Request* at 2 (WQCR805); *PG County Waiver Request* at 2 (WRFK217); *Battelle Waiver Request* at 2–3 (WQZC71); *ISTHA Waiver Request* at 1 (WQZJ502); *CCTA Waiver Request* at 2 (WQZS543); *MEDOT Waiver Request* at 2 (WQBJ438).

¹¹ See *Ettifos Waiver Request* at 3; *Continental Waiver Request* at 2–3; *Continental Waiver Supplement* at 1; *IT-T Waiver Request* at 2; *NTCNA Waiver Request* at 2.

technology in the upper 30 megahertz of the 5.9 GHz band prior to adoption of final C-V2X-based rules.¹² The *Joint Waiver Request* stated that the C-V2X equipment subject to the request would operate in the 5905–5925 MHz portion of the 5.9 GHz band using a 20 megahertz channel.¹³ On April 24, 2023, the Bureaus granted the *Joint Waiver Request*.¹⁴ The Bureaus conditioned the waiver grant on certain technical and operational parameters set forth in the Joint Waiver Order¹⁵ and further modified those conditions by our Waiver Modification Order on July 5, 2023.¹⁶ Each of the instant Waiver Applicants requests that the Bureaus grant them waivers under the same grant conditions specified in the C-V2X Joint Waiver Order, as modified by the July 5, 2023 Waiver Modification Order (C-V2X Joint Waiver Order, as modified).¹⁷

For the reasons stated below, the Bureaus collectively grant each Applicant’s waiver request to deploy C-V2X technology in the upper 30 megahertz of the 5.9 GHz band, pending adoption of final C-V2X-based rules, subject to the technical parameters and conditions set forth below, which are consistent with the technical parameters and conditions set forth in the C-V2X Joint Waiver Order, as modified.¹⁸

II. DISCUSSION

A. Waiver Standard

The Applicants seek waivers pursuant to section 1.925 of the Commission’s rules. Section 1.925 states that the agency may grant a waiver if it is shown that the underlying purpose of the rule at issue would not be served or would be frustrated by application to the instant case, and a grant would be in the public interest, or where, “[i]n view of unique or unusual factual circumstances,” application of the rule would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no

¹² 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, Appendix 1 at 10–11 (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 Letter from the C-V2X Joint Waiver Parties to Marlene H. Dortch, Secretary, FCC, ET Docket No. 19-138, at 3 (filed Apr. 20, 2022) (*Joint Waiver Request Supplement*), <https://www.fcc.gov/ecfs/document/104201266008794/1>.

¹³ *Joint Waiver Request* Appendix 1 at 10–11; *Joint Waiver Request Supplement* at 3.

¹⁴ See Request for Waiver of 5.9 GHz Band to Permit Initial Deployment of Cellular Vehicle-to-Everything Technology, Order, ET Docket No. 19-138, DA 23-343 (rel. Apr. 24, 2023) (Joint Waiver Order). The Bureaus waived sections 90.375, 90.377, 90.379, 95.3163, 95.3167, and 95.3189 of the Commission’s rules, 47 CFR §§ 90.375, 90.377, 90.379, 95.3163, 95.3167, 95.3189. See Joint Waiver Order at 10–11.

¹⁵ Joint Waiver Order at 10–11.

¹⁶ See Request to Modify April 24, 2023 Waiver Order of 5.9 GHz Band Rules to Permit Initial Deployment of Cellular Vehicle-to-Everything Technology, Order, ET Docket No. 19-138, DA 23-586 (rel. Jul. 5, 2023) (Waiver Modification Order) (removing the 20 dBm transmitter output power limit for OBUs from the technical requirements placed on the waiver grant).

¹⁷ See *Ettifos Waiver Request* at 1–2; *PADOT Waiver Request* at 1–2; *Continental Waiver Supplement* at 1; *Battelle Waiver Request* at 1–2; *ISTHA Waiver Request* at 1; *IT-T Waiver Request* at 1–2; *NTCNA Waiver Request* at 1–2; *CCTA Waiver Request* at 2–4; *LADOTD Waiver Request* at 2; *PG County Waiver Request* at 2; *MEDOT Waiver Request* at 1-2. CCTA, LADODT, and PG County base their waiver requests on the grant order issued by the Bureaus on August 16, 2023, which follows the grant conditions set forth in the April 24, 2023 Joint Waiver Order, as modified by the July 5, 2023 Waiver Modification Order.

