## Subpart E—Identification of Interstate Transport Regions

Sec.
81.455 Scope.
81.457 Ozone Transport Region.

### § 81.455 Scope.

This subpart identifies interstate transport regions established for national ambient air quality standards pursuant to section 184 or section 176A of the Clean Air Act.

### § 81.457 Ozone Transport Region.

Except as provided in paragraph (a), the Ozone Transport Region is comprised of the areas identified by Congress under 42 U.S.C. 7511c(a). The EPA Administrator removed a portion of Maine from the Ozone Transport Region, by rule, in response to a petition submitted by Maine under section 176A(a).

**(a) Ozone Transport Region Boundary**

As of [30 DAYS AFTER PUBLICATION OF FINAL ACTION IN **FEDERAL REGISTER**], the boundary for the Ozone Transport Region consists of the entire states of Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; [PORTIONS OF MAINE INCLUDED IN OTR AS IDENTIFIED AT [CITATION xxx]]; and the Consolidated Metropolitan Statistical Area [DOCUMENTATION DATE] that includes the District of Columbia and the following counties and cities in Virginia: Arlington County, Fairfax County, Loudoun County, Prince William County, Strafford County, Alexandria City, Fairfax City, Falls Church City, Manassas City, and Manassas Park City.

**(b) Applicability**

As of [30 DAYS AFTER PUBLICATION OF FINAL ACTION IN **FEDERAL REGISTER**], the provisions of 42 U.S.C. 7511c will no longer be applicable in the following areas of Maine: [PORTIONS OF MAINE TO BE REMOVED FROM OTR AS IDENTIFIED AT [CITATION xxx]].

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## FEDERAL COMMUNICATIONS COMMISSION

### 47 CFR Parts 15, 90, and 95

**[ET Docket No. 19–138; FCC 20–164; FRS 17508]**

## Use of the 5.850–5.925 GHz Band

**AGENCY:** Federal Communications Commission.

**ACTION:** Proposed rule.

**SUMMARY:** In this document, the Commission addresses issues remaining to finalize the restructuring of the 5.9 GHz band. Specifically, the Commission addresses: The transition of ITS operations in the 5.895–5.925 GHz band from Dedicated Short Range Communications (DSRC) based technology to Cellular Vehicle-to-Everything (C–V2X) based technology; the codification of C–V2X technical parameters in the Commission's rules; other transition considerations; and the transmitter power and emissions limits, and other issues, related to full-power outdoor unlicensed operations across the entire 5.850–5.895 GHz portion of the 5.9 GHz band. The Commission modified the *Further Notice* released on November 20, 2020, with an Erratum released on December 11, 2020. The Commission released a Second Erratum on February 9, 2021. The corrections from these errata are included in this document.

**DATES:** Interested parties may file comments on or before June 2, 2021; and reply comments on or before July 2, 2021.

**ADDRESSES:** You may submit comments, identified by ET Docket No. 19–138, by any of the following methods:

- *Federal Communications Commission's website: http://apps.fcc.gov/ecfs/.* Follow the instructions for submitting comments.
- *Mail:* Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary Office of the Secretary, Federal Communications Commission.

For detailed instructions for submitting comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

**FOR FURTHER INFORMATION CONTACT:** Jamie L. Coleman of the Office of Engineering and Technology, at 202–418–2705 or *Jamie.Coleman@fcc.gov.*

**SUPPLEMENTARY INFORMATION:** This is a summary of the Commission's Further Notice of Proposed Rulemaking (*Further Notice)* in ET Docket No. 19–138, FCC 20–164 adopted November 18, 2020, and released November 20, 2020. The full text of the *Further Notice,* including all Appendices, is available by downloading the text from the Commission's website at *https://docs.fcc.gov/public/attachments/FCC-20-164A1.pdf.* When the FCC Headquarters reopens to the public, the full text of this document also will be available for public inspection and copying during regular business hours in the FCC Reference Center, 45 L Street NE, Washington, DC 20554. Alternative formats are available for people with disabilities (Braille, large print, electronic files, audio format), by sending an email to *FCC504@fcc.gov* or calling the Consumer and Governmental Affairs Bureau at (202) 418–0530 (voice), (202) 418–0432 (TTY).

**Comment Filing Procedures**

Pursuant to §§ 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings,* 63 FR 24121 (1998).

- *Electronic Filers:* Comments may be filed electronically using the internet by accessing the ECFS: *http://apps.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 overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.
- Commercial overnight mail (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.*

*People with Disabilities:* To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an email to *fcc504@fcc.gov* or call the Consumer & Governmental Affairs Bureau at 202–418–0530 (voice), 202–418–0432 (TTY).

**Initial Paperwork Reduction Act of 1995 Analysis**

This document does not contain proposed information collection requirements subject to the Paperwork Reduction Act of 1995, Public Law 104–13. In addition, therefore, it does not contain any proposed information collection burden for small business concerns with fewer than 25 employees, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107–198, see 44 U.S.C. 3506(c)(4).

**Ex Parte Rules—Permit-But-Disclose**

The proceeding this *Further Notice* initiates shall be treated as a ''permit-but-disclose'' proceeding in accordance with the Commission's *ex parte* rules, 47 CFR 1.1200 *et seq.* Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (*e.g.,* .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

**Synopsis**

**I. Introduction**

1. Simultaneous with this *Further Notice,* the Commission adopted a *First Report and Order* that revised the band plan for the 5.9 GHz band, authorizing unlicensed use in the lower 45 megahertz of the band (5.850–5.895 GHz) and retaining the upper 30 megahertz of the band (5.895–5.925 GHz) for the Intelligent Transportation System (ITS) radio service. As of the effective date of the *First Report and Order,* unlicensed indoor operations are permitted in the 5.850–5.895 GHz portion of the 5.9 GHz band, under specified power and other technical limitations designed to protect incumbent ITS service and federal radar operations from harmful interference. The Commission decided to consider requests for unlicensed outdoor operations in the 5.850–5.895 GHz band through the Commission's existing regulatory process for individualized and temporary access to spectrum, to be coordinated with the National Telecommunications and Information Administration (NTIA) to ensure that federal incumbents are protected from harmful interference.

2. The Commission implemented a period of one year from the effective date of the *First Report and Order* for the ITS licensees to transition all operations into the 5.895–5.925 GHz portion of the band. The Commission further adopted rules designating C–V2X technology as the ITS delivery system once the Commission adopts a deadline and the transition to the revised ITS band is complete. Pending resolution of the transition of ITS operations to C–V2X, ITS licensees will be able to continue their DSRC-based operations or, alternatively, to seek to deploy C–V2X-based operations through the Commission's existing regulatory processes.

3. In this *Further Notice,* we address the remaining issues to finalize the 5.9 GHz band restructuring. Specifically, the *Further Notice* addresses: (1) The transition of all ITS operations to C–V2X-based technology; (2) the codification of C–V2X technical parameters in the Commission's rules; (3) other transition considerations; and (4) the transmitter power and emissions limits, and other issues, related to full-power outdoor unlicensed operations across the 5.850–5.895 GHz band.

**II. Discussion**

*A. Transitioning Licensed ITS Operations in the 5.9 GHz Band to C–V2X Technology*

4. Under the *First Report and Order,* all existing ITS operations using channels in the lower 45 megahertz of the 5.9 GHz band (5.850–5.895 GHz) are required to transition out of that spectrum into the upper 30 megahertz of the 5.9 GHz band (5.895–5.925 GHz) that will continue to be designated for ITS. ITS licensees must take necessary steps to assess their existing equipment and infrastructure and either retune their devices to access only the spectrum in the 30 megahertz that will remain available for ITS operations or replace their equipment with transmitters designed to use only the revised ITS band. In this *Further Notice,* we propose to address remaining issues that must be resolved regarding the transition of ITS from DSRC to C–V2X operations in the 5.895–5.925 GHz band, including the timing and procedures needed to ensure a smooth transition. We also seek comment on additional or alternative measures that may be helpful, appropriate, or necessary.

5. *Timeline.* In the *First Report and Order,* we require that ITS operations in the 5.895–5.925 GHz band ultimately must use C–V2X technology. In order to complete the transition of the band to C–V2X, we propose that all ITS operations in the 5.895–5.925 GHz band either convert to C–V2X or cease operating two years after the effective date of a *Second Report and Order* to be adopted in response to this *Further Notice.* We seek comment on this proposal.

6. Since the Commission first proposed in December 2019 to authorize C–V2X operations in the 5.9 GHz band, manufacturers and licensees have had significant time to begin planning for the possible entry of C–V2X into the band. We seek comment on the state of development and availability of C–V2X equipment, both roadside units (RSUs) and on-board units (OBUs). We believe that two-years beyond the effective date of the rules the Commission will adopt in the *Second Report and Order* will allow the ITS supply chains to become replete with C–V2X equipment. This timeframe is consistent with the Department of Transportation's view

that vehicle manufacturer product cycles necessitate two years lead time to ensure new V2X equipment is installed in new vehicles. And in some instances, this timeframe may not be needed as some commenters have explained that they have already deployed equipment that is both DSRC and C–V2X compatible. We seek comment on whether manufacturers can distribute C–V2X equipment through their existing supply chains, and on whether vehicle manufacturers can install C–V2X equipment into new vehicles, within this timeframe. Moreover, we expect that many licensees will begin planning for the eventual transition to C–V2X now and, thus, may take advantage of available opportunities to immediately operate C–V2X facilities in the upper 30 megahertz of the band under our STA, experimental licensing, or other existing regulatory process without first implementing interim DSRC operations. We seek comment on the number of licensees that may decide to operate in such a fashion and the number that plan to continue offering DSRC in the 30-megahertz band during the transition period. We assume that the transition process to C–V2X would primarily involve replacing DSRC transmitters with C–V2X transmitters, since we propose C–V2X technical rules consistent with the current rules for DSRC and therefore no antenna changes are needed to cover the same area based on the identical propagation characteristics between DSRC and C–V2X. We seek comment on the steps involved with converting all ITS operations in the 5.9 GHz band to C–V2X technology and the expected time to complete the entire process. We note that, as stipulated in the *First Report and Order,* licensees will not need to initiate changes to their authorizations when they transition to C–V2X; they simply will need to use equipment that meets the operational and technical rules the Commission will adopt in the *Second Report and Order* for C–V2X technology. If, however, a licensee needs to concurrently make adjustments to its system to add sites, increase power, or modify emissions, those changes will require modifications to the underlying RSU registration information.

7. We also seek comment on how to treat DSRC OBUs at the final transition date. Can manufacturers or DSRC system operators send over-the-air instructions to these units to turn off? Can OBUs be modified through software or hardware changes to operate using C–V2X-based technology? Absent other operating DSRC infrastructure (such as RSUs), would OBUs continue to communicate with each other and, if so, what would such communications entail? Is there any potential for harmful interference into C–V2X operations that could occur if DSRC OBUs continue to operate after the final transition date and, if so, how can such interference best be prevented? We seek comment on our proposed two-year sunset date for DSRC-based OBU operations and any alternative date that commenters might suggest. Commenters should be specific as to the merits of any date they recommend for ceasing DSRC operations in the 5.9 GHz band.

8. We note that OBUs are licensed-by-rule under the part 95 Personal Radio Services rules. ''Licensed-by-rule'' means that an authorized user can access the entire available spectrum without an individual station license document and is instead authorized to operate as long as the operations are in accordance with the applicable service rules. As a result, the Commission does not have detailed information and records on the exact number and location of users of such equipment. We seek comment on whether there are any specific issues related to modifying OBUs that are not reflected in the questions already raised. As an initial matter, we assume that most OBUs should be easily identified because very few vehicles sold to date are equipped with OBUs and the vast majority of existing units are associated with the various ITS trial programs occurring throughout the U.S. We seek comment on this notion. Are there estimates of the number of vehicles on the road today that incorporate DSRC-based OBUs independent of a trial or pilot program (*i.e.,* as part of a commercial deployment of DSRC services)? Does the Commission need to take steps to make owners of these vehicles aware of the changes being adopted? Or would automobile manufacturers take primary responsibility for notifying their customers of these rule changes? If the Commission should make owners aware of rule changes affecting OBUs, then how should the Commission conduct such consumer outreach? Commenters should provide specific details to justify their positions regarding our proposals.

