§ 60.5420a What are my notification, reporting, and recordkeeping requirements?

* * * * *

(b) *Reporting requirements.* You must submit annual reports containing the information specified in paragraphs (b)(1) through (8) and (12) of this section and performance test reports as specified in paragraph (b)(9) or (10) of this section, if applicable, except as provided in paragraph (b)(13) of this section. You must submit annual reports following the procedure specified in paragraph (b)(11) of this section. The initial annual report is due no later than 90 days after the end of the initial compliance period as determined according to § 60.5410a. Subsequent annual reports are due no later than same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all of the information required as specified in paragraphs (b)(1) through (8) of this section, except as provided in paragraph (b)(13) of this section. Annual reports may coincide with title V reports as long as all the required elements of the annual report are included. You may arrange with the Administrator a common schedule on which reports required by this part may be submitted as long as the schedule does not extend the reporting period.

* * * * *

(13) The collection of fugitive emissions components at a well site (as defined in § 60.5430a), the collection of fugitive emissions components at a compressor station (as defined in § 60.5430a), and pneumatic pump affected facilities at a well site (as defined in § 60.5365a(h)(2)) are not subject to the requirements of paragraph (b)(1) of this section until [DATE 2 YEARS AFTER PUBLICATION OF FINAL RULE IN THE **Federal Register**].

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[FR Doc. 2017–12698 Filed 6–15–17; 8:45 am]

BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 2 and 25

[IB Docket No. 17–95; FCC 17–56]

Amends Rules Related to Satellite Earth Stations Mounted on Vessels, Vehicles and Aircraft

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: In this document, the Federal Communications Commission (Commission) proposes to streamline, consolidate, and harmonize rules governing earth stations in motion (ESIMs) used to provide satellite-based services on ships, airplanes and vehicles communicating with geostationary-satellite orbit (GSO), fixed-satellite service (FSS) satellite systems.

DATES: Comments are due on or before July 31, 2017. Reply comments are due on or before August 30, 2017.

ADDRESSES: You may submit comments, identified by IB Docket No. 17–95, by any of the following methods:

- *Federal Communications Commission's Web site: 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.

FOR FURTHER INFORMATION CONTACT: Cindy Spiers, 202–418–1593.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Notice of Proposed Rulemaking (NPRM), FCC 17–56, adopted May 18, 2016, and released May 19, 2017. The full text of the NPRM is available at *https://apps.fcc.gov/edocs_public/attachmatch/FCC-17-56A1.pdf.* The NPRM is also available for inspection and copying during business hours in the FCC Reference Information Center, Portals II, 445 12th Street SW., Room CY–A257, Washington, DC 20554. To request materials in accessible formats for people with disabilities, send an email to *FCC504@fcc.gov* or call the Consumer & Governmental Affairs Bureau at 202–418–0530 (voice), 202–418–0432 (TTY).

Comment Filing Requirements

Interested parties may file comments and reply comments on or before the dates indicated in the **DATES** section above. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS).

- *Electronic Filers.* Comments may be filed electronically using the Internet by accessing the ECFS, *http://apps.fcc.gov/ecfs.*
- *Paper Filers.* Parties who file by paper must include an original and four copies of each filing.

Filings may 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.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th Street SW., Room TW–A325, Washington, DC 20554. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street SW., Washington DC 20554.
- *Persons With Disabilities.* To request materials in accessible formats for persons with disabilities (Braille, large print, electronic files, audio format), or to request reasonable accommodations for filing comments (accessible format documents, sign language interpreters, CART, etc.), send an email to *fcc504@fcc.gov* or call 202–418–0530 (voice) or 202–418–0432 (TTY).

Ex Parte Presentations

We will treat this proceeding as a ''permit-but-disclose'' proceeding in accordance with the Commission's *ex parte* rules. 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.

Paperwork Reduction Act

This document contains proposed new and modified information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the Office of Management and Budget to comment on the information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, we seek specific comment on how we might further reduce the information collection burden for small business concerns with fewer than 25 employees.

Synopsis

In this Notice of Proposed Rulemaking (NPRM), the Commission seeks comment on two broad proposals to facilitate the deployment of Earth Stations in Motion (ESIMs) and reduce the regulatory burdens on ESIMs. First, we propose to reorganize and consolidate the sections in part 25 of the Commission's rules, including technical and operational as well as application rules, for the three types of Fixed-Satellite Service (FSS) earth stations that the Commission authorizes to transmit while in motion: Earth Stations on Vessels (ESVs), Vehicle-Mounted Earth Stations (VMESs), and Earth Stations Aboard Aircraft (ESAAs). We will refer to these earth stations collectively as ESIMs.

Second, we propose new rules to allow the operation of ESIMs in the conventional Ka-band. Specifically, our proposals would apply to ESIMs communicating with geostationary-orbit (GSO) FSS space stations operating in 18.3–18.8 GHz and 19.7–20.2 GHz (space-to-Earth), and 28.35–28.6 GHz and 29.25–30.0 GHz (Earth-to-space) frequency bands.[1] The proposed rule changes for ESIMs in the conventional Ka-band would promote innovative and flexible use of satellite technology, and provide new opportunities for a variety of uses. The proposed rules would also create regulatory equity by adopting a regulatory regime for ESIM operations in the conventional Ka-band similar to that which currently exists in the conventional C-band, the conventional Ku-band, and in portions of the extended Ku-band.[2] We seek comment on these proposals and solicit input on other ideas for streamlining our rules while providing flexibility moving forward.

Proposal Overview

Part 25 of the Commission's rules is organized in the following manner: Subpart A contains general rules relating to scope and definitions; Subpart B contains rules relating to application filing requirements and licensing procedures; Subpart C provides technical standards for licensing earth and space stations; and Subpart D contains rules governing the technical operations of earth and space station operations.[3] In this NPRM, we propose to make revisions in each of these subparts. Through this proceeding, to the extent possible, we propose to eliminate duplicative rule provisions that apply to ESIMs on specific vehicle types operating in specific frequency bands and require instead that ESIMs meet the same requirements as fixed and temporary fixed earth stations. We propose to maintain those rule provisions that ensure that FSS earth stations operating while in motion do not cause more interference than FSS earth stations at fixed locations. We seek comment on these proposals.

Definitions

In this NPRM, we propose to amend current definitions and add new definitions that will allow for greater clarity regarding the operation of earth stations in motion with GSO FSS space stations. We seek comment on these proposals.

Definition of ESIMs. We propose to define Earth Stations in Motion (ESIMs) in § 25.103 to mean a term that collectively designates ESVs, VMESs and ESAAs, which are already defined in § 25.103.

Revised Definition of Blanket License. We propose to amend the definition of Blanket License in § 25.103.[4] We propose to change the designation of the type of earth station in this definition, *i.e.,* fixed or mobile, to refer instead to the type of satellite service in which the earth station operates, *i.e.,* FSS or MSS. Changing the earth-station categorization in this definition to FSS and MSS better reflects the nature of ESIM operations as proposed in this NPRM. Additionally we propose minor rewording of the second clause to more directly mirror the first clause of the definition. Specifically, the revised definition of Blanket License, as proposed, would read: ''A license for: (1) multiple earth stations in the FSS or MSS, or for SDARS terrestrial repeaters, that may be operated anywhere within a geographic area specified in the license, or (2) for multiple space stations in non-geostationary-orbit.''

Definition of Network Control and Monitoring Center (NCMC). We propose to add a definition of Network Control and Monitoring Center to § 25.103. An NCMC, as used in the part 25 rules, is a facility that has the capability to remotely control earth stations operating

[1] While there currently are NGSO FSS ESIM operations in portions of the 17.8–20.2 GHz and 27.5–30.0 GHz bands, authorized on a non-harmful-interference basis, O3b Limited Radio Station Authorization, IBFS File No. SES–LIC–20130528–00455 (granted May 13, 2014), this NPRM will only address the GSO FSS ESIM operations. O3b and SES Americom request that we expand the scope of this proceeding to cover NGSO ESIM operations. *See* Letter from Suzanne Malloy, Vice President, Regulatory Affairs, O3b Limited, and Petra A. Vorwig, Senior Legal & Regulatory Counsel, SES Americom, Inc. to Marlene H. Dortch, Secretary, FCC, IB Docket No. 17–95 (filed May 12, 2017). O3b and SES Americom's request is premature. There is an open proceeding addressing NGSO FSS licensing and service rules and the Commission will be in a better position to propose rules for ESIMs communicating with NGSO satellites after the resolution of technical rules in that proceeding. *See Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters,* IB Docket No. 16–408, Notice of Proposed Rulemaking, 31 FCC Rcd 13651 (2016).