¹⁸ See Waiver Modification Order at 4.

reasonable alternative.¹⁹ In addition, section 1.3 provides that the Commission may waive any provision of its rules on its own motion for good cause.²⁰

Specifically, each of the Waiver Applicants seeks a waiver of certain Commission rules applicable to ITS operations in the 5.9 GHz band (*i.e.*, 47 CFR §§ 90.375, 90.377, 90.379, 95.3163, 95.3167, and 95.3189), the rule sections that establish the technical requirements mandating DSRC-based technology in the upper 30 megahertz of the 5.9 GHz band, 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. As discussed briefly below, and in greater detail in the Joint Waiver Order,²¹ we find that a waiver of these rules is warranted under section 1.925, subject to the Waiver Applicants' commitments to adhere to the technical parameters and conditions imposed by the Joint Waiver Order, as modified by the Waiver Modification Order, which are intended to protect DSRC and federal incumbents from potentially harmful interference caused by C-V2X operations in the upper 30 megahertz of the 5.9 GHz band.

We find that, pursuant to section 1.925(b)(3)(i) of the Commission's rules, the underlying purpose of the rules governing ITS operations would not be served by denying these requests and thereby delaying or precluding C-V2X operations in the upper 30 megahertz of the 5.9 GHz band.²² Furthermore, we find that a waiver in this case will facilitate early C-V2X deployment as the Commission envisioned in the *5.9 GHz First R&O*.²³ Granting the Waiver Applicants' requests serves the public interest by encouraging widespread deployment of ITS operations using C-V2X technology. As with the initial requests, "[t]o deny [these requests] and insist on application of the current DSRC-based rules would be contrary to the public interest as it would further entrench the DSRC technology the Commission determined needs to be replaced and preclude rapid deployment of the technology the Commission has identified as best suited to promote the most efficient and effective use of the spectrum."²⁴ We further find that permitting C-V2X technologies to deploy now, prior to adoption of final C-V2X rules, will serve the public interest by advancing vehicular safety and promoting interoperability.²⁵

Based on the record before us, we grant a waiver, to the extent necessary, to each of the Waiver Applicants listed in Appendix A for the C-V2X deployments specified below, with conditions to protect incumbent licensees and interests. As to the named Waiver Applicants, we waive the Part 90 and 95 rule requirements that mandate DSRC technology in favor of C-V2X operation pursuant to the conditions

¹⁹ 47 CFR § 1.925(b)(3)(i)–(ii).

²⁰ 47 CFR § 1.3 ("Any provision of the rules may be waived by the Commission on its own motion or on petition if good cause therefor is shown."); *see also Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990).

²¹ *See* Joint Waiver Order, paras. 7–14.

²² 47 CFR § 1.925(b)(3)(i).

²³ *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) (*5.9 GHz First R&O*), *petitions for review denied sub nom. Intelligent Transp. Soc'y of America v. FCC*, 45 F.4th 406 (D.C. Cir. 2022).

²⁴ Joint Waiver Order at 5.

²⁵ *See id.*; *see also 5.9 GHz First R&O* at 13480, para. 99.

articulated in Section II.B. below.²⁶

ITS licensees (PADOT, LADOTD, PG County, ISTHA, CCTA, MEDOT and Battelle). Specifically, we grant to the ITS licensees waiver of 47 CFR §§ 90.375 (governing RSU license areas, communication zones, and registrations) and 90.377 (RSU frequencies available, maximum power limit, antenna height, and priority communications).²⁷

ITS licensees and equipment manufacturers. We grant to the ITS licensees and the equipment manufacturers (Ettifos, Continental, IT-T, and NTCNA) waiver of 47 CFR §§ 90.379 (governing technical standards for RSUs).

Equipment manufacturers. We grant to the equipment manufacturers (Ettifos, Continental, IT-T, and NTCNA) waiver of 47 CFR §§ 95.3163 (providing that DSRC OBUs are permitted to operate in the upper 30 megahertz of the 5.9 GHz band), 95.3167 (maximum power limit for DSRC OBUs), and 95.3189 (technical standard for DSRC OBUs).

B. Waiver Grant Conditions.

Consistent with the technical requirements and restrictions imposed by the Joint Waiver Order,²⁸ as modified by the Waiver Modification Order,²⁹ this waiver grant is subject to the technical parameters and conditions set forth below.