9. *Technical Parameters.* The Commission's ITS rules set forth basic technical parameters such as power, height, and available channels. Further, to ensure interoperability within the ITS, DSRC operations are required to adhere to the provisions specified in the ASTM E2213–03 Standard (ASTM–DSRC), which is incorporated by reference in the Commission's rules. These rules divide the current 5.9 GHz band into seven, 10-megahertz channels, with an allowance to combine two pairs of channels into 20-megahertz channels. Further, specific channels are intended for public safety use only; one channel in particular, the ''control channel,'' which is outside the modified ITS band plan, is intended to be used for messages that coordinate channel usage and prioritize public safety messages. The modified ITS band plan eliminates the lower four, 10-megahertz channels, including the current control channel, and one of the public safety channels. These changes necessitate that we further propose to modify the ITS technical rules to ensure that ITS delivers its intended safety-related applications to the American public.

10. Our goal is to facilitate a smooth transition and ensure that existing ITS services continue with minimal or no interruption. Accordingly, we must address the technical rules through the transition process whereby C–V2X will replace DSRC technology in the 5.9 GHz band and after that transition when C–V2X is the sole technology in the 5.9 GHz ITS band. In the sections below, we seek comment on the technical considerations related to the simultaneous operation of DSRC and C–V2X in the 5.895–5.925 GHz portion of the 5.9 GHz band and, ultimately, exclusive operation of C–V2X in that band. In particular, as commenters consider the various technical issues addressed here, they should also frame their comments around considerations necessary during and after the transition. Specifically, for each technical issue, commenters should also answer whether there are technical issues that preclude simultaneous DSRC and C–V2X operations in this band. What spectral and/or geographic separation requirements, if any, are necessary to prevent harmful interference between the two types of operations? As ITS licenses generally specify a defined geographic area and are required to operate within as small a ''communications zone'' as necessary, can we permit existing licensees to modify to C–V2X operations premised simply on not exceeding their existing footprint? Can new licensees be authorized to use C–V2X before the final transition date, provided that they avoid existing geographic licensed areas or simply avoid existing registered RSUs? Are there any adjacent-channel issues that need to be considered between DSRC and C–V2X to enable nearby operation? For example, do C–V2X operations in the upper 30 megahertz need to initiate any mitigation measures to accommodate DSRC operations that

continue in the lower 45 megahertz during the one-year transition period? What accommodations can be made to protect RSU sites operated pursuant to the four incumbent nationwide ITS authorizations? Commenters should consider how best to balance C–V2X band entry and co-existence with DSRC during the transition period, in light of the technical rules we are proposing herein and recommend if there are any interim measures that may be needed to ensure short-term compatibility prior to exclusive C–V2X use. We also seek information informed by current C–V2X tests being conducted under experimental licenses as to how best to enable a smooth transition from DSRC to C–V2X.

11. *Bandwidth.* We propose light touch changes to minimize disruption and simplify the transition from DSRC-based technology to C–V2X-based technology. The existing ITS band plan contains three, 10-megahertz channels that will comprise the new ITS band: Channels 180, 182, and 184 corresponding to 5.895–5.905, 5.905–5.915 and 5.915–5.925 GHz, respectively. We seek comment on whether this band plan, specifying three 10-megahertz channels, should continue for C–V2X. We also seek comment on whether the band plan should continue to accommodate combining two channels to provide a single 20-megahertz channel. Currently, channels 180 and 182 can be combined into channel 181 (5.895–5.915 GHz). Should such channel combining be permitted under the modified ITS band plan? Alternatively, should channels 182 and 184 be permitted to combine into a single 20-megahertz channel spanning 5.905–5.925 GHz? Should the Commission permit maximum flexibility by allowing each of these potential channel combinations to be used as necessary to accommodate various ITS applications and services? What about allowing all three channels to be combined and used as a single 30-megahertz channel? What are the consequences for any of these channel bandwidth choices on the deployment and adoption of C–V2X? How would a completely flexible band plan versus a prescriptive band plan affect the ability of C–V2X to maximize efficient use of the band? We seek comment on each of these possibilities and how best to strike the right balance to ensure efficient and effective band use can be maximized. Further, commenters should provide sufficient detail regarding their preferred band plan and how that may work with C–V2X and all other operational and technical rules that are addressed herein, such as power limits, out-of-band emissions (OOBE) limits, and channel use designations.

12. *The control channel and the public safety priority channel.* Currently the rules designate channel 178 (5.885–5.895 GHz) as the control channel and channel 184 (5.915–5.925 GHz) as a public safety channel. We seek comment on whether there is a compelling reason to have specific use designations on any or all of the channels used by C–V2X. Would designating any of the channels for a specific purpose, *e.g.,* a control channel, help maximize band use efficiency? Does C–V2X need access to a control channel in a similar fashion as DSRC? If so, what is the best alternative for accommodating a control channel for C–V2X? Commenters should provide specific reasoning to support their preference. How would any channel designation work with the potential flexibility to combine any two or all three channels?

13. Commenters in favor of any channel designations should include detail regarding which designations they prefer we retain, which channel(s) those designations should pertain to, why they make those particular choices and how those choices will maximize use of the band and promote safety-related vehicular services. Alternatively, we could leave the issue of how best to use any of the channels to the standards-setting process and permit the industry to agree on use standards, but not designate those in our rules. We seek comment on the advantages and disadvantages of deferring to industry standardization processes in lieu of adopting prescriptive rules. Commenters in favor of using the standards process should also comment on expected timeframes for such bodies to produce relevant standards and how those timeframes complement the transition timeframe we propose in this *Further Notice.*

14. Relatedly, the existing ITS rules lay out a hierarchical priority system for messages. Communications involving the safety of life have access priority over all other ITS communications. Communications involving public safety have the next priority level with a presumption that RSUs operated by state or local governmental entities are engaged in public safety priority communications. At the lowest tier of the hierarchy are non-priority communications, which are all other communications. We seek comment on whether to retain this message priority hierarchy for C–V2X deployment. Because the stated purpose of the ITS is to promote safety, our inclination is that this message prioritization system should be retained as it helps to ensure that the most important messages are successfully transmitted. This may become even more important as ITS operations must adjust to delivering service in less spectrum than under the current band plan. We seek comment on this position. Would such a system work with C–V2X? If we retain the channel designations, do they need to be modified for C–V2X? More broadly, are the existing channel designations and operating protocols still technically relevant under the new band plan? Further, commenters should address whether this priority system should be modified in any way. Should there be more granularity in the priority tiers? If so, then how should such messages be designated? Should they continue to be associated with specific types of licensees or should the message type be the determining factor? Should we continue to maintain a priority system based on our expectation that dedicated ITS spectrum will be used primarily (if not exclusively) for safety-of-life applications?

15. *Power and antenna height.* The 5.9 GHz band ITS spectrum is shared and licensed on a non-exclusive geographic area basis based on geo-political boundaries. To maximize the use within this shared spectrum, the rules require that each registered RSU designate its intended area of operation or ''communication zone'' and that such communication zones be the smallest necessary. The rules provide for four communication zones designated ''A'' through ''D'' for coverage areas ranging from 15 meters to 1000 meters. Correspondingly, each zone is associated with a maximum permitted output power ranging from 0 dBm to 28.8 dBm. While this rule specifies output power, which is power supplied to the antenna, another rule specifies the maximum radiated power permitted on each channel ranging generally from 23 dBm to 33 dBm, but permitting state and local government entities to radiate at higher levels on the control channel (channel 178) at up to 44.8 dBm and on the public safety priority channel (channel 184) at up to 40 dBm. The Commission's rules also limit RSU antenna height as another way of ensuring these units do not transmit beyond their designated zone. RSU antenna height is limited to 8 meters at full power and may be as high as 15 meters with a corresponding power reduction. Notably, these rules working together require licensees in many cases to use directional antennas to attain the highest radiated power levels, which

also serves to focus the energy to only the desired coverage areas.

16. We seek comment on what the appropriate power levels under the modified ITS band plan should be. As an initial matter, to maximize spectrum use among all users, we propose to retain the ''communication zone'' designations currently in the rules and require RSUs to specify their intended zone. We believe this will continue to ensure that stations only cover their intended area and provide opportunities for other licensees to install RSUs for other nearby areas without mutually interfering. We seek comment on this proposal and what effect, if any, it will have on C–V2X. 5GAA in a recent filing modified its initial position and now requests that the Commission delete the ''communication zone'' rules. Thus, we ask commenters to address whether the current communication zone distance limits should be retained or are there reasons to modify or eliminate them? Should they provide for more extended coverage areas? Or smaller areas? Or are they effective without change? Commenters advocating changes to the communication zones should provide specific information on what limits they favor and why and what effect those changes will have on the ability for C–V2X to deploy new systems and continue operating into the future.

17. We also seek comment on the appropriate output and radiated power levels that should be associated with each communication zone, channel, and user. The Commission, based on 5GAA's waiver petition, proposed in the 5.9 GHz NPRM power limits based on the most recent 3GPP standard (which at the time was Release 14). Specifically, the Commission proposed that C–V2X devices limit output power to no more than 20 dBm and limit EIRP to no more than 33 dBm. We are not aware of any changes to the power requirements in subsequent iterations of the 3GPP standard and thus, propose that C–V2X RSUs comply with that limit. Should the rules continue to permit higher radiated power for state and local governmental entities? Or should the rules be consistent among all users as a way of maximizing spectrum use and controlling potential interference between users? Should we limit radiated power to 23 dBm as specified for some channels, 33 dBm as specified for others or some other value, such as permitting higher power on a control channel? Likewise, should we continue to specify both output power and radiated power levels for communication zone/channel combinations? Or would it be more appropriate to specify only a radiated power limit, as requested by 5GAA in its comments? Based on how parties envision future use of the ITS band, are there advantages to continuing to specify both limits and requiring certain installations to use directional antennas to reach maximum power?

18. An alternative would be to specify power as a power density to normalize power for wider bandwidth channels, if we continue to permit such operations. We seek comment on whether that would serve C–V2X better than the current method, which associates a lower power density with wider bandwidth channels. We also seek comment on whether the current antenna height limitations are justified. Are there reasons to permit higher antenna heights? Should we continue to require that licensees reduce their power for higher antenna heights as a way of controlling coverage area and reducing the potential for interference? Further, we seek comment on whether we should specify measurement standards for equipment approval and compliance purposes. For example, should the Commission specify that these values should be measured as root mean square (*i.e.,* average) or peak values? And should the Commission specify the resolution bandwidth settings for compliance measurements in the rules? Commenters should address these questions in conjunction with their comments regarding retention or modifications of the existing communication zones and provide technical information regarding their preference for rules and how they would work to ensure maximum access to the band.

19. Finally, we seek comment on whether we should modify the power rules for C–V2X OBUs. The current rules specify a 1 mW output power maximum for portable OBUs. As with RSUs, the Commission proposed in the 5.9 GHz NPRM limits compatible with the 3GPP Release 14 standard for C–V2X vehicular and portable (*i.e.* on-board) units, which would limit output power to no more than 20 dBm and EIRP to no more than 23 dBm. We believe these power levels continue to be appropriate for C–V2X vehicular and portable devices and propose those levels here. 5GAA, however, recently requested that the Commission eliminate the output power requirement and increase the OBU EIRP limit to 33 dBm. Should we adopt this higher power level instead? What effect would such an increase have on the ability of C–V2X RSUs to co-exist with and protect federal radiolocation stations? In commenting on these power levels, commenters should keep in mind the need to simultaneously ensure that such portable OBUs comply with the Commission's RF radiation exposure limits.

20. We also seek comment on how we should handle the standards issue with respect to C–V2X. The 5.9 GHz NPRM sought comment on incorporating 3GPP Release 14 by reference in the Commission's rules. We did not receive significant comment on this issue. Subsequent to the NPRM, in July 2020, 3GPP announced the completion of Release 16, which further enhanced the 5G network capabilities, including C–V2X that were addressed in Release 15.