[2] The ''conventional C-band'' refers to the 3700–4200 MHz (space-to-Earth) and 5925–6425 MHz (Earth-to-space) FSS frequency bands. *See* 47 CFR 25.103. The ''conventional Ku-band'' refers to the 11.7–12.2 GHz (space-to-Earth) and 14.0–14.5 GHz (Earth-to-space) FSS frequency bands, and the ''extended Ku-band'' refers to the 10.95–11.2 GHz, 11.45–11.7 GHz, and 13.75–14.0 GHz bands.

[3] In addition, Subpart E is reserved, Subpart F relates to competitive bidding procedures for the satellite digital audio radio service, Subparts G and H are reserved, Subpart I relates to equal employment opportunities, and Subpart J relates to public interest obligations. We do not propose any changes to Subparts E through J in this NPRM.

[4] The current definition of Blanket License states: ''A license for multiple fixed or mobile earth stations or SDARS terrestrial repeaters that may be operated anywhere within a geographic area specified in the license, or for multiple non-geostationary-orbit space stations.'' 47 CFR 25.103.

as any part of a satellite network or system.[5]

Revised Definitions of VMES and ESAA. Because we are proposing to consolidate the current VMES and ESAA operating requirements (now codified in §§ 25.226 and 25.227, respectively) into a new ESIM section (proposed as § 25.228), §§ 25.226 and 25.227 would be deleted as a consequence of that consolidation. Similarly, any cross-references to those deleted sections elsewhere in the rules would need to be deleted as well. As such cross-references appear in the § 25.103 definitions of VMES and ESAA, we propose to revise these definitions accordingly.[6]

Revised Definition of Routine Processing. The current definition of routine processing in § 25.103 includes a cross-reference to § 25.138(a), which we propose to consolidate into § 25.218(i). We propose to delete this cross-reference, because the definition already includes a cross-reference to § 25.218.

Revised Definition of Two-Degree Compliant Space Station. The current definition of a two-degree compliant space station in § 25.103 contains a cross-reference to § 25.138, which we propose to consolidate with § 25.218, and cross-references to §§ 25.221, 25.222, 25.226, and 25.227 in connection with off-axis e.i.r.p. limits that we also propose be included in § 25.218. We therefore propose to update this definition to remove the cross-references to §§ 25.138, 25.221, 25.222, 25.226, and 25.227.

Incorporating § 25.138 Into § 25.218, and Extending the Applicability of § 25.218 to the Conventional Ka-Band and ESIMs

Section 25.218 contains off-axis e.i.r.p. density envelopes for FSS earth stations transmitting to GSO FSS space stations in the conventional C-band, extended C-band, conventional Ku-band, or extended Ku-band.[7] Earth stations in these frequency bands that comply with these envelopes are considered ''two-degree-spacing compliant,'' and the operators of their target space stations are not required to coordinate their operations with operators of nearby space stations. 25.138(a) contains similar provisions for FSS earth stations transmitting to GSO FSS space stations in the conventional Ka-band. To improve the organizational coherence of part 25, we propose to move these provisions of § 25.138(a) into § 25.218(i),[8] and to extend the applicability of § 25.218 to conventional Ka-band GSO FSS earth stations.[9]

Section 25.138(b) states that operation in the conventional Ka-band with off-axis e.i.r.p. density levels exceeding the limits in § 25.138(a) are subject to coordination under § 25.220. Current § 25.218(i) contains a similar coordination provision governing operations in the conventional C-band, extended C-band, conventional Ku-band, and extended Ku-band. To clarify the rule in § 25.138(b), we propose to amend § 25.218(i) so that it lists all of the frequency bands included in the revised § 25.218(a).[10]

Section 25.138(f) states that space station operators may not transmit communications to or from user transceivers in the United States in the conventional Ka-band unless such communications are authorized under an FCC earth station license. We propose to make this a general requirement applicable to space station operators in all frequency bands, to clarify the language of the requirement, and to place this requirement in a new section, § 25.289. We propose that this requirement would be merged with § 25.287(d) that imposes the same condition for mobile transmitters or transceivers operating in some Mobile-Satellite Service frequencies. Section 25.287(d) could then be removed. The new rule would state: ''The holder of an FCC blanket earth station license will be responsible for operation of any earth station under that license. Operators of satellite networks and systems must not transmit communications to or from such earth stations in the United States unless such communications are authorized under a service contract with the holder of a pertinent FCC blanket earth station license or under a service contract with another party with authority for such operation delegated by such a blanket licensee.''

We propose applying § 25.218 to all applications for fixed and temporary-fixed FSS earth stations transmitting to geostationary space stations in the conventional or extended C-band or Ku-band, or the conventional Ka-band, and to all applications for ESIMs in the conventional C-, Ku-, or Ka-band, except for applications proposing transmission of analog command signals at a band edge with bandwidths greater than 1 MHz or transmission of any other type of analog signals with bandwidths greater than 200 kHz. We propose modifying § 25.218(a)(1) accordingly.[11]

Reorganizing and Streamlining the Technical and Operational and Coordination Requirements of §§ 25.221, 25.222, 25.226 and 25.227 Into § 25.228

We propose to bring all the technical, operational and coordination requirements for blanket licensed-ESV, VMES and ESAA earth stations that are linked to GSO FSS space stations—currently arrayed in §§ 25.221, 25.222, 25.226 and 25.227 of our current rules—under one new umbrella rule section applicable to ESIMs generally: Proposed § 25.228. This current array of ESIM rules would then be eliminated entirely, as all the requirements therein would either be subsumed by new § 25.228, or will be consolidated in certain other provisions described below.[12] While we do not think there will be any significant costs associated with reorganizing and consolidating these rule sections, we invite comments that will help estimate costs and benefits of the proposals. Under the rules as they now stand, the technical and operational rules for each of these types of ESIMs can be found primarily in the paragraph (a) provisions of §§ 25.221, 25.222, 25.226 and 25.227, while the coordination requirements are primarily located in the paragraph (c) and (d)

[5] As such, an NCMC would constitute a ''remote control point'' as that term is used in the Part 25 rules (*see, e.g.,* 47 CFR 25.271(b), 25.272(d)(1)).

[6] While we are also proposing to bring the section 25.221 and 25.222 operating requirements for ESVs under the same umbrella that will cover VMESs and ESAAs (*i.e.,* the umbrella of the proposed section 25.228 for ESIMs), the section 25.103 definition of ESVs would not need to be revised to eliminate any outdated cross-references because it does not now contain any cross-references.

[7] We note that the rules do not currently provide for ESIM operations in the extended C-band.

[8] Table 3 lists the paragraphs of section 25.138 and the corresponding paragraphs of proposed section 25.138(i). As a result of this insertion, we propose to renumber paragraph (i) to (j) in section 25.218.

[9] We do not propose to include the space station pfd limit of section 25.138(a)(6) in section 25.218(i). In 2015, we recodified this limit in section 25.140(a)(3)(iii) but inadvertently failed to make the corresponding deletion to section 25.138. *See Comprehensive Review of Licensing and Operating Rules for Satellite Services,* IB Docket No. 12–267, Second Report and Order, 30 FCC Rcd 14713, 14755, para. 115 (2015) (*2015 Second Report and Order*). Including the limit in section 25.218(i) would perpetuate this inadvertent duplication. In contrast, deleting section 25.138(a)(6) and leaving current section 25.140(a)(3)(iii) intact will conform the rules to the form intended by the Commission's action in the *2015 Second Report and Order.*

[10] We propose to redesignate current section 25.218(i) as section 25.218(j), as a result of our proposed insertion of the conventional Ka-band off-axis e.i.r.p. density limits currently contained in section 25.138(a) into section 25.218 as paragraph (i).

[11] We propose to retain the exception for analog video earth station applications.