Scope of the Waiver. With respect to the ITS licensees, this waiver is limited to PADOT, LADOTD, PG County, ISTHA, CCTA, MEDOT, and Battelle to allow them to deploy C-V2X infrastructure that satisfies all conditions of this Order, including RSUs and OBUs, within their respective jurisdictions and/or license areas. The geographic area of the waiver is limited to the area encompassing PADOT's, LADOTD's, PG County's, CCTA's, and MEDOT's respective legal jurisdictions, or for ISTHA and Battelle, the geographic parameters defined by their licenses.

All operations authorized pursuant to this waiver are limited to transportation and vehicle safety-related communications.

All C-V2X operations permitted pursuant to this waiver are limited to the 5905–5925 MHz frequencies using a 20-megahertz channel.

With respect to equipment manufacturers, this waiver is limited to Ettifos, Continental, IT-T, and NTCNA and provides them eligibility to obtain the necessary equipment certifications for their RSUs and OBUs. Equipment authorization requirements continue to apply to all RSUs and OBUs under this waiver

²⁶ We note that each of the Waiver Applicants either expressly requested a waiver of the Part 90 and Part 95 rules governing ITS operations in the 5.9 GHz band or referenced the rule waivers issued to the C-V2X Joint Waiver Parties in the Joint Waiver Order. Accordingly, for the Waiver Applicants that requested a waiver of the ITS rules generally, or that referenced the rules waived in the Joint Waiver Order, we recognize, pursuant to our own authority under section 1.3 of the Commission's Rules, that these Waiver Applicants have requested a waiver of the same rule sections identified in the Joint Waiver Order, as amended, and grant each such Waiver Applicant a waiver, to the extent necessary, of the rules waived by the Joint Waiver Order, as amended. See 47 CFR § 1.3.

²⁷ 47 CFR §§ 90.375, 90.377.

²⁸ See Joint Waiver Order, paras. 17–26.

²⁹ See Waiver Modification Order at 4.

order.³⁰ Any application for equipment authorization will need to include a copy of this waiver order.³¹

C-V2X operations under this waiver order are authorized on a secondary basis to the federal radiolocation service operating on a primary basis within the 5895–5925 MHz band and must protect these federal operations from harmful interference. The NTIA reviewed the technical parameters adopted in the Joint Waiver Order,³² as modified by the Waiver Modification Order,³³ and agrees that spectrum usage should be limited to 5905–5925 MHz and that EIRP for both OBUs and RSUs be limited to 33 dBm.³⁴ In addition, “to adequately protect the primary 5.9 GHz band for federal radiolocation services during this waiver period,” NTIA also requests that C-V2X OBUs be limited to an EIRP of 27 dBm at ± 5 degrees in elevation from the horizontal plane.³⁵ Pursuant to their requests to abide by the same grant conditions outlined in the Joint Waiver Order, as modified, each of the Waiver Applicants has agreed to these conditions.³⁶

Technical Requirements and Restrictions. All RSUs and OBUs authorized under this Order must operate using the technical characteristics and operating parameters, including power, height, and out-of-band emission limits, specified below, to ensure compliance with all existing technical rules applicable to ITS operations other than the requirement to use DSRC-based technology:

C-V2X OBU and RSU Operations

Frequency Range	Channel Bandwidth	OBU Limits	RSU EIRP Limit
5905–5925 MHz	20 megahertz	33 dBm EIRP*; 27dBm EIRP within 5 degrees of horizontal	33 dBm EIRP

*EIRP (equivalent isotropically radiated power)

C-V2X Out-of-Band Emissions (OOBE) Limits

Frequency Offset (MHz from Channel Edge)	OOBE EIRP Limits for C-V2X Transmissions (dBm/100 kHz)**
0.0	-16.0
1.0	-22.0
10.0	-30.0
20.0	-40.0

**See IEEE 802.11p-2010 Table I.8

³⁰ See generally 47 CFR §§ 2.901 *et seq.* (subpart J – Equipment Authorization Procedures); 47 CFR § 2.905 (Marketing of radio frequency devices prior to equipment authorization).

³¹ The OET Laboratory has provided detailed filing guidance in its knowledge database (KDB). See [511808 D01 C-V2X Waiver v01](#).

³² See Joint Waiver Order, paras. 17–26.

³³ See Waiver Modification Order at 4.

³⁴ See Letter from Charles Cooper, Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration, to Ronald T. Repasi, Acting Chief, FCC Office of Engineering and Technology, ET Docket No. 19-138, at 3 (filed April 14, 2023).