21. The 3GPP Release 14 standard referenced in this Notice is formally known as: 3GPP TR 21.914 V14.0.0 (2018–05) 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Release 14 Description; Summary of Rel–14 Work Items (Release 14). Release 14, *inter alia,* focuses on introducing Vehicle-to-Everything (V2X) communications, in particular Vehicle-to-Vehicle (V2V) communications. The V2X feature encompasses all aspects of the 3GPP work needed to support vehicle-based communications: Enhancements of the air interface, protocols, and impacts on the Long Term Evolution (LTE) core network. Release 14 defines two modes of operation for V2X communication (V2X communication via direct over-the-air connections between user equipment and V2X communication over the LTE network interface), which may be used by user equipment independently for transmission and reception. Release 14 also defines service requirements (*e.g.,* message transfer latency) for typical V2X applications; specifies architecture enhancements for LTE support of V2X services (*e.g.,* V2X architectures, functional entities involved for V2X communications, interfaces, provisioned parameters, and procedures); and specifies security aspects (*e.g.,* security aspects for LTE-based V2X communication, including security architecture, security requirements, as well as procedures and solutions to meet those requirements). Release 14 specifies core network and user equipment protocol aspects, including protocols for V2X authorization between user equipment and the V2X Control Function, communication among user equipment, and communication between the user equipment and the V2X Application Server over the LTE interface. Release 14 also describes support for V2V services based on LTE sidelink communications (direct communication

between two LTE devices without going through a base station).

22. In light of the evolution of the C–V2X standard to a 5G network technology, we seek comment on whether our rules should incorporate the 3GPP standard by reference. Commenters in favor of incorporation by reference should also provide details regarding which version should be incorporated—Release 14 which is based on LTE technology or Release 16 which incorporates 5G technology. Commenters who advocate for Release 16 should address how vehicular safety applications will be delivered to all users given that 5G is not backwards compatible with LTE. One alternative could be to incorporate Release 14 now with a planned transition to Release 16 (or the current version) at some date certain in the future. We seek comment on such an option. Alternatively, is there a compelling argument for not incorporating any C–V2X standard into the rules? We seek comment on each of these options. Commenters should address how the option they favor would promote safety services among all users. Finally, we seek comment on whether we should only incorporate by reference specific aspects of either the 3GPP Release 14 or Release 16 standard? If so, which sections? Or if the Commission does not incorporate by reference any 3GPP standard, are there portions of the standard that need to be placed in our rules? Given our adoption of C–V2X as the sole technology permitted in the 5.9 GHz ITS band after the transition, Continental has raised concerns about the resolution of potential licensing disputes regarding that technology. We also request comment on this issue.

23. *C–V2X OOBE limits.* Because the existing rules for DSRC do not specify OOBE limits necessary to protect adjacent band services from harmful interference, the Commission sought comment in the 5.9 GHz NPRM on appropriate OOBE limits for C–V2X devices. Regardless of whether we incorporate the 3GPP standard or not, we continue to believe it is good practice to adopt specific OOBE limits into our rules. Doing so would provide equipment manufacturers with clear guidelines for equipment approval compliance. Furthermore, it would provide adjacent-channel licensees and equipment manufacturers with clear guidelines regarding the expected spectrum environment so they can incorporate appropriate filters and mitigation measures into their products to protect from harmful interference from adjacent channel emissions. Because our previous proposals were consistent with the current 3GPP standard, we propose the same OOBE limits for C–V2X here as we did in the 5.9 GHz NPRM. Specifically, we propose that all C–V2X equipment limit OOBE limits measured at the antenna input (*i.e.,* conducted limits) to: –29 dBm/100 kHz at the band edge; –35 dBm/100 kHz ± 1 megahertz from the band edge; –43 dBm/100 kHz ± 10 megahertz from the band edge; and –53 dBm ± 20 megahertz from the band edge. We also propose to limit out-of-band radiated emissions to –25 dBm/100 kHz EIRP or less outside the band edges of 5.895 GHz and 5.925 GHz.

24. We seek comment on these OOBE limits and whether they continue to be appropriate for C–V2X equipment. In this connection, we note that 5GAA recently requested that we adopt more relaxed OOBE requirements. It specifically requests that RSUs limit OOBE to: –16 dBm/100 kHz ± 1 megahertz of the band edge; –13 dBm/MHz ± 5 megahertz of the band edge; –16 dBm/MHz ± 30 megahertz of the band edge; and –28 dBm/MHz beyond 30 megahertz from the band edges.

25. Should we adopt these alternative OOBE limits instead? What would the effect of these relaxed limits be on the ability to design and manufacture C–V2X equipment? How would they affect equipment cost? Will these limits ensure compatibility with adjacent U–NII devices in both the U–NII–4 and U–NII–5 bands, which are below and above the modified ITS band, respectively? What effect would these limits have on adjacent band fixed services in the 6 GHz band? We also seek comment on the measurement standards that should be associated with equipment approval compliance for verifying that C–V2X equipment meets whatever OOBE limits we adopt.

26. *Other Transition Considerations.* In 5.9 GHz NPRM, we requested comment generally on the various transition-related considerations that we should take into account if we adopted our proposal to provide only 30 megahertz for ITS. For example, we asked about any re-channelization of DSRC-based operations in the upper 30 megahertz or the migration of ITS to C–V2X-based technology in the spectrum that remains reserved for ITS. To inform our consideration of issues relating to transitioning of ITS operations, we asked that commenters provide up-to-date information on actual DSRC operations under existing licenses (including the number of RSUs and OBUs) and the various uses that have been implemented. The Commission received several comments that involved some estimation of the potential cost considerations associated with these transition issues.

27. We take this opportunity to update the record on our inquiry in the 5.9 GHz band NPRM regarding transition cost considerations in light of the 5.9 GHz band plan that we have adopted in the *First Report and Order.* We recognize that, in light of our decision, commenters will be in a much better position to evaluate the necessary transitions of their respective systems We note that many of the DSRC projects appeared to be associated with demonstration projects designed to address particular traffic and safety concerns, and we seek any updates about DSRC demonstration projects or deployment, as well as any C–V2X demonstration or pilot projects, including any funding grants that have been provided or are anticipated. As the U.S. DOT has indicated, ITS operations to date have received substantial research and deployment investments, including federal, state, and local investment, over the years, and we seek comment on the availability of that or similar funding for transitioning associated with the new band plan for ITS. To what extent can existing funding at the federal or state or local level readily be used with regard to the necessary transition costs, including use of C–V2X-based technology?

28. While we did not propose in the 5.9 GHz NPRM to provide compensation for such relocation, we nonetheless seek further comment, including suggestions on which particular types of costs should be considered as appropriate for possible compensation (including how such costs would be documented) as well as the process by which such compensation might be determined or implemented. Finally, we request comment on any other actions the Commission should consider that would be helpful to ITS licensees with respect to these transition matters.

29. We seek comment on whether we should limit use of the 5.895–5.925 GHz band to non-commercial services or safety-of-life applications. Open Technology Institute at New America and Public Knowledge previously filed a petition for rulemaking asking the Commission to prohibit commercial operations in ITS spectrum. Should we modify our rules to prohibit commercial operations in this spectrum or otherwise limit services to safety-of-life applications? How would the Commission define ''safety-of-life'' applications? How would the Commission delineate between safety-of-life and non-safety-of-life applications? In such instances, would the Commission need to specifically list

permitted applications in its rules or would a general prohibition suffice? Or, could such a prohibition on commercial operations be accomplished by limiting license eligibility to only certain licensees, such as governmental entities or entities eligible for licensing in the Private Land Mobile Radio Service Public Safety Pool under part 90? At what point would a use or licensing restriction so alter the current authorizations so as to constitute a fundamental license change that would exceed the Commission's authority to effectuate under section 316 of the Communications Act, as amended? We seek comment on the challenges and benefits associated with adopting restrictions on the types of ITS services that may operate in the 5.895–5.925 GHz band.

*B. More Flexible Use of Unlicensed Service*

30. The *First Report and Orde*r takes an initial step at providing unlicensed U–NII device access to the 5.850–5.895 GHz band. Our decision to generally restrict U–NII devices to indoor locations until ITS operations transition to the 5.895–5.925 GHz band provides flexibility for unlicensed devices to begin using the 5.850–5.895 GHz band, but in a way that avoids the potential for harmful interference to vehicular safety-related applications. Once ITS operations have finished transitioning to the upper 30 megahertz, however, we can permit outdoor operations at full power, subject to such outdoor use protecting from harmful interference both co-channel federal radiolocation operations (which will remain in the band) and adjacent-band ITS operations.

31. *Federal Radiolocation System Protection from Outdoor Unlicensed Operations.* In the 5.9 GHz NPRM, we sought comment on whether there are any mitigation measures, such as technical or operational conditions or constraints that the Commission should consider for U–NII–4 operations to protect federal radars in the 5.9 GHz band. Comcast submitted that the Commission should adopt its proposal to implement the same technical rules as U–NII–3 with respect to U–NII–4 devices and federal DoD radar operations. WISPA agreed with the Commission's suggestion that no other mitigation measures are required to protect DoD radar operations in the 5.9 GHz band from U–NII–4 devices. NCTA stated that the Commission should adopt its proposal to authorize U–NII–4 devices without requiring any special frequency avoidance techniques or similar constraints since U–NII–3 devices have shared spectrum with co-channel federal incumbents for years without any specialized frequency avoidance techniques, and in general sharing has been successful.

32. NTIA reviewed the federal radar operations authorized in the 5.9 GHz band and determined that the number of radar sites needing protection could be reduced to from 59 to 30 sites. NTIA's analysis concludes that exclusion zones are needed to protect federal radiolocation systems only from U–NII–4 outdoor point-to-point (P2P) and point-to-multipoint (P2MP) devices. The exclusion zones recommended by NTIA are set forth in Table 2 of its Sept. 8, 2020 letter. To enforce the exclusion zones, NTIA recommends that interference mitigation techniques such as geo-fencing be employed to protect federal radiolocation operations. NTIA emphasizes that it is important that outdoor U–NII devices are not permitted to operate inside of these exclusion zones to ensure that federal radiolocation systems are protected from harmful interference. NTIA also requests that the new rules make clear that it may authorize additional exclusion zones or modify the existing exclusion zones listed in Table 2 as necessary to ensure federal radiolocation stations are protected.

33. We agree that some mitigation measures are needed to ensure that outdoor U–NII point-to-point and point-to-multipoint operations do not cause harmful interference to federal radiolocation systems. We seek comment on whether exclusion zones would be the best method for ensuring such protection. We note that some commenters express disagreement with the technical analysis provided by NTIA, including questioning whether NTIA's interference analysis is consistent with the assumptions in the 6 GHz Report and Order. We seek comment on NTIA's technical analysis, as well as comment on any alternate methods for determining the parameters of exclusion zones. Commenters advocating opinions that differ from NTIA's analysis should provide specific technical detail and analysis regarding how unlicensed devices would provide the required protection to federal radars. Alternatively, are other protection mechanisms, such as coordination, feasible methods of protecting federal operations in certain areas? Commenters favoring coordination or other methods should describe how such methods can be implemented and maintained such that federal radar operators have assurances that their installations are and continue to be protected from harmful interference in the future as more unlicensed devices may be installed or existing devices may be relocated.

34. Compliance with an exclusion zone implies some degree of location awareness, either within a device or by an installer. In crafting rules for outdoor use, we seek to protect important DoD radars from harmful interference, provide flexibility to U–NII system operators, minimize equipment complexity and capitalize on the greatest degree of harmonization with U–NII–3 devices as possible. We seek comment on how best to adopt rules that satisfy each of these goals to the greatest extent possible.

35. The Commission has required other unlicensed devices to incorporate geographic awareness (*i.e.,* a geolocation capability) and use a database to avoid areas where the potential for causing harmful interference would exist. For example, white space devices are required to incorporate a geolocation capability and check a white space database for a list of available channels before they can operate and 6 GHz standard power U–NII devices are similarly required to incorporate a geolocation capability and consult an automated frequency coordination database prior to operating to avoid causing harmful interference to fixed service incumbents. Should the Commission require a similar system here? The advantage of using geolocation and a database is that such systems have already been successfully deployed and we believe protecting only 30 federal radiolocation sites would be a relatively simple undertaking under this regime. But incorporating geolocation capability does increase the complexity of a device and add overhead (both hardware and software) necessary for such a system to work. In addition, requiring U–NII–4 devices to operate in this manner would entail many differences from U–NII–3 device operation and could limit their usefulness in providing the ability to use a 160-megahertz wide channel that spans the U–NII–3 and U–NII–4 bands. On the other hand, we expect many devices to operate throughout all the U–NII bands including the 6 GHz U–NII–5 and U–NII–7 bands which would already require this capability. For example, we expect that new devices would have capability to operate across multiple bands including the 5.150–5.250 U–NII–1 band, the 5.725–5.850 U–NII–3 band, the 5.850–5.895 GHz U–NII–4 band, the 5.925–6.425 U–NII–5 band and the 6.525–6.875 U–NII–7 band. In this case, how difficult would it be to similarly add the geolocation and database capability to U–NII–4 devices? Would there be any

incremental cost for incorporating such a requirement? How would such a requirement affect the utility of U–NII–4 devices and their ability to work seamlessly with U–NII–3 devices to deliver applications over a 160-megahertz channel? If we were to adopt such a requirement, we anticipate the rules being consistent with the 6 GHz automatic frequency coordination rules, except that the exclusion zones are already known and do not need to be calculated by the automated frequency coordination system. We seek comment on using the 6 GHz framework for outdoor U–NII–4 devices.