[12] The discussion that follows lays out those instances where ESIM requirements now appearing in this array of four ESIM rule sections would be consolidated in a rule other than the proposed section 25.228, or where consolidation has effectively occurred because the requirement in question is duplicated in another existing rule.

provisions of these same sections. Broadly speaking, some of these rules are the same regardless of the type of ESIM, while others vary depending on the vehicle type and frequency band at issue. Accordingly, in crafting § 25.228 as an umbrella regulation that includes both the provisions that apply to all ESIMs and those that are tailored to specific circumstances, we propose to group ESIM requirements into the following categories, the details of which we discuss below: (1) Core rules (*i.e.* those applicable to all ESIMs); (2) vehicle-type specific rules that apply across multiple frequency bands; (3) frequency-band specific status and coordination rules; and (4) vehicle-type specific rules that apply to a single frequency band.

Core Rules

In this NPRM, we seek comment on streamlining the core ESIMs rules. In this context, core rules refer to those rules that are currently the same for each type of ESIM and those that we propose to amend in order to create such uniformity. These rules are related to the Commission's GSO FSS two-degree orbital spacing policy, control of operating ESIMs, operational reports, and electromagnetic radiation safety. With regard to revising requirements in order to create additional uniformity, we propose substantive changes to some of the rules to eliminate unnecessary variations across types of ESIMs, eliminate unnecessary duplication of rules across different rule sections, and eliminate rules that are better served by reliance on other sections of the Commission's rules. Specifically, we propose substantive changes to the following areas of our ESIM rules: (1) Antenna pointing accuracy requirements, (2) e.i.r.p. density limits, (3) the self-monitoring (self-diagnostics) requirement, (4) the network control and monitoring center requirement, (5) logging requirements, and (6) the installation requirements related to radiation safety.

Overview of Earth Station Licensing Rules. The licensing rules in part 25 for FSS earth stations transmitting digital emissions provide two main options for obtaining a license for an earth station at a fixed location. The first option is to demonstrate compliance with default limits on emissions in directions other than toward the target satellite, which are referred to as off-axis e.i.r.p. density limits.[13] These limits were developed to implement the Commission's GSO FSS space station two-degree orbital spacing policy. They ensure earth station compatibility with networks using adjacent satellites in a two-degree orbital spacing environment by controlling the level of emissions from an earth station that can be transmitted toward adjacent satellite orbital locations. The second option is to demonstrate that the operations of the earth stations in the satellite network have been coordinated with operators of networks using adjacent satellites that would be affected by emissions of the earth stations that exceed the default off-axis e.i.r.p. density limits, under the coordination requirements of § 25.220. Under the first option, there are two alternatives for showing compliance. One alternative is to demonstrate that the earth station antenna gain pattern comports with the off-axis gain limits in § 25.209, and that the antenna input power density comports with limits in § 25.212. However, this alternative is not currently available for ESV, VMES, or ESAA applications. The other alternative is to demonstrate that the off-axis e.i.r.p. density of the earth station emissions comports with the applicable off-axis e.i.r.p. density limits. There are provisions very similar to this alternative for ESV, VMES, and ESAA applications. In the following paragraphs, we propose to continue to make both options for obtaining a license available for ESIMs while changing our rules to allow ESIM applicants to use both alternatives for showing compliance under the first option.

Antenna Pointing Accuracy Requirement. The Commission's current rules for licensing ESVs, VMESs, and ESAAs all contain antenna pointing accuracy requirements. These requirements were based on the premise that highly directional earth station antennas mounted on moving platforms will have to accurately track the target satellite to maintain communications with that satellite and avoid interfering with reception of signals by adjacent satellites. The original ESV rules adopted in 2005 contained the same definition of off-axis angle, which the Commission called θ (theta) that was used by the ITU in Resolution 902. According to this definition, θ is measured from the axis of the main lobe of the ESV antenna. In the *2009 ESV Reconsideration Order,* however, the Commission changed the definition of θ to be consistent with a definition adopted for fixed earth stations that it adopted in the *Part 25 Streamlining 8th R&O.* In the definition of θ adopted in 2009, the off-axis angle is measured with respect to a line between the focal point of the earth station antenna and the location of the target satellite. This definition of θ anchors one end of the reference line from which θ is measured to the location of the target satellite. For a GSO FSS satellite, which is typically authorized with a ± 0.05 degree stationkeeping accuracy requirement, the reference line thus remains within 0.05 degrees of the line from the earth station to the assigned orbital location of the target satellite. In contrast, under the 2005 off-axis angle definition, when the axis of the main lobe of the earth station antenna moves, off-axis e.i.r.p. density limits tied to that axis would apply to directions that also move around in space. The 2009 definition of θ is now contained in the ESV, VMES, and ESAA rules in §§ 25.221, 25.222, 25.226, and 25.227.[14] This definition of θ obviates the need for an antenna pointing accuracy requirement, because the limit on off-axis e.i.r.p. toward adjacent satellites is fixed regardless of the direction in which the earth station antenna is pointed.[15] Therefore, the ESIM rules we propose here eliminate the antenna pointing accuracy requirement. This will afford ESIM operators more flexibility, because they can meet the off-axis e.i.r.p. density limits either by maintaining accurate antenna pointing or by reducing the radiated off-axis e.i.r.p. density when the antenna is mispointed. We seek comment on this proposal.

Off-Axis E.I.R.P. Density Limits. Section 25.218, the off-axis e.i.r.p. density limits rule, currently only applies to applications for GSO FSS earth stations at fixed locations, and

[13] The off-axis e.i.r.p. density limits are currently set forth in 47 CFR 25.218 for the C- and Ku-bands and in 47 CFR 25.138 for the Ka-band.

[14] The definition of theta was revised by the *2015 Second Report and Order.* The definition in section 25.221, 25.222, 25.226, and 25.227 paragraph (a)(1)(i)(A) formerly read ''theta (θ) is the angle in degrees from the line connecting the focal point of the antenna to the orbital location of the target satellite''. The minor rewording of the definition takes into account the fact that not all earth stations use feedhorn-reflector type antennas with focal points, and the fact that earth station antennas pointed toward GSO FSS satellites are usually pointed to the assigned location of the satellite, and do not track the actual position of the target satellite at any given time. The same definition of theta is now used in section 25.209, 47 CFR 25.209.

[15] This is the same as the approach taken by the ITU in Resolution 156 (WRC–15), which prescribes the operating conditions for ESIMs communicating with FSS space stations in the 19.7–20.2 GHz and 29.5–30 GHz frequency bands. In that resolution, the off-axis angle theta is defined as the angle ''from the vector from the earth station antenna to the associated satellite''. *See Final Acts of WRC–15* at 248. Resolution 156 does not contain any antenna pointing accuracy requirements, because its off-axis e.i.r.p. density limits, like those in section 25.218 of the Commission's rules, are independent of the direction the ESIM antenna is pointed. We propose to add footnotes 5.484B and 5.527A, which relate to ESIM use and were adopted in WRC–15, to the international table.

specifically excepts applications for ESVs, VMESs, and ESAAs. The numerical e.i.r.p. density limits in § 25.218 over each specified angular range are the same as those for the same frequency bands in §§ 25.221, 25.222, 25.226, and 25.227. Furthermore, the definition of θ in § 25.218 is the same as the one in §§ 25.221, 25.222, 25.226, and 25.227.[16] Thus, rather than duplicating the off-axis e.i.r.p. density limits in the proposed ESIMs rules, we propose to cross-reference the off-axis e.i.r.p. density limits that already exist in § 25.218. More specifically, paragraphs (a)(1)(i) of §§ 25.221, 25.222, 25.226, and 25.227 prescribe off-axis e.i.r.p. spectral density limits for C- and Ku-band ESVs, Ku-band VMESs, and Ku-band ESAAs respectively, for applicants proposing to comply with the Commission's off-axis e.i.r.p. density limits. We propose to replace these requirements with a requirement for ESIM licensees to comply with the applicable off-axis e.i.r.p. density limits in § 25.218. To extend the ESIMs rules to cover conventional Ka-band ESIMs, we propose that this requirement include the conventional Ka-band limits currently in § 25.138, which we propose to merge into § 25.218.

In the *2015 Second Report and Order,* the Commission adopted the same definition of θ as described in the preceding paragraph in § 25.209, the off-axis antenna gain limits rule. Moreover, the off-axis e.i.r.p. density limits in § 25.218, and those resulting from the combination of antenna input power density limits in § 25.212 and antenna off-axis gain limits in § 25.209 are the same as the off-axis e.i.r.p. density limits in §§ 25.221, 25.222, 25.226, and 25.227. We thus propose to allow ESIM applicants the option of certifying compliance with the antenna pattern requirements of § 25.209 and the antenna input power density requirements of § 25.212, in lieu of the off-axis e.i.r.p. density limits in § 25.218. We seek comment on this proposal.