³⁵ *Id.*

³⁶ See *supra* note 17.

The ITS licensees' C-V2X RSU operations must protect DSRC and primary non-federal fixed-satellite service (Earth-to-space) operations in the 5.895–5.925 GHz band from harmful interference. Prior to commencing C-V2X operations, the ITS licensees must successfully coordinate with all DSRC incumbent(s) whose licensed areas either overlap or are within 25 miles of their license areas. The purpose of this coordination is to ensure that harmful interference will not occur.³⁷ In addition, within 30 days of commencing operations, the ITS licensees must file a report in the Universal Licensing System (ULS) confirming successful coordination (including the names of the DSRC incumbents and dates coordination was completed) or, if applicable, certifying that coordination was unnecessary and must include a grandfathered list of RSU locations that will be converted from DSRC to C-V2X operation. FCC staff will add a C-V2X special condition to these RSU locations and forward the grandfathered RSU list to NTIA.

RSU registration requirements. ITS licensees must register each RSU in ULS before operating the RSU. RSUs included in the grandfathered DSRC RSU list being converted to C-V2X do not need to be filed in ULS. RSU registrations are subject to the requirements of 47 CFR § 1.923 as applicable (antenna structure registration, environmental review, international coordination, and quiet zones). Additionally, RSUs at locations subject to NTIA coordination may not begin operation until the licensee receives NTIA approval.³⁸ Registrations are not effective until the Commission posts them in ULS. It is the licensee's responsibility to delete from the registration database any RSUs that have been discontinued.³⁹

Compliance with Final Rules. We intend by this Order to enable a fast transition to the next generation of technology in this spectrum band while the Commission contemplates the framework for final rules. Consistent with this goal, we condition the waiver on the requirement that each waiver recipient will ensure that RSU and OBU operations and devices authorized under the waiver will comply with the final rules or other guidance provided by the Commission in any timeframe determined by the Commission. This approach ensures that waiver recipients, including but not limited to equipment manufacturers, will consider the pendency of the final rulemaking, and incorporate technology that will allow prompt and efficient regulatory compliance with respect to individual RSUs, OBUs, and C-V2X-based operations once any relevant final rules are implemented. Equipment manufacturers, in particular, must take steps to ensure that they can update or disable any OBUs deployed pursuant to this Order to bring these units into compliance with the final rules. Recipients of this waiver should be aware that the Commission may further tailor this and other waiver conditions, if needed and as appropriate, as part of any determination it makes in the rulemaking proceeding.

II. ORDERING CLAUSES

Accordingly, IT IS ORDERED that, pursuant to section 4(i) of the Communications Act, as amended, 47 U.S.C. § 154(i), and section 1.925 of the Commission's rules, 47 CFR § 1.925, each of the requests by the parties listed in Appendix A, attached hereto, to waive the requirements of sections 90.375, 90.377, 90.379, 95.3163, 95.3167, and 95.3189 of the Commission's rules, 47 CFR §§ 90.375, 90.377, 90.379, 95.3163, 95.3167, 95.3189, are HEREBY GRANTED subject to the conditions outlined above, and ARE OTHERWISE DENIED.

IT IS FURTHER ORDERED that each of the requests to waive the requirements of 47 CFR §

³⁷ Setting the coordination distance at 25 miles will ensure that C-V2X RSU operators are able to identify any neighboring DSRC incumbents.

³⁸ See 47 CFR § 90.371(b).

³⁹ See 47 CFR § 90.375(b).

2.106(d)(160) and 47 CFR § 95.3159 are HEREBY DISMISSED as moot.

These actions are taken under delegated authority pursuant to sections 0.31, 0.131, 0.191, 0.241, 0.331, 0.392, and 1.3 of the Commission's rules, 47 CFR §§ 0.31, 0.131, 0.191, 0.241, 0.331, 0.392, 1.3, and the *5.9 GHz First R&O*.⁴⁰

FEDERAL COMMUNICATIONS COMMISSION

Debra Jordan
Chief, Public Safety and Homeland Security Bureau

Ronald Repasi
Chief, Office of Engineering and Technology

Joel Taubenblatt
Chief, Wireless Telecommunications Bureau

⁴⁰ *5.9 GHz First R&O* at 13424–65, paras. 55–56.