36. Because the U–NII–4 band exclusion zones are known in advance, are there simpler methods for ensuring that outdoor U–NII–4 devices respect the need to avoid operating near the federal radiolocation systems? For example, could we simply rely on professional installation to ensure that outdoor U–NII–4 devices do not operate in those areas? Under a professional installation regime, what rules and requirements would the Commission need to put in place to ensure that U–NII–4 devices do not operate in any of the exclusion zones? Similarly, because these exclusion zones are known, could devices simply have a geolocation capability and either be preloaded with the exclusion zone coordinates and/or download those coordinates once or on a periodic basis, such as every time the device is turned on or at some set interval (*e.g.,* once a week or once a month)? We seek comment on whether this is a viable alternative to the other suggested methods. Commenters in favor of such a mitigation method should provide detailed comment regarding how the internal device database would work, the necessary update frequency, and the costs involved in developing equipment. We also seek comment on other alternatives that achieve the same goal; that is, methods that achieve the required protection and are easy and cost effective to implement and maximize utility of the U–NII–4 band.

Outdoor Unlicensed Operations Transmitted Power and Emissions Limits

37. *Transmitter Power.* In the 5.9 GHz NPRM, the Commission proposed that U–NII–4 devices be permitted to operate at the same power levels (*e.g.,* radiated power, power spectral density) as U–NII–3 devices and sought comment on whether it should adopt different power levels.

38. The Wi-Fi Alliance agrees that the Commission should adopt its proposal to apply the same power levels (radiated power, PSD) to U–NII–4 devices as apply to U–NII–3 devices because their efficacy has been proven by years of application in practice. Wi-Fi Alliance contends that to recognize the full benefit of the U–NII–4 spectrum, including expanded operations of existing U–NII devices, the technical rules governing the band must be aligned with the rules covering the U–NII–3 band; permitting U–NII–4 devices to operate at the same power levels as U–NII–3 devices will maximize the utility of both bands. It states that if a different power level is adopted for the U–NII–4 band, U–NII devices would not be able to operate across both the U–NII–3 and U–NII–4 bands, eliminating the potential use of wider channels, equipment commonality, reduced cost and complexity, superior performance, and other benefits that may be realized by the Commission's proposal. WISPA states the Commission's proposal to allow U–NII–4 devices to operate at the same power level as U–NII–3 devices is a sensible and efficient approach and consistent with WISPA's recommendations in ET Docket No. 13–49 in that it would permit higher-EIRP fixed wireless operations that will enable use of the 5.9 GHz band for rural broadband deployment, including both outdoor point-to-point operations and point-to-multipoint operations. Comcast asserts that harmonizing the U–NII–4 technical rules with those of the U–NII–3 band, particularly the Commission's proposal to allow U–NII–4 devices to operate at the same power levels as U–NII–3 devices, would substantially improve its ability to bring the band into use for consumers quickly and to put it to its best use. NCTA states that applying the U–NII–3 power limits to U–NII–4 will enable network operators and device manufacturers to build on the success of U–NII–3. Microsoft states that extending the U–NII–3 technical rules to the U–NII–4 band, except for the existing OOBE limits, will enable the public to realize the maximum benefits from the U–NII–4 band, including accelerating the timeline for initial deployments using this 45 megahertz of spectrum; establishing the same power levels in the U–NII–4 band as in the U–NII–3 band is essential for deployment of larger channels.

39. On the other hand, 5GAA and Qualcomm separately recommend that the Commission impose a power spectral density limit to protect C–V2X receivers from portable client devices that may be operating temporarily outdoors with relaxed OOBE limits but connected to an indoor access point in the U–NII–4 band, but did not recommend any specific limit. Car 2 Car and US Technical Advisory Group separately urge the Commission to revisit its proposals for maximum transmit power from U–NII–4 devices to avoid harmful interference to ITS operations, but did not recommend any specific level for the maximum transmit power. The Alliance for Automotive Innovation expresses concern that the National Highway Transportation Safety Administration's (NHTSA's) testing, which showed varying levels of harmful interference, underestimates the potential for harmful interference from unlicensed operations, since the NHTSA's tests were conducted with a 36 dBm EIRP, but fixed point-to-point U–NII devices could operate at power levels of 62 dBm EIRP using 5G antennas that have 32 dBi of gain. Qualcomm also expresses concern that outdoor point-to-point unlicensed operations with high EIRP signals in the U–NII–4 band could have serious performance impacts to installed RSUs and create C–V2X dead zones when vehicles pass nearby, regardless of the OOBE level. Intelligent Transportation Society of America (ITSA) also expresses concern that outdoor unlicensed point-to-point U–NII–4 band operations from a tower or rooftop alongside a roadway could cause harmful interference to ITS receivers.

40. For outdoor operation of U–NII–4 access point device after ITS operations move out of the U–NII–4 band, we propose a radiated power of 23 dBm/MHz or 36 dBm radiated power for all bandwidths. When combined with U–NII–3-band spectrum, outdoor access point EIRP can scale to 36 dBm for 40, 80, and 160 megahertz channels. We agree with the Wi-Fi Alliance that permitting U–NII–4 devices to operate at the same power levels as U–NII–3 devices is essential to achieving the full benefits of the U–NII–4 band and maximizing the utility of both bands while protecting incumbent operations in the U–NII–4 band from harmful interference. Allowing outdoor U–NII–4 devices to operate at the full power level permitted for U–NII–3 devices will enable the use of wider channels, promote equipment commonality, reduce costs and complexity, and facilitate broadband deployments in rural areas, including both outdoor point-to-point operations and point-to-multipoint operations. However, to avoid the need for much larger unlicensed exclusion zones where unlicensed operations would be prohibited in order to protect federal radar operations from harmful

interference, we propose not to adopt the U–NII–3 point-to-point power limits in the U–NII–4 rules. We also propose that client devices be permitted to operate in the 5.850–5.895 GHz band at power levels that are 6 dB lower than those permitted for outdoor access point devices. We seek comment on these proposals.

41. *OOBE Limits.* In the 5.9 GHz NPRM, the Commission proposed that U–NII–4 devices, or devices that operate across a single channel that spans the U–NII–3 and U–NII–4 bands, meet the same OOBE limits as U–NII–3 devices at the upper and lower edges of those bands with no limit at the U–NII–3/U–NII–4 band edge. Proponents of ITS suggest that U–NII–4 devices, or devices that operate across a single channel that spans the U–NII–3 and U–NII–4 bands, meet OOBE limits that are much more restrictive than the existing U–NII–3 OOBE limits to protect adjacent-band ITS operations. Under GM's suggestion (−27 dBm/MHz at or above 5.905 GHz), U–NII–4 devices' OOBE would need to be 15 dB lower than the OOBE limit (−12 dBm/MHz) for a U–NII–3 device at the same frequency; under the suggestion from Car 2 Car, IEEE 1609 Working Group, US Technical Advisory Group, and Volkswagen (−40 dBm/MHz at 10 megahertz above the band edge), U–NII–4 devices' OOBE would need to be approximately 28 dB lower than the OOBE limit (−12 dBm/MHz) for a U–NII–3 device at the same frequency.

42. Proponents of unlicensed operations suggest more relaxed OOBE limits for outdoor unlicensed operations in the U–NII–4 band than proposed in the 5.9 GHz NPRM. WISPA submits that outdoor U–NII–4 operations' OOBE be limited to −5 dBm/MHz at or above 5.895 GHz. Broadcom, CableLabs, Facebook, and NCTA together suggest that OOBE for outdoor U–NII–4 operations be limited to 7 dBm/MHz at 5.895 GHz, decreasing linearly to −9 dBm/MHz at 5.925 GHz, measured using the root mean square (RMS) method (agreed to by 5GAA for the top of the 5.9 GHz band), to address concerns raised by ITS stakeholders. They claim that −9 dBm at 5.925 GHz will provide more than adequate protection for adjacent ITS operations and is consistent with the roll-off of the IEEE 802.11ac and 802.11ax emissions masks. They also assert that this limit would allow 5.9 GHz-capable Wi-Fi devices to deliver sufficient power and throughput to consumers to enable the wide range of use cases—including enhanced in-home Wi-Fi speeds and coverage to support remote learning, telemedicine, and other high-bandwidth applications, as well as more accessible large-scale connectivity to support smart city and agricultural applications in communities across the country—that make the 5.9 GHz band a unique opportunity; too restrictive an OOBE limit would make these kinds of use cases impossible.

43. The Wi-Fi Alliance recommends a more nuanced approach based on a the −27 dBm/MHz limit at or above 5.925 GHz that the Commission has effectively applied to U–NII–3 transmissions to protect ITS operations. Specifically, for outdoor U–NII–4 band devices, Wi-Fi Alliance proposes OOBE limits that mirror the existing limits for U–NII–3 devices at and above 5.895 GHz (*i.e.,* −5 dBm/MHz at 5.895 GHz, decreasing linearly to −27 dBm/MHz at 5.925 GHz). The Wi-Fi Alliance asserts that these U–NII–3 OOBE limits have proven to be effective in protecting ITS; there is no basis for imposing more stringent OOBE limits on operations in the U–NII–4 band since the Commission has already affirmed that the U–NII–3 OOBE limits afford sufficient protection to DSRC systems and C–V2X operations do not require greater protection than DSRC operations. The Wi-Fi Alliance argues that the Commission should reject arguments for more restrictive OOBE limits because imposing prohibitively burdensome and unnecessary band coexistence measures on U–NII–4 devices would preclude commercial viability of this band and defeat the objective of making additional spectrum available for unlicensed operations. The Wi-Fi Alliance also supports applying the existing U–NII–3 OOBE limits at the lower edge of the U–NII–3 band for outdoor U–NII–4 devices, or devices that operate across a single channel that spans the U–NII–3 and U–NII–4 bands, *i.e.,* at 5.725 GHz, while not imposing any OOBE limit for U–NII–4 devices at the U–NII–3/U–NII–4 band edge (*i.e.,* at 5.850 GHz).

44. For outdoor U–NII–4 access point devices or outdoor access point devices that operate across a single channel that spans the U–NII–3 and U–NII–4 bands, we propose the outdoor U–NII–4 OOBE limits recommended by the Wi-Fi Alliance of −5 dBm/MHz at 5.895 GHz, decreasing linearly to −27 dBm/MHz at 5.925 GHz, measured using an RMS measurement. We are not convinced that the more relaxed OOBE limits suggested by unlicensed proponents would adequately protect ITS operations from harmful interference since they are less restrictive than existing U–NII–3 OOBE limits. We are also not convinced that the more stringent OOBE limits suggested by ITS proponents are necessary to protect adjacent-band ITS operations since they are more restrictive than the existing U–NII–3 OOBE limits, which the Commission previously affirmed would protect DSRC operations and have already proven to be effective in protecting ITS operations from harmful interference. We also propose to apply the existing U–NII–3 OOBE limits at the lower edge of the U–NII–3 band for outdoor U–NII–4 devices, or devices that operate across a single channel that spans the U–NII–3 and U–NII–4 bands, *i.e.,* at 5.725 GHz, while not imposing any OOBE limits for U–NII–4 devices at the U–NII–3/U–NII–4 band edge, *i.e.,* at 5.850 GHz. We believe that these limits will protect adjacent-band ITS operations from harmful interference due to unlicensed operations in the U–NII–4 band, support separate U–NII–3 and U–NII–4 bands to provide flexibility for designing U–NII–3 equipment under the less stringent OOBE rules at the upper edge of the band, and provide flexibility for devices to operate across the U–NII–3 and U–NII–4 bands using the widest channel bandwidths permitted under the IEEE 802.11 standard. We seek comment on these proposals.