Shutdown Requirements. Paragraphs (a)(1)(iii) of §§ 25.221, 25.222, 25.226, and 25.227 set forth cessation of emission requirements for ESV, VMES, and ESAA transmitters, based on detection of antenna mispointing. We propose to replace these requirements with provisions in paragraphs (b) and (c) of § 25.228 requiring cessation or reduction of emissions in the event that the ESIM or its associated network control and monitoring system detects that the ESIM has exceeded or is about to exceed the off-axis e.i.r.p. density limits. We also propose to include a requirement in the ESIM application rules in § 25.115 to demonstrate how that requirement will be met.

Paragraphs (a)(2) of §§ 25.221, 25.222, 25.226, and 25.227 set forth requirements for ESV, VMES, and ESAA systems that operate with e.i.r.p. spectral density levels above the levels provided in paragraph (a)(1) or (a)(3) of those sections. These provisions require such ESIM systems to operate in accordance with the off-axis e.i.r.p. density levels that have been coordinated by the operator of their target satellite(s) with the operators of adjacent satellites. The underlying purpose of these paragraphs can be satisfied by requiring ESIM operators that plan to operate their systems with off-axis e.i.r.p. density levels above the limits currently codified in §§ 25.138 and 25.218 to have their operations coordinated by their target satellite operator(s) pursuant to § 25.220. Specifically, we propose to include a technical and operational requirement in § 25.228(a) that would replace the current provisions in §§ 25.211, 25.222, 25.226, and 25.227. Paragraphs (a)(2) of §§ 25.221, 25.222, 25.226, and 25.227 also prescribe automatic cessation or reduction of emissions requirements in the event that an individual ESIM or multiple ESIMs using variable power density exceed the coordinated e.i.r.p. density levels. We proposed moving those requirements to § 25.228, paragraphs (b) and (c), as discussed in paragraph 25 *supra.*

The provisions in paragraphs (a)(3) and (a)(3)(i) of §§ 25.221, 25.222, 25.226, and 25.227 limit the aggregate off-axis e.i.r.p. density levels for ESIM systems that use variable power-density control of individual simultaneously transmitting co-frequency earth stations in a target satellite receiving beam. The *2015 Second Report and Order* adopted new provisions in § 25.218, subparagraph (4) of paragraphs (d) (C-band) and (f) (conventional Ku-band) and in § 25.138(a)(5) that are substantially the same as the provisions applying to ESIMs in paragraph (a)(3) and (a)(3)(i) of §§ 25.221, 25.222, 25.226, and 25.227, thus warranting consolidation of these provisions. As discussed above, we have therefore proposed to make § 25.218 applicable to ESIMs, and to merge the conventional Ka-band off-axis e.i.r.p. density limits in § 25.138 into § 25.218. Accordingly, we do not propose to include a separate requirement for this mode of ESIM system operation in § 25.228. We do, however, propose to codify cessation or reduction of emissions provisions similar to those in paragraphs (a)(3)(ii) and (iii) of §§ 25.221, 25.222, 25.226, and 25.227 in § 25.228 paragraphs (b) and (c), as we have proposed for the similar provisions in paragraphs (a)(1)(iii) and (a)(2) above.

Contention Protocols. Paragraphs (a)(4) of §§ 25.226 and 25.227 require VMES and ESAA applicants that plan to use a contention protocol in the uplink transmissions of their ESIMs to certify that their use of the contention protocol is reasonable. We propose not to include such a requirement in § 25.228, because § 25.115(i) already contains this requirement, and applies by its terms to applications for ESIMs.[17]

Point of Contact in the United States. Paragraphs (a)(4) of §§ 25.221 and 25.222 require that there be a point of contact in the United States with the authority and ability to cease all emissions from ESVs. Paragraphs (a)(5) of §§ 25.226 and 25.227 contain a similar requirement. We propose to consolidate such requirements in the platform-specific rules for ESVs, VMESs, and ESAAs in § 25.228.[18]

Data Logging Requirement. Paragraphs (a)(5) of §§ 25.221 and 25.222 and paragraphs (a)(6) of §§ 25.226 and 227 require that C- and Ku-band ESV operators and Ku-band VMES and ESAA operators log the vehicle location, transmit frequency, channel bandwidth, and target satellite of ESIM transmissions. The required maximum recording intervals are 20 minutes for ESVs, 5 minutes for VMESs, and 1 minute for ESAAs. The ESIM operator must make this data available to a frequency coordinator, fixed system operator, FSS operator, National Telecommunications and Information Administration (NTIA) (for Ku-band ESIMs only), or the Commission within 24 hours after a request. The Commission has never requested these data from an ESIM operator, and we are unaware of any other entity submitting requests for such data. We seek comment on whether the logging requirement is still necessary and useful, and if so, whether the existing recording intervals should be maintained or changed. We request that parties who wish to assert that this requirement should be maintained provide specific examples of instances in which the logging data has been requested from ESIM operators and how

[16] The Commission adopted this definition of θ in section 25.218 in the 2008 *Part 25 Streamlining 8th R&O.*

[17] The current duplication would be eliminated by deleting sections 25.226 and 25.227 in their entireties, as proposed.

[18] A list of the existing paragraphs in section 25.221, 25.222, 25.226, and 25.227 and the corresponding proposed paragraphs in section 25.228 appears in Table 5.

those data have been used to identify a source of interference.

Remote Monitoring and Control Requirement. § 25.227(a)(10) provides the requirements for remote terminal monitoring and control of ESAAs. Specifically, the current rule states that each remote terminal must be monitored and controlled by a network control and monitoring center (NCMC) or equivalent facility. Each remote terminal must comply with ''disable transmission'' commands from the NCMC. In addition, the NCMC must monitor the operation of each ESAA terminal in its network, and transmit a ''disable transmission'' command to a remote terminal that malfunctions in such a way as to cause unacceptable interference to another radiocommunication station. This provision achieves the same goal of ensuring the ability to remotely monitor and disable earth stations as the requirements included in paragraphs (a)(2)(iii) and (a)(3)(iii) of §§ 25.221, 25.222, 25.226, and 25.227. We propose to incorporate a remote monitoring and control requirement in our proposed § 25.228(c), and make it applicable to all types of ESIMs.

Self-Monitoring Requirement. Section 25.227(a)(11) requires that remote ESAA terminals be self-monitoring and capable of automatically ceasing transmission. Section 25.227 paragraphs (a)(1)(iii), (a)(2)(ii), and (a)(3)(ii), and corresponding paragraphs in §§ 25.221, 25.222, and 25.226 contain similar self-monitoring requirements. We propose to make this requirement generally applicable to all types of ESIMs and to codify it in § 25.228(b).

Cessation of Uplink Transmissions Upon Loss of Downlink Signal. Section 25.226(a)(9) states that each VMES terminal must automatically cease transmitting upon the loss of synchronization or within 5 seconds upon loss of reception of the satellite downlink signal, whichever is the shorter timeframe. Similarly, § 25.227(a)(9) states that each ESAA terminal must automatically cease transmitting within 100 milliseconds upon loss of reception of the satellite downlink signal or when it detects that unintended satellite tracking has happened or is about to happen. The recently adopted § 25.271(g) states: ''Licensees of transmitting earth stations are prohibited from using remote earth stations in their networks that are not designed to stop transmission when synchronization to signals from the target satellite fails.'' We propose eliminating the rules specifically applicable to VMES and ESAA as redundant, because § 25.271(g) applies by its terms to all types of ESIMs and loss of synchronization to signals from the target satellite is general enough to cover all situations of interest.