**APPENDIX A
WAIVER PETITIONS/APPLICANTS**

1. Ettifos Co. See Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of Cellular Vehicle-to-Everything Technology, Ettifos Co., ET Docket No. 19-138 (filed Dec. 27, 20223) (*Ettifos Waiver Request*), <https://www.fcc.gov/ecfs/document/12270443126582/1>.
2. Pennsylvania Department of Transportation. See Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of Cellular Vehicle-to-Everything Technology, Pennsylvania Department of Transportation, ET Docket No. 19-138 (filed Dec. 22, 20223) (*PADOT Waiver Request*), <https://www.fcc.gov/ecfs/document/122212361623/1>.
3. Battelle Memorial Institute. See Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of Cellular Vehicle-to-Everything Technology, Battelle Memorial Institute, ET Docket No. 19-138 (filed Nov. 28, 2023) (*Battelle Waiver Request*), <https://www.fcc.gov/ecfs/document/112832256890/1>.
4. Continental Automotive Systems, Inc. See Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of Cellular Vehicle-to-Everything Technology, Continental Automotive Systems, Inc., ET Docket No. 19-138 (filed Jan. 23, 2023) (*Continental Waiver Request*), <https://www.fcc.gov/ecfs/document/1012352190998/1>; see also Letter from Kirby Howard, Government Affairs, Continental Automotive Systems, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 19-138 (filed Nov. 3, 2023) (*Continental Waiver Supplement*), <https://www.fcc.gov/ecfs/document/11031027100550/1>.
5. The Illinois State Toll Highway Authority. See Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of Cellular Vehicle-to-Everything Technology, the Illinois State Toll Highway Authority, ET Docket No. 19-138 (filed Oct. 25, 2023) (*ISTHA Waiver Request*), <https://www.fcc.gov/ecfs/document/102590086305/1>.
6. The Contra Costa Transportation Authority. See Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of Cellular Vehicle-to-Everything Technology, the Contra Costa Transportation Authority, ET Docket No. 19-138, ULS File No. 0010806429 (filed Dec. 6, 2023) (*CCTA Waiver Request*), <https://wireless2.fcc.gov/ULSEntry/attachments/attachmentViewRD.jsp?applType=search&fileKey=1683598620&attachmentKey=21891128&attachmentInd=applAttach>.
7. State of Louisiana Department of Transportation and Development WQCR805. See Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of Cellular Vehicle-to-Everything Technology, the State of Louisiana Department of Transportation and Development, ET Docket No. 19-138, ULS File No. 0010940003 (filed Feb. 26, 2024) (*LADOTD Waiver Request*), <https://wireless2.fcc.gov/ULSEntry/attachments/attachmentViewRD.jsp?ATTACHMENTS=iTbr3WoO4mRjJIQ3q7L1avumWkcLnjluQAXD7ibxpBAK1NojldM3!1143847039!-1782758212?applType=search&fileKey=236423925&attachmentKey=21929989&attachmentInd=applAttach>.
8. Prince George's County Maryland WRFK217. See Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of Cellular Vehicle-to-Everything Technology, Prince George's County Maryland, ET Docket No. 19-138 In the Intelligent Transportation Systems Radio Service, ULS File No. 0010936942 (filed Feb. 23, 2024) (*PG County Waiver Request*), <https://wireless2.fcc.gov/ULSEntry/attachments/attachmentViewRD.jsp?applType=search&fileKey=405721612&attachmentKey=21929320&attachmentInd=applAttach>.

9. IT-Telecom Co., Ltd. See Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of Cellular Vehicle-to-Everything Technology, IT-Telecom Co., Ltd., ET Docket No. 19-138 (filed Feb. 26, 2024) (*IT-T Waiver Request*), <https://www.fcc.gov/ecfs/document/10226364603192/1>.
10. Nissan Technical Center North America. See Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of Cellular Vehicle-to-Everything Technology, Nissan Technical Center North America, ET Docket No. 19-138 (filed Feb. 15, 2024) (*NTCNA Waiver Request*), <https://www.fcc.gov/ecfs/document/1021563935338/1>.
11. The State of Maine Department of Transportation. See Request for Waiver of 5.9 GHz Band Rules to Permit Deployments of Cellular Vehicle-to-Everything Technology, Maine Department of Transportation, ET Docket No. 19-138 (filed Feb. 8, 2024) (*MEDOT Waiver Request*), <https://www.fcc.gov/ecfs/document/1020803421843/1>.