45. *Protection of Fixed-Satellite Service Operations.* In the *First Report and Order* in this proceeding, we declined to adopt SES Americom's and Intelsat's suggestion to establish a maximum permissible aggregate power limit for U–NII–4 band unlicensed devices' operations that would be monitored and controlled by an Automatic Frequency Coordination (AFC) system to help protect FSS operations. However, as a precautionary measure to further protect FSS operations from harmful interference, we propose to require U–NII–4 band outdoor access points to limit the maximum EIRP above a 30 degree elevation angle to 21 dBm, which is similar to what the Commission already requires in the U–NII–1, U–NII–5, and U–NII–7 bands to protect FSS operations. This skyward restriction should address SES Americom's and Intelsat's concerns about potential aggregate interference from U–NII–4 band unlicensed operations. Since we do not expect outdoor access points to radiate significant power skyward, we do not believe this requirement will impose a burden on or affect the utility of outdoor access point users.

46. We do not find it necessary to propose to restrict the power radiated upward from U–NII–4 client devices as we propose to require for outdoor access points. We believe it is unlikely that relatively low-power unlicensed devices

will cause harmful interference to receivers on geostationary satellites approximately 35,800 km above the equator and seek comment. We propose to limit upward power from outdoor U–NII–4 access points merely as a precautionary measure, as they are more likely to operate with higher power. While client devices can operate with an EIRP as high as 30 dBm (6 dB lower than access points' maximum allowed power), we find that they are less likely to cause interference to satellite receivers than similarly powered outdoor access points due to the nature of their operation. We expect them to generally operate at much lower power levels to maximize battery life and comply with radiofrequency (RF) exposure limits. In addition, client devices communicate with access points in an asymmetric nature, in that relatively little data is transmitted in the uplink direction (*i.e.* from the client device) as compared to the downlink direction where any single access point may be serving many client devices. Moreover, client devices typically operate with omnidirectional antennas at low antenna heights and in a mobile or portable mode (*i.e.,* not installed in permanent outdoor locations). Thus, we expect that upwardly directed client device emissions will often be at low power levels and shielded to some extent by buildings, foliage, or other obstructions. We seek comment on these proposals and conclusions.

47. *Increased Transmit Power for Indoor U–NII–4 Access Points.* In the *First Report and Order,* we adopt a 20 dBm/MHz limit for indoor U–NII–4 access points, largely to protect co-channel ITS incumbent operations. We propose that indoor U–NII–4 devices be permitted to increase power to 23 dBm/MHz or 36 dBm radiated power for all bandwidths upon the later of one year following the effective date of the *First Report and Order* (*i.e.,* the date by when ITS operations must transition out of the 5.850–5.895 GHz band) or the effective date of a *Second Report and Order* adopting these proposed power increases. We seek comment on this proposal. We note that these proposed limits are consistent with NTIA's radiolocation protection analysis. In making this proposal, we do not propose to change any other aspect of indoor U–NII–4 devices; they would still be required to incorporate all the mitigation features we adopted in the *First Report and Order,* including the requirement to obtain power from a wired connection, a prohibition on weatherized enclosures and a requirement for an integrated antenna. Client devices would be limited to power levels 6 dB below the power limits for access points.

48. *U–NII–4 Client to Client Communications.* The rules adopted in the *First Report and Order* prohibit U–NII–4 client-to-client communications to protect co-channel incumbent ITS operations and federal radiolocation stations. But only the federal radiolocation stations will require protection after ITS operations transition out of the 5.850–5.895 GHz band. We seek comment on whether we can remove the client-to-client communications prohibition upon the later of one year following the effective date of the *First Report and Order* (*i.e.,* the date by when ITS operations must transition out of the 5.850–5.895 GHz band) or the effective date of a *Second Report and Order* eliminating the prohibition. As an initial matter, we note that NTIA's analysis for protecting these 30 radiolocation sites concludes that C–V2X OBUs can operate throughout the U.S. with no limitation. That analysis assumed that such OBUs operate with power levels up to 17 dBm/20 MHz or 50 mW. The equivalent power for wider channels is 20 dBm/40 MHz (100 mW), 23 dBm/80 MHz (200 mW) and 26 dBm/160 MHz (400 mW). Our proposal for C–V2X OBUs would limit power to no more than 23 dBm EIRP. We therefore seek comment on whether we can allow U–NII–4 client-to-client device communications at that same 23 dBm EIRP power level. Such communications could enable innovative new virtual reality or augmented reality applications in much the way similar applications have been envisioned under the Commission's proposals for ubiquitous operation of very low power devices in the 6 GHz U–NII bands.

49. Although U–NII–4 devices would not necessarily be in moving vehicles like C–V2X OBUs, would their operations still be functionally similar to such operations so as to allow the same power levels and still protect federal radiolocation operations? If concerns regarding potential harmful interference to federal operations persists, are there measures we could take to enable U–NII–4 client-to-client communications in areas outside the exclusion zones or with lower power within the exclusion zones? For example, because client devices are often smart phones with embedded geolocation technology, could an app or database connection or other mitigation method be used to control power or avoid certain areas where the potential for causing harmful interference is the greatest? We also note that 5GAA requests that we permit OBUs to transmit with as much at 33 dBm EIRP. How would OBUs at higher power levels affect the ability to permit client-to-client communications? 5GAA also states that U–NII–4 client-to-client operations could reduce the effectiveness of adjacent band C–V2X safety services. We seek comment on whether we can permit client-to-client communication and under what conditions. Commenters should provide technical and operations details as to how devices operating in a client to client mode would avoid causing harmful interference to co-channel federal radiolocation operations as well as to adjacent band C–V2X safety services.

### *C. Other Spectrum for ITS*

50. As discussed in the *First Report and Order,* the record supports 30 megahertz of spectrum as sufficient to provide basic safety functions of ITS currently deployed and under consideration in the near future. Commenters have suggested, however, that additional spectrum may be needed either to support simultaneous deployment of 4G and 5G–NR C–V2X service or to support other advanced capabilities beyond the basic safety messages currently available.

51. We seek comment on whether, notwithstanding our determination that current safety-of-life services can continue to operate using 30 megahertz of spectrum, we should consider allocating additional spectrum for ITS applications. For what purposes would additional spectrum be needed? We note that the record evidence indicates that several categories of transportation-related communications and other ITS applications are currently being met through spectrum outside of the 5.9 GHz band. For example, capabilities like blind spot detection, lane-keep assist, and features that do not operate in the 5.9 GHz band, which provide substantial automotive and vehicular safety functions. Panasonic in its comments states that technologies like LiDAR, 76–81 GHz band radar, or other line-of-sight sensors can support advance driver assistance systems (*e.g.* automatic emergency braking or lane-keeping). To the extent some ITS applications (or their functional equivalent) are currently being provided using alternative spectrum bands, commenters should explain with specificity why existing spectrum resources are inadequate and what specific safety benefits would result from making additional spectrum available for such services.

52. Panasonic suggests that harnessing the advantages of fully automated transportation requires cooperation between different vehicles with different levels of automation and the transportation infrastructure. Similarly, the U.S. DOT stated that in-vehicle sensors are susceptible to ''blind spots'' when they are operating outside of line-of-sight scenarios. U.S. DOT claims that the combination of sensors and V2X, with access to dedicated spectrum, will best provide enhancements to driver safety and will support automated driving behavior in the future.

53. We have already recognized that C–V2X is the preferred choice for deployment in the upper 30 megahertz portion of the band. How, in particular, would additional spectrum be used to leverage this technology and aid in its deployment? Should we determine that additional spectrum is needed to provide advanced ITS applications, what spectrum band(s) should we consider? Open Technology Institute and Public Knowledge have mentioned the 3450–3550 MHz band. Other commenters, like Dynamic Spectrum Alliance and NCTA, proposed allowing C–V2X to operate in the 4.9 GHz band. Other commenters provided similar views. In the intervening period since adoption of the 5.9 GHz NPRM, however, the Commission has adopted rule changes for the 4.9 GHz band to allow for non-public safety operation and leasing arrangements and has proposed allocating the 3.45–3.55 GHz band for flexible-use service. We also note that that commenters have mentioned a ''clean sheet'' approach when considering the best spectrum band in which to locate the proposed C–V2X operations. Others mention allowing ITS to use flexible use licensed or unlicensed spectrum in the way other technologies do. Commenters addressing this issue should provide specific information regarding spectrum bands that could support ITS operations, the types of applications or services they envision for that particular band and how C–V2X could coexist with existing spectrum users in that band(s). We also note that the commenters should consider the propagation characteristics of the spectrum they identify relative to the technology needs of ITS services (*e.g.* low latency, reliability, non-line of sight communications, processing capabilities, international trends, and relevant standards-setting factors). Are there other rule changes we could make to enable vehicular safety-related applications in other bands on a shared basis?

## III. Incorporation by Reference

54. Sections 90.375, 90.379, and 95.3189 of the proposed rules provide that C–V2X Roadside Units (RSUs) and C–V2X On-Board Unit (OBU) transmitter types operating in the 5895–5925 MHz band must comply with the technical standard 3rd Generation Partnership Project Technical Specification Group Services and System Aspects (3GPP) Release 14. The OFR has regulations concerning incorporation by reference. 1 CFR part 51. These regulations require that, for a proposed rule, agencies must discuss in the preamble to the proposed rule the way in which materials that the agency incorporates by reference are reasonably available to interested parties, and how interested parties can obtain the materials. Additionally, the preamble to the proposed rule must summarize the material. 1 CFR 51.5(a).

55. In accordance with the OFR's requirements, the discussion in section II.A. of this preamble summarizes the provisions of 3GPP Release 14. Interested persons may obtain a copy of 3GPP Release 14 through 3GPP's website at the address provided in §§ 90.395 and 95.3189 the rule. A copy of the standard may also be inspected at the FCC's main office.

## IV. Initial Regulatory Flexibility Analysis

56. As required by the Regulatory Flexibility Act of 1980, as amended (RFA), the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in this *Further Notice.* Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Further Notice* provided in the item.

### *A. Need for, and Objectives of, the Proposed Rules*

57. In this *Further Notice,* we propose to resolve the timing, procedures, and technical parameters associated with the transition of the updated 5.9 GHz band plan. Specifically, the *Further Notice* proposes to allow full-power outdoor unlicensed operations across the 5.850–5.895 GHz band once ITS operations have exited this portion of the band and subject to any further necessary protections for federal operations in this spectrum. The draft also seeks to establish power and emissions limits and other rules related to outdoor unlicensed operations in the lower 45 megahertz of the band. The draft would address transitioning all ITS operations in the revised ITS band at 5.895–5.925 GHz to C–V2X-based technology, including the appropriate timeline for implementation, and the codification of C–V2X technical parameters for operation in the 5.895–5.925 GHz band. The *Further Notice* would also seek comment on whether the Commission should consider allocating additional spectrum for ITS applications in the future.

### *B. Legal Basis*

58. The proposed action is taken authority found in sections 1, 4(i), 301, 302, 303, 309, 316, and 332 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i), 301, 302, 303, 309, 316, and 332, and section 1.411 of the Commission's Rules, 47 CFR 1.411.

### *C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply*

59. The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted. The RFA generally defines the term ''small entity'' as having the same meaning as the terms ''small business,'' ''small organization,'' and ''small governmental jurisdiction.'' In addition, the term ''small business'' has the same meaning as the term ''small business concern'' under the Small Business Act. A ''small business concern'' is one which: (1) Is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).

60. *Small Businesses, Small Organizations, Small Governmental Jurisdictions.* Our actions, over time, may affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three broad groups of small entities that could be directly affected herein. First, while there are industry specific size standards for small businesses that are used in the regulatory flexibility analysis, according to data from the Small Business Administration's (SBA) Office of Advocacy, in general a small business is an independent business having fewer than 500 employees. These types of small businesses represent 99.9% of all businesses in the United States, which translates to 30.7 million businesses.