ESIM Installation Requirement for Radiation Hazard Mitigation. The VMES and ESAA application requirements in §§ 25.226(b)(8) and 25.227(b)(8) respectively include a requirement that would be more appropriately located in the technical and operational rules than in the application rules. Specifically, §§ 25.226(b)(8) and 25.227(b)(8) require, in part, that all VMES and ESAA licensees ensure installation of VMES or ESAA terminals on vehicles by qualified installers who have an understanding of the antenna's radiation environment and use those measures best suited to maximize protection of the general public and persons operating the vehicle and equipment. The rules require that a VMES or ESAA terminal exhibiting radiation exposure levels exceeding 1.0 mW/cm^2 in accessible areas, such as at the exterior surface of the radome, must have a label attached to the surface of the terminal warning about the radiation hazard and must include thereon a diagram showing the regions around the terminal where the radiation levels could exceed 1.0 mW/cm^2. We propose extending this requirement to ESVs operating in the C-, Ku- and Ka-bands, because the same basic rationale for the VMES and ESAA requirement appears to apply equally to ESVs—*i.e.,* to ensure protection of members of the public (including those manning the vessels and operating the equipment), who may be exposed to hazardous radiation environments on vessels as well as on or in the vicinity of land vehicles and aircraft. Accordingly, we propose to consolidate the requirement that currently appears in the VMES and ESAA rules, extend this requirement to include ESVs, and move it into paragraph (d) of the proposed § 25.228. We also propose to cross-reference § 1.1310 Table 1 of the Commission's rules, rather than specifying the maximum permitted radiation exposure level in § 25.228(d).

Vehicle-Type Specific Rules Applicable Across Multiple Frequency Bands

Part 25 of the Commission's rules contain some rules for earth stations in motion that are specific to the particular type, *i.e.* ESVs, VMESs, or ESAAs, across more than one frequency band. In the following section, we propose revisions and reorganization so that vehicle-specific requirements are minimized to the extent possible. Where retention of vehicle-specific requirements are necessary, we propose reorganization to codify the requirements for each type of ESIM in the proposed § 25.228.

ESV Requirements

There are currently two rule sections that address specific requirements for ESV operators. Both of these sections were adopted to codify section 306 of the Communications Act, which provides that while section 301 of the Act (which contains the licensing requirement for radio communications) does not apply to persons transmitting from foreign ships that come within the jurisdiction of the United States, radio communications or signals from such ships are subject to Commission regulations designed to prevent interference.

Vessels of Foreign Registry. Paragraphs (a)(6) of §§ 25.221 and 25.222 require ESV operators licensed by the FCC communicating with ESVs on vessels registered outside the United States to maintain detailed information on each vessel's country of registry and a point of contact within the foreign administration responsible for licensing the ESV. The purpose of this rule is to enable the Commission, if necessary, to contact the administration responsible for an ESV that causes interference to U.S. stations, pursuant to our mandate under section 306 of the Communications Act. Because these sections are statutorily based, we propose to retain this requirement in paragraph (e)(3) of our proposed new § 25.228.

ESV Hub Earth Stations. Paragraphs (a)(7) of §§ 25.221 and 25.222 require ESV operators to control ESVs using a hub earth station located in the United States, except that a U.S.-licensed ESV may operate under control of a hub earth station located outside the United States provided that the ESV operator maintains a point of contact in the United States that can make the ESV cease transmitting if necessary. This provision is similar to that in paragraph (a)(4) of §§ 25.221 and 25.222, except paragraph (a)(4) is focused on the remote ESV terminals, and paragraph (a)(7) is focused on the hub earth station with which the ESVs communicate. The purpose of this rule is to enable the Commission to prevent interference to U.S. and foreign stations. We propose to retain this requirement in paragraph (e)(1) of our proposed § 25.228. We also propose to update the language regarding ESV hub operators and hub earth stations for greater clarity. Specifically, in our revised rules, we propose to use the term ''network control and monitoring center''

(NCMC) [19] to better reflect the nature of the functions performed by such facilities.

VMES Requirements

There are currently no rules in part 25 of the Commission's rules that apply to VMES terminals in more than one frequency band. The VMES rules currently in part 25 only apply to Ku-band VMESs. With the goal of streamlining rules for all ESIM operators, we do not propose any VMES-specific rules that would apply across all frequency bands.

ESAA Requirements

Section 25.227(a)(12) provides that ESAA applicants that comply with the off-axis e.i.r.p. spectral-density limits in paragraph (a)(1)(i) of this section may request Permitted List authority. We propose to eliminate this rule section, because this flexibility is already afforded to ESV, VMES, and ESAA applicants by § 25.115(k)(1).

Section 25.227(a)(14) states that all ESAA terminals operating in U.S. airspace, whether on U.S.-registered civil aircraft or non-U.S.-registered civil aircraft, must be licensed by the Commission. All ESAA terminals on U.S.-registered civil aircraft operating outside of U.S. airspace must be licensed by the Commission, except as provided by section 303(t) of the Communications Act. We propose to keep this requirement and extend it to apply to all Ka-band ESAA terminals operated in U.S. airspace. We also propose moving this requirement into the proposed § 25.228(g)(2).

Section 25.227(a)(15) states that for ESAA systems operating over international waters, ESAA operators will certify that their target space station operators have confirmed that proposed ESAA operations are within coordinated parameters for adjacent satellites up to 6 degrees away on the geostationary arc. We do not propose to bring this requirement into the proposed ESIM rule section. In view of the provisions of § 25.140 and § 25.220, which apply to U.S. satellites and earth stations, and § 25.137, which also applies to foreign-licensed points of communication, we find these requirements are redundant, which redundancy will then be eliminated with our deletion of § 25.227 in its entirety.

We propose to move the requirements of § 25.227(a)(16) to new § 25.228(g)(3), with a minor revision in the first sentence. The first sentence of § 25.227(a)(16) currently provides that ''[p]rior to operations within the foreign nation's airspace, the ESAA operator will ascertain whether the relevant administration has operations that could be affected by ESAA terminals, and will determine whether that administration has adopted specific requirements concerning ESAA operations.'' Specifically, we propose changing ''will'' to ''must''. We also propose making the remaining sentences currently contained in § 25.227(a)(16) clearly imperative. As with several of the other Ku-band ESAA specific rules, we propose to apply this requirement to Ka-band ESAA operators.

Frequency-Band Specific Status and Coordination Rules

Currently, there are frequency-band specific rules for ESVs, VMESs and ESAAs in the conventional and extended Ku-bands.[20] We propose to eliminate some of these requirements, which are redundant with other provisions in part 25, with the exception of paragraphs (c) and (d) of §§ 25.222, 25.226, and 25.227.

Specifically, §§ 25.226(a)(8) and 25.227(a)(8) provide that in the relevant bands,[21] VMES and ESAA terminals receive protection from interference caused by space stations other than the target space station only to the degree to which harmful interference would not be expected to be caused to a hypothetical earth station employing an antenna conforming to the reference patterns defined in §§ 25.209(a) and (b) and stationary at the location at which any interference occurred.[22] This requirement is redundant with § 25.209(c)(1).[23] In view of this redundancy, we propose to eliminate the provisions in paragraphs (a)(8) of §§ 25.226 and 25.227.

Similarly, §§ 25.222(a)(8), 25.226(a)(7) and 25.227(a)(7) state that in the 10.95–11.2 GHz (space-to-Earth) and 11.45–11.7 GHz (space-to-Earth) frequency bands ESVs, VMESs and ESAAs must not claim protection from interference from any authorized terrestrial stations to which frequencies are either already assigned, or may be assigned in the future. These sections are redundant with footnote NG52 to § 2.106 of the Commission's rules.[24] In view of the redundancy of these provisions, we propose eliminating paragraph (a)(8) of § 25.222 and paragraph (a)(7) of §§ 25.226 and 25.227.

Additionally, there are two sets of coordination requirements for Ku-band ESIMs, which are contained in paragraphs (c) and (d) of §§ 25.222, 25.226 and 25.227. Paragraphs (c) in these rule sections address the coordination requirements related to the protection of the NASA Tracking and Data Relay Satellite System (TDRSS) in the 14.0–14.2 GHz frequency band. Paragraphs (d) address coordination requirements designed to protect the Radio Astronomy Service (RAS) in the 14.47–14.5 GHz frequency band. These rule paragraphs, while covering the same frequency bands and coordination requirements to protect TDRSS and RAS operations, are worded slightly differently in each section. We propose unifying language for the requirements for all ESIMs to be included in § 25.228(j).

Vehicle-Type Specific Rules Applicable to a Single Frequency Band

Part 25 includes rules that are particular to the type of ESIM in a specific frequency band. For example, C-band ESVs and Ku-band ESAAs have requirements that are unique to the combination of type of earth station and the particular frequency band in which it operates. The Commission has never adopted rules for C-band VMES and ESAA terminals, and we do not propose to do so here.

[19] We propose to add a definition of network control and monitoring center (NCMC) in section 25.103.

[20] There are Commission rules for ESIMs operation in three bands: The conventional C-band and the conventional and extended Ku-bands. Under our proposed rules, ESIMS would also be able to operate in the conventional Ka-band.