61. Next, the type of small entity described as a ''small organization'' is generally ''any not-for-profit enterprise

which is independently owned and operated and is not dominant in its field.'' The Internal Revenue Service (IRS) uses a revenue benchmark of $50,000 or less to delineate its annual electronic filing requirements for small exempt organizations. Nationwide, for tax year 2018, there were approximately 571,709 small exempt organizations in the U.S. reporting revenues of $50,000 or less according to the registration and tax data for exempt organizations available from the IRS.

62. Finally, the small entity described as a ''small governmental jurisdiction'' is defined generally as ''governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.'' U.S. Census Bureau data from the 2017 Census of Governments indicate that there were 90,075 local governmental jurisdictions consisting of general purpose governments and special purpose governments in the United States. While the special purpose governments category also includes local special district governments, the 2017 Census of Governments data does not provide data aggregated based on population size for the special purpose governments category. Therefore, only data from independent school districts is included in the special purpose governments category. Of the 90,075 local governmental jurisdictions, there were 36,931 general purpose governments (county, municipal and town or township) with populations of less than 50,000, and 12,040 special purpose governments—independent school districts with enrollment populations of less than 50,000. Accordingly, based on the 2017 U.S. Census of Governments data, we estimate that at least 48,971 entities fall into the category of ''small governmental jurisdictions.''

63. *Radio Frequency Equipment Manufacturers (RF Manufacturers).* Neither the Commission nor the SBA has developed a small business size standard applicable to Radio Frequency Equipment Manufacturers (RF Manufacturers). There are several analogous SBA small entity categories applicable to RF Manufacturers—Fixed Microwave Services, Other Communications Equipment Manufacturing, and Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. A description of these small entity categories and the small business size standards under the SBA rules are detailed below.

64. *Fixed Microwave Services.* Microwave services include common carrier, private-operational fixed, and broadcast auxiliary radio services. They also include the Upper Microwave Flexible Use Service, Millimeter Wave Service, Local Multipoint Distribution Service (LMDS), the Digital Electronic Message Service (DEMS), and the 24 GHz Service, where licensees can choose between common carrier and non-common carrier status. A review of the Commission's Universal Licensing System in 2015, found approximately 66,680 common carrier fixed licensees, 69,360 private and public safety operational-fixed licensees, 20,150 broadcast auxiliary radio licensees, 411 LMDS licenses, 33 24 GHz DEMS licenses, 777 39 GHz licenses, and five 24 GHz licenses, and 467 Millimeter Wave licenses in the microwave services. The Commission has not yet defined a small business with respect to microwave services. The closest applicable SBA category is Wireless Telecommunications Carriers (except Satellite) and the appropriate size standard for this category under SBA rules is that such a business is small if it has 1,500 or fewer employees. For this industry, U.S. Census Bureau data for 2012 show that there were 967 firms that operated for the entire year. Of this total, 955 firms had employment of 999 or fewer employees and 12 had employment of 1000 employees or more. Thus under this SBA category and the associated size standard, the Commission estimates that a majority of fixed microwave service licensees can be considered small.

65. The Commission does not have data specifying the number of these licensees that have more than 1,500 employees, and thus is unable at this time to estimate with greater precision the number of fixed microwave service licensees that would qualify as small business concerns under the SBA's small business size standard. Consequently, the Commission estimates that there are up to 36,708 common carrier fixed licensees and up to 59,291 private operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services that may be small and may be affected by the rules and policies discussed herein. We note, however, that the microwave fixed licensee category includes some large entities.

66. *Other Communications Equipment Manufacturing.* This industry comprises establishments primarily engaged in manufacturing communications equipment (except telephone apparatus, and radio and television broadcast, and wireless communications equipment). Examples of such manufacturing include fire detection and alarm systems manufacturing, Intercom systems and equipment manufacturing, and signals (*e.g.,* highway, pedestrian, railway, traffic) manufacturing. The SBA has established a size standard for this industry as all such firms having 750 or fewer employees. U.S. Census Bureau data for 2012 show that 383 establishments operated in that year. Of that number, 379 operated with fewer than 500 employees and 4 had 500 to 999 employees. Based on this data, we conclude that the majority of Other Communications Equipment Manufacturers are small.

67. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing.* This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment. The SBA has established a size standard for this industry of 1,250 employees or less. U.S. Census Bureau data for 2012 show that 841 establishments operated in this industry in that year. Of that number, 828 establishments operated with fewer than 1,000 employees, 7 establishments operated with between 1,000 and 2,499 employees and 6 establishments operated with 2,500 or more employees. Based on this data, we conclude that a majority of manufacturers in this industry are small.

68. *Wireless Telecommunications Carriers (except Satellite).* This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular services, paging services, wireless internet access, and wireless video services. The appropriate size standard under SBA rules is that such a business is small if it has 1,500 or fewer employees. For this industry, U.S. Census Bureau data for 2012 show that there were 967 firms that operated for the entire year. Of this total, 955 firms employed fewer than 1,000 employees and 12 firms employed of 1,000 employees or more. Thus under this category and the associated size standard, the Commission estimates that the majority of Wireless Telecommunications Carriers (except Satellite) are small entities.

69. *Automobile Manufacturing.* This U.S. industry comprises establishments primarily engaged in (1) manufacturing complete automobiles (*i.e.,* body and chassis or unibody) or (2) manufacturing automobile chassis only. The SBA has established a size standard for this industry, which is 1,500 employees or less. 2012 U.S. Census Bureau data indicate that 185 establishments operated in this industry that year. Of this number, 162 establishments had employment of fewer than 1,000 employees, and 11 establishments had employment of 1,000 to 2,499 employees. Therefore, the Commission estimates that the majority of manufacturers in this industry are small entities.

70. *Internet Service Providers (Non-Broadband).* Internet access service providers such as Dial-up internet service providers, VoIP service providers using client-supplied telecommunications connections and internet service providers using client-supplied telecommunications connections (*e.g.,* dial-up ISPs) fall in the category of All Other Telecommunications. The SBA has developed a small business size standard for All Other Telecommunications which consists of all such firms with gross annual receipts of $35 million or less. For this category, U.S. Census Bureau data for 2012 show that there were 1,442 firms that operated for the entire year. Of these firms, a total of 1,400 had gross annual receipts of less than $25 million. Consequently, under this size standard a majority of firms in this industry can be considered small.

71. *Internet Service Providers (Broadband).* Broadband internet service providers include wired (*e.g.,* cable, DSL) and VoIP service providers using their own operated wired telecommunications infrastructure fall in the category of Wired Telecommunication Carriers. Wired Telecommunications Carriers are comprised of establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies. The SBA size standard for this category classifies a business as small if it has 1,500 or fewer employees. U.S. Census Bureau data for 2012 show that there were 3,117 firms that operated that year. Of this total, 3,083 operated with fewer than 1,000 employees. Consequently, under this size standard the majority of firms in this industry can be considered small.

72. *Cable System Operators (Telecom Act Standard).* The Communications Act of 1934, as amended, also contains a size standard for small cable system operators, which is ''a cable operator that, directly or through an affiliate, serves in the aggregate fewer than one percent of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed $250,000,000.'' As of 2019, there were approximately 48,646,056 basic cable video subscribers in the United States. Accordingly, an operator serving fewer than 486,460 subscribers shall be deemed a small operator if its annual revenues, when combined with the total annual revenues of all its affiliates, do not exceed $250 million in the aggregate. Based on available data, we find that all but five cable operators are small entities under this size standard. We note that the Commission neither requests nor collects information on whether cable system operators are affiliated with entities whose gross annual revenues exceed $250 million. Therefore, we are unable at this time to estimate with greater precision the number of cable system operators that would qualify as small cable operators under the definition in the Communications Act.

73. *Intelligent Transportation System (ITS).* The Commission's own data—available in its Universal Licensing System—indicate that, as of October 26, 2020, there are 124 active ITS licenses in the Commission's database that will be affected by our actions. An authorization to operate in the ITS service may be obtained by any territory, possession, state, city, county, town, or similar governmental entity, and any public safety or industrial/business entity meeting the pertinent eligibility requirements. Prior to operation, applicants are issued a non-exclusive, geographic area license: governmental entities are authorized based on that entity's legal jurisdictional area of operations; and non-governmental entities are licensed based on each applicant's area of operation (*i.e.,* by county, state, multi-state, or nationwide). 91 licensees are considered ''public safety eligible'' with the remaining 33 qualified under the Industrial/Business Pool requirements. The Commission does not know how many of these licensees are small, as the Commission does not collect that information for these types of entities.

### *D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities*

74. The *Further Notice* proposes rules that will affect reporting and other compliance requirements.

75. The *Further Notice* proposes to resolve the timing, procedures, and technical parameters associated with the transition of the updated 5.9 GHz band plan. Specifically, the *Further Notice* proposes to allow full-power outdoor unlicensed operations across the 5.850–5.895 GHz band once ITS operations have exited this portion of the band and subject to any further necessary protections for federal operations in this spectrum. The *Further Notice* also seeks to establish power and emissions limits and other rules related to outdoor unlicensed operations in the lower 45 megahertz of the band. The *Further Notice* addresses transitioning all ITS operations in the revised ITS band at 5.895–5.925 GHz to C–V2X-based technology, including the appropriate timeline for implementation, and the codification of C–V2X technical parameters for operation in the 5.895–5.925 GHz band. The *Further Notice* also seeks comment on whether the Commission should consider allocating additional spectrum for ITS applications in the future.

76. This transition will require the Commission, licensees, and manufacturers to take certain actions, such as designing and operating unlicensed devices and C–V2X equipment per the Commission's revised rules.

### *E. Steps Taken To Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered*

77. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.

78. The proposals that would require equipment modification or new equipment manufacturing would have an impact on equipment manufacturers, some of which may be small entities.

Though we believe that our proposed technical rules for U–NII devices and ITS equipment would provide appropriate rules for this band, we seek comment on alternatives that are based on the existing rules or some other regulatory scheme, with regard to, *e.g.,* power limits and OOBE limits.

79. The regulatory burdens we have proposed are necessary in order to ensure that the public receives the benefits of innovative services and technologies in a prompt and efficient manner and apply equally to large and small entities, thus without differential impact. We seek comment on any alternatives, and whether the pros and cons of leaving these choices to the industry will assist in reaching the best outcomes. We will continue to examine alternatives in the future with the objectives of eliminating unnecessary regulations and minimizing any significant impact on small entities.

*F. Federal Rules That May Duplicate, Overlap, or Conflict With the Proposed Rules*

80. None.

**List of Subjects**

Communications equipment, Incorporation by reference, Radio.

Federal Communications Commission.

**Marlene Dortch,**

*Secretary.*

**Proposed Rules**

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR parts 15, 90, and 95 as follows:

## PART 15—RADIO FREQUENCY DEVICES

■ 1. The authority citation for part 15 continues to read as follows:

**Authority:** 47 U.S.C. 154, 302a, 303, 304, 307, 336, 544a, and 549.

■ 2. Amend § 15.407 by revising paragraphs (a)(3) and (b)(5) to read as follows:

**§ 15.407 General technical requirements.**

* * * * *

(a) * * *

(3) For the band 5.725–5.895 GHz:

(i) For the band 5.725–5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500–kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U–NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U–NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(ii) For an indoor access point operating in the 5.850–5.895 GHz band, the maximum power spectral density must not exceed 23 dBm e.i.r.p. in any 1-megahertz band. In addition, the maximum e.i.r.p. over the frequency band of operation must not exceed 36 dBm. Indoor access points operating on a channel that spans the 5.725–5.850 GHz and 5.850–5.895 GHz bands must not exceed an e.i.r.p. of 36 dBm.

(iii) For client devices operating under the control of an indoor access point in the 5.850–5.895 GHz band, the maximum power spectral density must not exceed 17 dBm e.i.r.p. in any 1-megahertz band, and the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm. Client devices operating on a channel that spans the 5.725–5.850 GHz and 5.850–5.895 GHz bands must not exceed an e.i.r.p. of 30 dBm.

(iv) For a subordinate device operating under the control of an indoor access point in the 5.850–5.895 GHz band, the maximum power spectral density must not exceed 23 dBm e.i.r.p in any 1-megahertz band, and the maximum e.i.r.p. over the frequency band of operation must not exceed 36 dBm.