[21] Specifically, VMES terminal receiving in the 10.95–11.2 GHz (space-to-Earth), 11.45–11.7 GHz (space-to-Earth) and 11.7–12.2 GHz (space-to-Earth) bands, and ESAA terminal receiving in the 11.7–12.2 GHz (space-to-Earth) bands do not receive protection from interference.

[22] Although the provision that the hypothetical earth station is stationary is not included in section 25.209(c), it is not relevant whether this earth station is stationary or not because the interference received by an earth station antenna is a function of the antenna gain pattern and the direction in which the antenna is pointed with respect to sources of interference, not whether the earth station is at a fixed location or in motion.

[23] Section 25.209(c)(1) currently states: ''An earth station licensed for operation with an FSS space station or registered for reception of transmissions from such a space station pursuant to section 25.131(b) and (d) is not entitled to protection from interference from authorized operations of other stations that would not cause harmful interference to that earth station if it were using an antenna with receive-band gain patterns conforming to the levels specified in paragraphs (a) and (b) of this section.''

[24] Footnote NG52 states that: ''Except as otherwise provided for herein, use of the bands 10.7–11.7 GHz (space-to-Earth) and 12.75–13.25 GHz (Earth-to-space) by geostationary satellites in the fixed-satellite service (FSS) must be limited to international systems, *i.e.,* other than domestic systems. In the sub-bands 10.95–11.2 GHz and 11.45–11.7 GHz, Earth Stations on Vessels (ESV), Vehicle-Mounted Earth Stations (VMES), and Earth Stations Aboard Aircraft (ESAA) as regulated under 47 CFR part 25 may be authorized for the reception of FSS emissions from geostationary satellites, subject to the condition that these earth stations must not claim protection from transmissions of non-Federal stations in the fixed service.''

C-Band ESV Specific Requirements

Several requirements in § 25.221 address issues that are unique to ESVs operating in the C-band. We propose to retain most of these C-band ESV specific requirements. Specifically, we propose to retain paragraphs (a)(8), (a)(9), (a)(10), (a)(12), and (a)(13) as written and move them to the new § 25.228(h). Table 4 lists these paragraphs and the current sub-paragraphs and the corresponding sub-paragraphs of § 25.228(h) to which we propose to relocate them.

Section 25.221(a)(11) states that ESVs while in motion do not receive protection in the downlink band.[25] These rules were adopted in the *2005 ESV Order* to protect FS and FSS providers in the C-band while providing maximum flexibility to ESV operators. We propose to move this requirement to § 25.228(h)(4), while upgrading the status of ESVs in the 3700–4200 MHz (space-to-Earth) frequency band by eliminating the provision in § 25.221(a)(11) that they may not claim protection from harmful interference from satellites transmitting in the 3700–4200 MHz (space-to-Earth) frequency band. We also propose to modify the second sentence of Non-Federal Government footnote NG180 of § 2.106, consistent with our proposed change to the text of the provision currently codified in § 25.221(a)(11).

Ku-Band ESAA Specific Requirements

Section 25.227(a)(13) sets out requirements for ESAA providers operating in the international airspace within line-of-sight of the territory of a foreign administration. We propose only minor changes in the language consistent with other ESIMs rules. The requirements would be moved to the proposed § 25.228(i).

Proposed Technical and Operational Requirements for Ka-band ESIMs

We do not propose any specific technical or operational requirements for ESVs, VMESs, or ESAAs operating in the conventional Ka-band. Such ESIMs would be authorized subject to the requirements in § 25.115(n), which includes the requirement to comply with the earth station off-axis e.i.r.p. density limits in proposed § 25.218(i), unless the ESIM operations are coordinated under § 25.220. This is similar to the current blanket-licensing provisions for conventional Ka-band earth stations in § 25.138. Conventional Ka-band ESVs would be required to comply with the requirements in proposed § 25.228(e), conventional Ka-band VMESs would be required to comply with the requirement in proposed § 25.228(f), and conventional Ka-band ESAAs would be required to comply with the requirements in proposed § 25.228(g). We seek comment on any additional provisions that we should adopt for the operation of conventional Ka-band ESVs, VMESs, or ESAAs, such as minimum separation distances to protect the fixed and mobile services from ESV emissions, and/or power flux-density limits to protect the fixed and mobile services from ESAA emissions.

We propose to amend an existing footnote to the Table of Allocations to recognize the operation of ESIMs as an application of the FSS with primary status in the conventional Ka-band. We seek comment on our belief that ESIMs operating in the conventional Ka-band in accordance with our proposed rules would not pose more of a risk of interference to, nor require more protection from interference from other radiocommunication systems than other earth stations operating in the frequency band on a primary basis today.[26] The Commission has taken similar steps to clarify the primary status of C-band and Ku-band ESIMs. Specifically, we propose to amend footnote NG55, which authorizes ESV, VMES, and ESAA use in the Ku-band, to include a portion of the Ka-band and to use the term ''ESIMs.'' The amended footnote would state: ''In the bands 11.7–12.2 GHz (space-to-Earth), 14.0–14.5 GHz (Earth-to-space), 18.3–18.8 GHz (space-to-Earth), 19.7–20.2 GHz (space-to-Earth), 28.35–28.6 GHz (Earth-to-space), and 29.25–30.0 GHz (Earth-to-space), Earth Stations in Motion (ESIMs), as regulated under 47 CFR part 25, are applications of the fixed-satellite service and may be authorized to communicate with geostationary satellites in the fixed-satellite service on a primary basis.'' [27]

Iridium has expressed concern with respect to ESIM operations in the band 29.25–29.3 GHz.[28] Inmarsat, EchoStar, and Hughes, collectively, and ViaSat filed *ex parte* letters opposing Iridium on the grounds that blanket-licensed fixed earth stations are currently authorized in this band.[29] We seek comment on whether inclusion of the band 29.25–29.3 GHz would raise any new issues with respect to potential interference to NGSO FSS feeder links.

In addition, to the extent these proposed rule changes may facilitate increased deployment of ESIMs, we invite comment on whether the changes could unreasonably diminish future opportunities to introduce additional services into these bands or adjacent bands on a shared basis. We also seek comment on any possible effects that these proposed rules may have on existing or future services in adjacent frequency bands, such as Upper Microwave Flexible Use Service (UMFUS) operations in the 27.5–28.35 GHz frequency band.

ESIMs Application Requirements

The earth station license application requirements for ESVs, VMESs, and ESAAs, are currently contained in paragraph (b) of §§ 25.221, 25.222, 25.226, and 25.227. Application requirements for FSS earth station authorizations at fixed and temporary-fixed locations are in § 25.115. We propose to move the ESIM application requirements into § 25.115 for better integration of the rules. Specifically, the application requirements for a particular frequency band for all types of ESIM platforms [30] will be in paragraphs (l) (for C-band), (m) (for Ku-band), and (n) (for Ka-band) of § 25.115. The appropriate introductory text will be in the opening sub-paragraph of those three paragraphs. As such, the introductory paragraphs in §§ 25.221(b), 25.222(b), 25.226(b), and 25.227(b) become unnecessary.

Paragraphs (b)(1) of §§ 25.221, 25.222, 25.226, and 25.227 state that an ESIM

[25] Specifically, section 25.221(a)(11) currently states: ''ESVs while in motion shall not claim protection from harmful interference from any authorized terrestrial stations or lawfully operating satellites to which frequencies are either already assigned, or may be assigned in the future in the 3700–4200 MHz (space-to-Earth) frequency band.''

[26] The Commission already blanket licenses ubiquitously-deployed fixed earth stations in the conventional Ka-band under section 25.138; under the proposed rules ESIMs would have to comply with regulations designed to ensure that they do not cause more interference than fixed earth stations.

[27] We also note that feeder links for the Iridium NGSO MSS satellite system are operated in the 29.1–29.3 GHz band. *See, e.g., Iridium Satellite LLC,* IBFS File No. SES–MOD–20060907–01680 (granted Mar. 29, 2007). ESIM applicants and licensees planning to conduct operations in the 29.25–29.3 GHz band would have to coordinate with Iridium under 47 CFR 25.203(h) and 25.258 prior to operating in those frequencies.

[28] *See* Letter from Joseph A. Godles, Attorney, Iridium Satellite LLC, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 17–95 (filed May 8, 2017). *See also* Letter from Joseph A. Godles, Attorney, Iridium Satellite LLC, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 17–95 (filed May 10, 2017); Letter from Joseph A. Godles, Attorney, Iridium Satellite LLC, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 17–95 (filed May 11, 2017).

[29] *See* Letter from Giselle Creeser, Director, Regulatory, M. Ethan Lucarelli, Director, Regulatory & Public Policy, Inmarsat, Inc., and Jennifer Manner, Senior Vice President, Regulatory Affairs, EchoStar Satellite Operating Corporation, Hughes Network Systems, LLC., to Marlene H. Dortch, Secretary, FCC, IB Docket No. 17–95 (filed May 11, 2017). *See also* Letter from John Janka and Elizabeth R. Park, Counsel, ViaSat Inc., to Marlene H. Dortch, Secretary, FCC, IB Docket No. 17–95 (filed May 11, 2017).

[30] *I.e.,* VMESs, ESVs, and ESAAs.

applicant proposing to implement a transmitter under paragraph (a)(1) of these sections must provide the information required by § 25.115(g)(1). In the proposed rules, an ESIM applicant would follow the application procedures set out under the provisions in subparagraph (1) of §§ 25.115(l) through (n), and showings regarding antenna pointing accuracy would no longer be required.

An applicant under the current ESIM application requirements proposing to meet the 0.2 degree antenna pointing accuracy requirement must show how that will be accomplished.[31] As discussed in paragraph 22 *supra,* we propose to eliminate the pointing accuracy requirement, because the off-axis angles in the e.i.r.p. density mask in § 25.218 and the antenna gain pattern mask in § 25.209 are both now defined based on the line from the earth station to the target satellite, not from the axis of the main lobe of the antenna pattern. In the proposed rules, the applicant would have to show how it will detect exceedance of the off-axis e.i.r.p. density mask and reduce power or shut down its transmitter, pursuant to subparagraph (3)(i) of §§ 25.115(l) through (n).

Further, in the existing ESIM rules, an applicant proposing to operate with a maximum pointing error greater than 0.2 degrees must declare its maximum pointing error and show that at the maximum mispointing, the e.i.r.p. density limits are still met. Again, because we are proposing to eliminate the antenna pointing accuracy requirement, the proposed rules will provide applicants two options to qualify for a license: Either comply with the off-axis e.i.r.p. density limits, and provide the information required by §§ 25.115(l)–(n)(1), or coordinate, and provide the information required by §§ 25.115(l)–(n)(2).

Additionally, because we propose to eliminate the antenna pointing accuracy requirement, we propose to eliminate the pointing accuracy certification requirements of §§ 25.221(b)(1)(iii), 25.222(b)(1)(iii), 25.226(b)(1)(iii), and 25.227(b)(1)(iii)(A) and (B). Similarly, we propose to eliminate the maximum mispointing declaration requirements in paragraphs (b)(1)(iv)(A) and the cessation of transmissions upon mispointing demonstration requirements in paragraphs (b)(1)(iv)(B) in §§ 25.221, 25.222, 25.226, and 25.227.

Paragraphs (b)(2), (b)(2)(i) and (b)(2)(ii) of §§ 25.221, 25.222, 25.226, and 25.227 state that an applicant proposing to operate with off-axis e.i.r.p. density in excess of the levels in paragraph (a)(1)(i) or (a)(3)(i) of these sections must provide the off-axis e.i.r.p. density showing required by § 25.115(g)(1), and the coordination certifications required by § 25.220(d). In the proposed rules, such an applicant would apply under the provisions in subparagraph (2) of §§ 25.115(l)–(n), which would contain substantially the same requirements for exhibits to its earth station application.

Paragraphs (b)(2)(iii) and (b)(2)(iv) of §§ 25.221, 25.222, 25.226, and 25.227 require detailed showings that each ESAA transmitter in the system will automatically cease or reduce emissions within 100 milliseconds after generating e.i.r.p. density exceeding the applicable limits. In the proposed rules in §§ 25.115(l)–(n)(3)(i), the applicant would have to show how the transmitter will detect exceedance of the off-axis e.i.r.p. density mask and reduce the power of or shut down one or more transmitters within 100 milliseconds of receiving a command to do so from the system's network control and monitoring center, if the aggregate off-axis e.i.r.p. spectral-densities of the transmitter or transmitters exceed the relevant off-axis e.i.r.p. spectral-density limits.

Section 25.221(b)(3)(v) states that certification that the ESV system will operate in compliance with the power limits in § 25.204(h) is required with an application for a C-band ESV. We propose to eliminate this requirement, which we believe is no longer necessary, because we do not require applicants to certify that they will comply with every part 25 rule, and we typically include a licensing condition stating this requirement in ESV license documents.[32]

We propose to incorporate the requirement to provide the off-axis e.i.r.p. density data currently contained in subparagraphs (b)(3)(i) of §§ 25.221, 25.222, 25.226, and 25.227 in sub-paragraphs (1) and (2) of proposed §§ 25.115(l)–(n). In addition, we propose to incorporate the requirement currently contained in subparagraphs (b)(3)(iii) of §§ 25.221, 25.222, 25.226, and 25.227 to show that individual ESIM terminal is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESIM transmitter exceeds the relevant off-axis e.i.r.p. spectral-density limits in sub-paragraphs (3)(i) of §§ 25.115(l)–(n). We also propose to incorporate in those sub-paragraphs the requirement currently contained in subparagraphs (b)(3)(iv) of §§ 25.221, 25.222, 25.226, and 25.227 to show that one or more transmitters in ESIM systems using variable-power-density control of individual ESIM transmitters are capable of automatically ceasing or reducing emissions within 100 milliseconds of receiving a command to do so from the system's network control and monitoring center, if the aggregate off-axis e.i.r.p. spectral-densities of the transmitter or transmitters exceed the relevant off-axis e.i.r.p. spectral-density limits. We invite comment on whether there should be a requirement that the network control and monitoring center be capable of detecting that the aggregate off-axis e.i.r.p. density limits are being exceeded within a specific time limit, and if so, what that time limit should be.

Paragraphs (b)(5) of §§ 25.226 and 25.227 state that any VMES or ESAA applicant filing for a VMES or ESAA terminal or system and planning to use a contention protocol must include in its application a certification that its contention protocol use will be reasonable, in compliance the requirements of paragraph (a)(4) of those sections. This requirement is substantially the same as the requirement in § 25.115(i), which we construe as applying to applications for ESIMs. Therefore, we do not propose duplicating the language from §§ 25.226(b)(5) and 25.227(b)(5) in the ESIM rules we propose here.

Paragraphs (b)(8) of §§ 25.226 and 25.227 also state that VMES and ESAA applicants must submit a radio frequency hazard analysis determining via calculation, simulation, or field measurement, whether ESAA terminals, or classes of terminals, will produce power densities that will exceed the Commission's radio frequency exposure criteria. Section 1.1307(b) of the Commission's rules requires applicants to prepare an Environmental Assessment if a transmitter would cause human exposure to levels of radiofrequency radiation in excess of the Maximum Permissible Exposure limits in 47 CFR 1.1310 Table 1. This rule also requires earth station applications to contain a statement confirming compliance with those limits. Thus we propose not to retain these provisions in paragraphs (b)(8) of §§ 25.226 and 25.227, which are unnecessary in view of the requirements in § 1.1307(b). Paragraphs (b)(7) of §§ 25.221 and 25.222 and § 25.226(b)(9) state that except for ESV or VMES systems operating pursuant to paragraph

[31] *See* paragraphs (b)(1)(iii) of sections 25.221, 25.222, 25.226, and 25.227.

[32] We propose, however, to retain a technical and operational requirement to meet the power limits currently in section 25.204(h), which we propose to redesignate as section 25.228(h)(7).

(a)(2) of those sections, which are systems that propose to exceed the prescribed off-axis e.i.r.p. density limits, systems authorized pursuant to those sections will be eligible for a license that lists Permitted List as an authorized point of communication. We propose to delete this provision as duplicative of the provision that already exists in § 25.115(k)(1), which we construe as applicable to ESIM applications.

Currently, paragraphs (b)(7) of §§ 25.226 and 25.227 require that any VMES or ESAA applicant must include in its application a certification that it will comply with the requirements of paragraphs (a)(6) of those sections, and paragraphs (a)(9), (a)(10), and (a)(11) of § 25.227. We invite comment as to whether the certification requirement serves a useful purpose, or whether we should eliminate it, because Commission licensees are required to comply with all applicable Commission rules.