(v) For an outdoor access point operating in the 5.850–5.895 GHz band, the maximum power spectral density must not exceed 23 dBm e.i.r.p. in any 1-megahertz band. In addition, the maximum e.i.r.p. over the frequency band of operation must not exceed 36 dBm. Outdoor access points must limit their maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon to 21 dBm (125 mW) to protect fixed satellite services. Outdoor access points operating on a channel that spans the 5.725–5.850 GHz and 5.850–5.895 GHz bands must not exceed an e.i.r.p. of 36 dBm.

(vi) In the 5.850–5.895 GHz band, client devices must operate under the control of an indoor access point. In all cases, an exception exists for transmitting brief messages to an access point when attempting to join its network after detecting a signal that confirms that an access point is operating on a particular channel. Access points may connect to other access points.

(vii) For client devices operating under the control of an outdoor access point in the 5.850–5.895 GHz band, the maximum power spectral density e.i.r.p. must not exceed 17 dBm in any 1-megahertz band, and the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm. Client devices operating on a channel that spans the 5.725–5.850 GHz and 5.850–5.895 GHz bands must not exceed an e.i.r.p. of 30 dBm.

(viii) Operation of outdoor U–NII devices in the 5.850–5.895 GHz band within the exclusion zones listed in the table below, to which NTIA may amend, modify, or revoke locations and associated parameters, is not permitted. The outdoor U–NII exclusion zones for each federal facility location are characterized by a center point (latitude/longitude) and radius (to define a circular area) to facilitate the regulator process of coordination.

TABLE 1 TO PARAGRAPH (a)(3)—EXCLUSION ZONES

| Facility name | Latitude DD-MM-SS North | Longitude DD-MM-SS West | Exclusion zone radius (km) |
|---|---|---|---|
| Anclote, Florida | 28–11–18 | 82–47–40 | 54 |
| Cape Canaveral, Florida | 28–28–54 | 80–34–35 | 53 |
| Cape San Blas, Florida | 29–40–31 | 85–20–48 | 55 |
| Carabelle Field, Florida | 29–50–38 | 84–39–46 | 54 |
| Charleston, South Carolina | 32–51–48 | 79–57–48 | 55 |

TABLE 1 TO PARAGRAPH (a)(3)—EXCLUSION ZONES—Continued

| Facility name | Latitude DD-MM-SS North | Longitude DD-MM-SS West | Exclusion zone radius (km) |
|---|---|---|---|
| Edwards, California | 34–56–43 | 117–54–50 | 51 |
| Eglin, Florida | 30–37–51 | 86–24–16 | 116 |
| Fort Walton Beach, Florida | 30–24–53 | 86–39–58 | 56 |
| Kennedy Space Center, Florida | 28–25–29 | 80–39–51 | 98 |
| Key West, Florida | 24–33–09 | 81–48–28 | 54 |
| Kirtland AFB, New Mexico | 34–59–51 | 106–28–54 | 15 |
| Kokeepark, Hawaii | 22–07–35 | 159–40–06 | 49 |
| MacDill, Florida | 27–50–37 | 82–30–04 | 58 |
| NV Test Training Range, Nevada | 37–18–27 | 116–10–24 | 184 |
| Patuxent River, Maryland | 38–16–55 | 76–25–12 | 7 |
| Pearl Harbor, Hawaii | 21–21–17 | 157–57–51 | 55 |
| Pillar Point, California | 37–29–52 | 122–29–59 | 10 |
| Poker Flat, Alaska | 65–07–36 | 147–29–21 | 58 |
| Port Canaveral, Florida | 28–24–42 | 80–36–17 | 54 |
| Port Hueneme, California | 34–08–60 | 119–12–24 | 54 |
| Point Mugu, California | 34–07–17 | 119–9–01 | 81 |
| Saddlebunch Keys, Florida | 24–38–51 | 81–36–22 | 54 |
| San Diego, California | 32–43–00 | 117–11–00 | 54 |
| San Nicolas Island, California | 33–14–47 | 119–31–07 | 166 |
| Tonopah Test Range, Nevada | 37–44–00 | 116–43–00 | 48 |
| Vandenberg, California | 34–34–58 | 120–33–42 | 74 |
| Venice, Florida | 27–04–37 | 82–27–03 | 54 |
| Wallops Island, Virginia | 37–51–23 | 75–30–41 | 68 |
| White Sands Missile Range, New Mexico | 32–58–26 | 106–23–43 | 160 |
| Yuma, Arizona | 32–54–03 | 114–23–10 | 49 |

**Note 1 to paragraph (a)(3):** The Commission strongly recommends that parties employing U–NII devices to provide critical communications services should determine if there are any nearby Government radar systems that could affect their operation.

* * * * *

(b) * * *

(5) For transmitters operating solely in the 5.850–5.895 GHz band or operating on a channel that spans across 5.725–5.895 GHz:

(i) For an indoor access point or subordinate device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of 15 dBm/MHz and shall decrease linearly to an e.i.r.p. of −7 dBm/MHz at or above 5.925 GHz.

(ii) For a client device or an outdoor access point, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of −5 dBm/MHz and shall decrease linearly to an e.i.r.p. of −27 dBm/MHz at or above 5.925 GHz.

(iii) All emissions below 5.725 GHz shall not exceed an e.i.r.p. of −27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.

* * * * *

## PART 90—PRIVATE LAND MOBILE RADIO SERVICES

■ 3. The authority citation for part 90 continues to read as follows:

**Authority:** 47 U.S.C. 154(i), 161, 303(g), 303(r), 332(c)(7), 1401–1473.

### Subpart A—General Information

■ 4. Amend § 90.7 by removing the definition of ''Dedicated Short Range Communication Service (DSRCS),'' adding a definition for ''Cellular Vehicle to Everything Service (CV2X)'' in alphabetical order, and revising the definitions of ''On-Board unit (OBU)'', ''Roadside unit (RSU)'', and ''Roadway bed surface''.

The addition and revisions read as follows:

**§ 90.7 Definitions.**

* * * * *

*Cellular Vehicle to Everything Service (C–V2X).* The use of cellular radio techniques defined by the 3rd Generation Partnership Program (3GPP) to transfer data between roadside and mobile units, between mobile units, and between portable and mobile units to perform operations related to the improvement of traffic flow, traffic safety, and other intelligent transportation service applications in a variety of environments. C–V2X systems may also transmit status and instructional messages related to the units involved.

* * * * *

*On-Board Unit (OBU).* An On-Board Unit is a C–V2X transceiver that is normally mounted in or on a vehicle, or which in some instances may be a portable unit. An OBU can be operational while a vehicle or person is either mobile or stationary. The OBUs receive and transmit on one or more radio frequency (RF) channels. Except where specifically excluded, OBU operation is permitted wherever vehicle operation or human passage is permitted. The OBUs mounted in vehicles are licensed by rule under part 95 of this chapter and communicate with Roadside Units (RSUs) and other OBUs. Portable OBUs are also licensed by rule under part 95 of this chapter.

*Roadside Unit (RSU).* A Roadside Unit is a C–V2X transceiver that is mounted along a road or pedestrian passageway. An RSU may also be mounted on a vehicle or is hand carried, but it may only operate when the vehicle or hand-carried unit is stationary. Furthermore, an RSU operating under this part is restricted to the location where it is licensed to operate. However, portable or hand-held RSUs are permitted to operate where they do not interfere with a site-licensed operation. An RSU broadcasts data to or exchanges data with OBUs.

*Roadway bed surface.* For C–V2X, the road surface at ground level.

* * * * *

## Subpart H—Policies Governing the Assignment of Frequencies

■ 5. Amend § 90.175 by revising paragraph (j)(16) to read as follows:

**§ 90.175 Frequency coordinator requirements.**

* * * * *

(j) * * *

(16) Applications for C–V2X licenses (as well as registrations for Roadside Units) under subpart M of this part in the 5895–5925 GHz band.

* * * * *

■ 6. Amend § 90.179 by revising paragraph (f) to read as follows:

**§ 90.179 Shared use of radio stations.**

* * * * *

(f) Above 800 MHz, shared use on a for-profit private carrier basis is permitted only by SMR, Private Carrier Paging, LMS, and C–V2X licensees. See subparts M, P, and S of this part.

* * * * *

## Subpart I—General Technical Standards

■ 7. In § 90.210, amend Table 1 by removing the entry for ''5850–5925'' and adding an entry for ''5895–5925'' in its place and revising footnote 4 to read as follows:

**§ 90.210 Emission masks.**

* * * * *

| Applicable emission masks frequency band (MHz) | Mask for equipment with audio low pass filter | Mask for equipment without audio low pass filter |
|---|---|---|
| * * * * * | | |
| 5895–5925 [4] | | |
| * * * * * | | |

[4] CV2X Service Roadside Units equipment in the 5895–5925 MHz band is governed under subpart M of this part.

* * * * *

■ 8. In § 90.213(a), revise footnote 10 in Table 1 to read as follows:

**§ 90.213 Frequency stability.**

(a) * * *

[10] Frequency stability for C–V2X Service equipment in the 5895–5925 MHz band is specified in subpart M of this part. For all other equipment, frequency stability is to be specified in the station authorization.

* * * * *

## Subpart M—Intelligent Transportation Systems Radio Service

■ 9. Revise § 90.350 to read as follows:

**§ 90.350 Scope.**

The Intelligent Transportation Systems (ITS) radio service is for the purpose of integrating radio-based technologies into the nation's transportation infrastructure and to develop and implement the nation's intelligent transportation systems. It includes the Location and Monitoring Service (LMS) and the Cellular Vehicle to Everything Service (C–V2X). Rules as to eligibility for licensing, frequencies available, and any special requirements for services in the Intelligent Transportation Systems radio service are set forth in this subpart.

■ 10. Amend subpart M by revising the undesignated center heading above § 90.370 to read as follows:

* * * * *

**Regulations Governing the Licensing and Use of Frequencies in the 5895–5925 MHz Band for Cellular Vehicle to Everything (C–V2X) Service**

* * * * *

■ 11. Amend § 90.370 by revising paragraph (a) to read as follows:

**§ 90.370 Permitted frequencies.**

(a) C–V2X Roadside Units (RSUs) are permitted to operate in the 5895–5925 MHz band.

* * * * *

■ 12. Revise § 90.371 to read as follows:

**§ 90.371 C–V2X.**

(a) C–V2X Roadside Units (RSUs) operating in the band 5895–5925 MHz shall not receive protection from Government Radiolocation services in operation prior to the establishment of the RSU. Operation of RSU stations within the zones listed in the table below, to which NTIA may amend, modify, or revoke locations and associated parameters, must be coordinated through the National Telecommunications and Information Administration.

(b) C–V2X Roadside Units (RSUs) operating in the band 5895–5925 MHz shall not receive protection from Government Radiolocation services in operation prior to the establishment of the C–V2X station. Operation of C–V2X RSU stations within the radius centered on the locations listed in the table below, to which NTIA may amend, modify, or revoke locations and associated parameters, must be coordinated through the National Telecommunications and Information Administration.

■ 13. Amend § 90.373 by revising the section heading and the introductory text to read as follows:

**§ 90.373 Eligibility in C–V2X.**

The following entities are eligible to hold an authorization to operate Roadside Units in C–V2X:

* * * * *

■ 14. Revise § 90.375 to read as follows:

**§ 90.375 License areas, communication zones, and registrations.**

(a) Roadside Units (RSUs) in the 5895–5925 MHz band are licensed on the basis of non-exclusive geographic areas. Governmental applicants will be issued a geographic area license based on the geo-political area encompassing the legal jurisdiction of the entity. All other applicants will be issued a geographic area license for their proposed area of operation based on county(s), state(s) or nationwide.

(b) Applicants who are approved in accordance with FCC Form 601 will be granted non-exclusive licenses for the channel(s) corresponding to their intended operations (see § 90.370). Such licenses serve as a prerequisite of registering individual RSUs located within the licensed geographic area described in paragraph (a) of this section. Licensees must register each RSU in the Universal Licensing System (ULS) before operating such RSU. RSU registrations are subject, inter alia, to the requirements of § 1.923 of this chapter as applicable (antenna structure registration, environmental concerns, international coordination, and quiet zones). Additionally, RSUs at locations subject to NTIA coordination (see § 90.371(a)) may not begin operation until NTIA approval is received. Registrations are not effective until the Commission posts them on the ULS. It is the licensee's responsibility to delete from the registration database any RSUs that have been discontinued.

(c) Licensees must operate each RSU in accordance with the Commission's rules and the registration data posted on the ULS for such RSU. Licensees must register each RSU for the smallest communication zone needed for the intelligent transportation systems application using one of the following four communication zones:

TABLE 1 TO PARAGRAPH (c)—COMMUNICATION ZONES

| RSU class | Maximum output power (dBm) [1] | Communications zone (meters) |
|---|---|---|
| A | 0 | 15 |
| B | 10 | 100 |
| C | 20 | 400 |

TABLE 1 TO PARAGRAPH (c)—COMMUNICATION ZONES—Continued

| RSU class | Maximum output power (dBm) [1] | Communications zone (meters) |
|---|---|---|
| D | 28.8 | 1000 |

[1] As described in the ATIS transposed standards of the 3GPP (incorporated by reference, see § 90.395).

■ 15. Revise § 90.377 to read as follows:

**§ 90.377 Maximum EIRP and antenna height.**

(a) C–V2X Service licensees must transmit only the power (EIRP) needed to communicate with an On-Board Unit (OBU) within the communications zone and must take steps to limit the Roadside Unit (RSU) signal within the zone to the maximum extent practicable.

(b) C–V2X licensees must limit RSU output power to 20 dBm and equivalent isotropically radiated power (EIRP) to 33 dBm. The EIRP is measured as the maximum EIRP toward the horizon or horizontal, whichever is greater, of the gain associated with the main or center of the transmission beam.

(c) The radiation center of an RSU antenna shall not exceed 8 meters above the roadway bed surface, except that an RSU may employ an antenna with a height exceeding 8 meters but not exceeding 15 meters provided the EIRP specified in paragraphs (a) and (b) of this section is reduced by a factor of 20 log(Ht/8) in dB where Ht is the height of the radiation center of the antenna in meters above the roadway bed surface. The RSU antenna height must not exceed 15 meters above the roadway bed surface.

■ 16. Revise § 90.379 to read as follows:

**§ 90.379 Technical standards for Roadside Units.**

C–V2X Service RSUs operating in the 5895–5925 MHz band shall comply with the V2X sidelink service for this band as described in the ATIS transposed standards of the 3GPP specifications except where these rules and regulations take precedence (incorporated by reference, see § 90.395).

■ 17. Add § 90.381 to read as follows:

**§ 90.381 C–V2X emissions limits.**

C–V2X Roadside Units (RSUs) must comply with the following out-of-band emissions limits.

(a) Conducted limits measured at the antenna input must not exceed:

(1) −29 dBm/100 kHz at the band edge (The band is defined in § 90.370 of this part);

(2) −35 dBm/100 kHz ± 1 megahertz from the band edge;

(3) −43 dBm/100 kHz ± 10 megahertz from the band edge; and

(4) −53 dBm/100 kHz ± 20 megahertz from the band edge.

(b) Radiated limits: All C–V2X Service RSUs must limit radiated emissions to –25 dBm/100 kHz EIRP or less outside the band edges where the band is defined in § 90.370 of this part.

■ 18. Revise § 90.395 to read as follows:

**§ 90.395 Incorporation by reference.**

Certain material required in this section is incorporated by reference into this subpart with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. All approved material is available for inspection at the address of the FCC's main office indicated in 47 CFR 0.401(a) and is available from the sources indicated in this section. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email *fedreg.legal@nara.gov* or go to *www.archives.gov/federal-register/cfr/ibrlocations.html.*

(a) 3rd Generation Partnership Project (3GPP), 3GPP Mobile Competence Centre c/0 ETSI, 650, route des Lucioles, 06921 Sophia Antipolis Cedex, France, *info@3gpp.org https://www.3gpp.org/3gpp-calendar/44-specifications/releases.*

(1) 3GPP TR 21.914 V14.0.0 (2018–05) 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Release 14 Description; Summary of Rel-14 Work Items; into §§ 90.375(c), 90.379.

(2) [Reserved]

(b) [Reserved]

## Subpart N—Operating Requirements

■ 19. Amend § 90.415 by revising paragraph (b) to read as follows:

* * * * *

(b) Render a communications common carrier service, except for stations in the Public Safety Pool providing communications standby facilities under § 90.20(a)(2)(xi) and stations licensed under this part in the SMR, private carrier paging, Industrial/Business Pool, 220–222 MHz, or C–V2X.

■ 20. Amend § 90.421 by adding paragraph (d) to read as follows:

**§ 90.421 Operation of mobile station units not under the control of the licensee.**

* * * * *

(d) C–V2X On-Board Units licensed by rule under part 95 of this chapter may communicate with any roadside unit authorized under this part or any licensed commercial mobile radio service station as defined in part 20 of this chapter.

■ 21. Amend § 90.425 by revising paragraph (d)(10) to read as follows:

**§ 90.425 Station identification.**

* * * * *

(d) * * *

(10) It is a Roadside Unit (RSU) in a C–V2X system.

## PART 95—PERSONAL RADIO SERVICES

■ 22. The authority citation for part 95 continues to read as follows:

**Authority:** 47 U.S.C. 154, 303, and 307.

## Subpart L—C–V2X Service On-Board Units

■ 23. The heading for subpart L is revised to read as set forth above.

■ 24. Revise § 95.3101 to read as follows:

**§ 95.3101 Scope.**

This subpart contains rules that apply only to On-Board Units (OBUs) transmitting in the 5895–5925 MHz frequency band in the Cellular Vehicle to Everything Service (C–V2X) (see § 90.371 of this chapter).

■ 25. Amend § 95.3103 by removing the definition of ''Dedicated Short-Range Communications Services (DSRCS)'', adding a definition for ''Cellular Vehicle to Everything Service (CV2X)'' in alphabetical order, and revising the definition of ''On-Board Unit (OBU)''.

The additions and revision read as follows:

**§ 95.3103 Definitions, OBUs.**

*Cellular Vehicle to Everything Service (C–V2X).* A service providing for data transfer between various mobile and roadside transmitting units for the purposes of improving traffic flow, highway safety and performing other intelligent transportation functions. See § 90.7 of this chapter for a more detailed definition.

*On-Board Units (OBUs).* OBUs are low-power devices on vehicles that transfer data to roadside units or other OBUs in the Cellular Vehicle to Everything Service (C–V2X) (see §§ 90.370–90.383 of this chapter), to improve traffic flow and safety, and for other intelligent transportation system purposes. See § 90.7 of this chapter.

* * * * *

■ 26. Amend § 95.3161 by revising paragraph (a) to read as follows:

**§ 95.3161 OBU transmitter certification.**

(a) Each On-Board Unit (OBU) that operates or is intended to operate in C–V2X must be certified in accordance

with this subpart and subpart J of part 2 of this chapter.

* * * * *

■ 27. Revise § 95.3163 to read as follows:

**§ 95.3163 OBU frequencies.**

C–V2X Service OBUs are permitted to operate in the 5895–5925 MHz band.

■ 28. Revise § 95.3167 to read as follows:

**§ 95.3167 OBU transmit power limit.**

(a) The maximum equivalent isotropically radiated power (EIRP) for vehicular and portable C–V2X OBU transmitter types is limited to 33 dBm.

(b) The power limit in paragraph (a) of this section may be referenced to the antenna input, so that cable losses are taken into account.

(c) For purposes of this section, a portable unit is a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

■ 29. Add § 95.3179 to read as follows:

**§ 95.3179 Unwanted emissions limits.**

C–V2X On Board Units must comply with the following out-of-band emissions limits.

Conducted limits measured at the antenna input shall not exceed:

(a) −29 dBm/100 kHz at the band edge (The band is defined in section 95.3163 of this part);

(b) −35 dBm/100 kHz ± 1 megahertz from the band edge;

(c) −43 dBm/100 kHz ± 10 megahertz from the band edge; and

(d) −53 dBm/100 kHz ± 20 megahertz from the band edge.

■ 30. Revise § 95.3189 to read as follows:

**§ 95.3189 OBU technical standard.**

(a) C–V2X Service OBU transmitter types operating in the 5895–5925 MHz band shall comply with the V2X sidelink service for this band as described in the ATIS transposed standards of the 3GPP specifications except where these rules and regulations take precedence.

(b) 3GPP TR 21.914 V14.0.0 (2018–05) 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Release 14 Description; Summary of Rel-14 Work Items is incorporated by reference into this section with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. All approved material is available for inspection at the address of the FCC's main office indicated in 47 CFR 0.401(a) and is available from 3rd Generation Partnership Project (3GPP), 3GPP Mobile Competence Centre c/0 ETSI, 650, route des Lucioles, 06921 Sophia Antipolis Cedex, France, *info@3gpp.org,* at *https://www.3gpp.org/3gpp-calendar/44-specifications/releases.* It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email *fedreg.legal@nara.gov* or go to *www.archives.gov/federal-register/cfr/ibrlocations.html.*

**Appendix A to Part 95—[Amended]**

■ 31. Amend the table in appendix A to part 95 by removing the entry of ''95.1509—ASTM E221–03 DSRC Standard''.

[FR Doc. 2021–08801 Filed 4–30–21; 8:45 am]

**BILLING CODE 6712–01–P**

## FEDERAL COMMUNICATIONS COMMISSION

### 47 CFR Part 73

**[MB Docket No. 21–178; RM–11905; DA 21–460; FR ID 23108]**

### Television Broadcasting Services New Orleans, Louisiana

**AGENCY:** Federal Communications Commission.

**ACTION:** Proposed rule.

**SUMMARY:** In this document, the Federal Communications Commission (Commission) has before it a petition for rulemaking filed by The Greater New Orleans Educational Television Foundation (Petitioner), the licensee of noncommercial educational PBS member station WYES–TV, channel *11, New Orleans, Louisiana. The Petitioner requests the substitution of channel *28 for channel *11 at New Orleans, Louisiana in the DTV Table of Allotments.

**DATES:** Comments must be filed on or before June 2, 2021 and reply comments on or before June 17, 2021.

**ADDRESSES:** You may submit comments, identified by MB Docket No. 21–178, by any of the following methods:

- *Federal Communications Commission's Website: http://apps.fcc.gov/ecfs/.* Follow the instructions for submitting comments.
- *People with Disabilities:* Contact the FCC to request reasonable accommodations (accessible format documents, sign language interpreters, CART, etc.) by email: *FCC504@fcc.gov* or phone: 202–418–0530 or TTY: 202–418–0432.

For detailed instructions for submitting comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

In addition to filing comments with the FCC, interested parties should serve counsel for the Petitioner as follows: Margaret L. Miller, Esq., Gray Miller Persh, LLP, 2233 Wisconsin Avenue NW, Washington DC 20007.

**FOR FURTHER INFORMATION CONTACT:** Joyce Bernstein, Media Bureau, at (202) 418–1647; or Joyce Bernstein, Media Bureau, at *Joyce.Bernstein@fcc.gov.*

**SUPPLEMENTARY INFORMATION:** This is a synopsis of the Commission's Notice of Proposed Rulemaking, MB Docket No. 21–178; RM–11905; DA 21–460, adopted and released on April 21, 2021. The full text of this document is available for download at *https://www.fcc.gov/edocs.* To request materials in accessible formats (braille, large print, computer diskettes, or audio recordings), please send an email to *FCC504@fcc.gov* or call the Consumer & Government Affairs Bureau at (202) 418–0530 (VOICE), (202) 418–0432 (TTY).

In support of its channel substitution request, the Petitioner states that WYES–TV is the only station licensed to New Orleans operating on a VHF channel, and moving to a UHF channel would improve viewers' access to WYES–TV's PBS and other public television programming by improving indoor reception and resolving VHF reception issues. Petitioner further states that the Commission has recognized that VHF channels have certain propagation characteristics which may cause reception issues for some viewers, including allowing undesired signals and noise at relatively further distances, and the tendency of nearby electrical devices to emit noise in the VHF band that can cause interference to stations on VHF channels. In addition, the Petitioner submitted an analysis, using the Commission's *TVStudy* software analysis program, demonstrating that it will continue to serve all of the population located within the licensed channel *11 contour.

Pursuant to §§ 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings,* 63 FR 24121 (1998).

- *Electronic Filers:* Comments may be filed electronically using the internet by