Sections 25.226(b)(8) states that all VMES applicants must demonstrate that their VMES terminals are capable of automatically ceasing transmissions upon the loss of synchronization or within 5 seconds upon loss of reception of the satellite downlink signal, whichever is the shorter timeframe. § 25.271(g) requires that licensees of transmitting earth stations are prohibited from using remote earth stations in their networks that are not designed to stop transmission when synchronization to signals from the target satellite fails. We propose to eliminate the provision in § 25.226(b)(8) as redundant.

We propose to retain the requirements in paragraphs (b)(4) of §§ 25.221, 25.222, 25.222, 25.226, and 25.227,[33] in paragraphs (b)(5) of §§ 25.221 and 25.222 and (b)(6) of §§ 25.226 and 25.227,[34] and in paragraphs (b)(6) of §§ 25.221 and 25.222 and (b)(8) of §§ 25.226 and 25.227,[35] and move those requirements into paragraphs (l)–(n) of § 25.115. Table 5 shows how these paragraphs would be redesignated. We seek comment on these proposals.

Merging Sections 25.130 and 25.131 Into Section 25.115

We propose to move the requirements in § 25.130, with minor revisions, into § 25.115(a)(5) through (10). In addition to the minor changes, the last sentence of § 25.130(a) currently states that ''applicants that are not required to submit applications on Form 312EZ'' must submit the information in subparagraphs (1) through (5) of this paragraph as an attachment to their applications. Because the use of Form 312EZ is not mandatory, but just an option available to applicants, we propose to change the word ''required'' to ''permitted''. We would then reserve § 25.130. Cross-references to this section would be redirected to the appropriate paragraphs in § 25.115.

Currently, § 25.131 covers the application requirements for receive-only earth stations. We propose to move all of these requirements, with minor revisions, into § 25.115(b).[36] We would then reserve § 25.131. Cross-references to this section would be redirected to the appropriate paragraphs in § 25.115.

Other Miscellaneous Changes to Section 25.115

We propose to remove and reserve § 25.115(a)(4), which currently contains instructions regarding electronically filing. We propose to incorporate this language in § 25.115(a)(1) instead.

We note that § 25.115(c)(1) retains language differentiating between domestic and international services. Because that distinction was eliminated in the *DISCO II* proceedings, we propose to eliminate the vestige in this rule.

Currently, § 25.115(k)(1) states that applicants for Fixed-Satellite Service earth stations that qualify for routine processing in the conventional C-band, the conventional Ku-band, and in portions of the extended Ku-band, may designate the Permitted Space Station List as a point of communication.[37] We propose to revise the references within § 25.115(k)(1) to §§ 25.221, 25.226, and 25.227 to refer instead to the proposed paragraphs (l) through (n) of § 25.115, consistent with the unifying of the application requirements into § 25.115.

Similarly, we propose changes to § 25.115(k)(2) that do not substantively alter the requirements of that section. Specifically, we propose to adopt the following revised language: Notwithstanding paragraph (k)(1) of this section, an earth station that would receive signals in the 17.8–20.2 GHz band may not communicate with a space station on the Permitted Space Station List in that band until the space station operator has completed coordination under footnote US334 to § 2.106 of this chapter.

Changes Required in Additional Sections of the Commission's Rules: Sections 25.133, 25.140, 25.202, 25.204, 25.209, and 25.258 and Notes to the Table of Allocations, Section 2.106

We propose several additional changes in other sections of part 25 to harmonize the various rule sections involving ESIMs.

Section 25.133(d) contains a cross-reference to § 25.131, the relevant portions of which we propose to move to § 25.115(b). We propose to update this cross-reference.

Section 25.140(a)(3)(iii) contains a cross-reference to § 25.138(a). We propose to update this cross-reference to point to § 25.218(i), which would contain the off-axis e.i.r.p. density limits currently contained in § 25.138(a).

We propose revising § 25.202(a)(8) to eliminate the references to the individual ESIM sections, §§ 25.221, 25.222, 25.226 and 25.227, which we propose to eliminate.

Section 25.204 contains limits on the e.i.r.p. and e.i.r.p. density that ESVs, VMESs, and ESAAs may transmit toward the horizon. To improve the organizational coherence of the ESIMs rules, we propose to relocate those requirements to § 25.228. Specifically, we propose to relocate the requirements in § 25.204(h) to § 25.228(h)(7), and to consolidate the requirements in paragraphs (i)–(k) of § 25.204 into § 25.228(j)(2).[38]

As previously noted, § 25.209(c)(1) cross-references §§ 25.130 and 25.131. We propose to update these cross-references to refer to §§ 25.115(b)(2) and (4), where the requirements would be located.

Section 25.209(f) states that an earth station with an antenna not conforming to relevant standards in paragraphs (a) and (b) of that section will be authorized only if the applicant demonstrates that the antenna will not cause unacceptable interference. In order to reflect the other proposed changes for ESIMs, we propose eliminating the references to the rule sections currently containing the ESIMs rules within that paragraph. We further propose revising the reference to §§ 25.138, 25.221, 25.222, 25.226, and 25.227 to refer instead to § 25.218, and making other clarifying changes to § 25.209(f).

[33] Paragraphs (b)(4) of sections 25.221, 25.222, 25.222, 25.226, and 25.227 contain the requirement to identify the area(s) of operation of the ESIM terminals.

[34] Paragraphs (b)(5) of sections 25.221 and 25.222 and (b)(6) of sections 25.226 and 25.227 contain the point-of-contact identification requirement.

[35] Paragraphs (b)(6) of sections 25.221 and 25.222 and (b)(8) of sections 25.226 and 25.227 contain the requirement to provide a radiation safety hazard analysis.

[36] A list of the existing paragraphs in section 25.131 and the corresponding proposed paragraphs in section 25.115 appears in Table 2.

[37] These applications include ESV applications filed pursuant to sections 25.222(a)(1) or (a)(3), VMES applications filed pursuant to sections 25.226(a)(1) or (a)(3), and ESAA applications filed pursuant to sections 25.227(a)(1) or (a)(3). *See* 47 CFR 25.222(a)(1) and (a)(3), 25.226(a)(1) and (a)(3), and 25.227(a)(1) and (a)(3).

[38] A list of the existing paragraphs in section 25.204 and the corresponding proposed paragraphs in section 25.228 appears in Table 6.

Section 25.258(b) states that operation of ubiquitously deployed GSO FSS earth stations in the 29.25–29.5 GHz frequency band shall conform to the rules contained in § 25.138. Consistent with our proposed relocation of the requirements of § 25.138 to § 25.218(i), we propose to update this cross-reference to point to the latter section.

Footnote NG52 of the Table of Frequency Allocations authorizes ESVs, VMESs, and ESAA in portions of the Ku-band. To be consistent with the terminology used in the proposed revision of footnote NG55, we propose to modify this footnote to refer to ESIMs instead of ESVs, VMESs, and ESAA.

Footnote US133 of the Table of Frequency Allocations, § 2.106, contains cross-references to sub-paragraphs of §§ 25.226 and 25.227, which we propose to eliminate. We propose to update those cross-references to point to the appropriate sub-paragraphs of proposed § 25.228.

Initial Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act (RFA), the Commission has prepared this 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 document. We request written public comments on this IRFA. Commenters must identify their comments as responses to the IRFA and must file the comments by the deadlines for comments on the proposed rule provided above in Section V.D. The Commission will send a copy of the proposed rule, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration. In addition, the proposed rule and IRFA (or summaries thereof) will be published in the **Federal Register**.

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

The Notice of Proposed Rulemaking seeks comment on a variety of proposals relating to part 25 of the Commission's rules, which governs licensing and operation of space stations and earth stations for the provision of satellite communication services. Adoption of the proposed changes would, among other things, provide additional operational flexibility to applicants for Earth Stations on Vessels, Vehicle-Mounted Earth Stations, and Earth Stations Aboard Aircraft, collectively referred to as Earth Stations in Motion (ESIMs), simplify requirements for applications for routine licensing of ESIMs, expand the availability of routine licensing of ESIMs to include the 18.3–18.8 GHz, 19.7–20.2 GHz, 28.35–28.6 GHz, and 29.25–30 GHz frequency bands, and consolidate and harmonize the application, technical, and operational rules for ESIMs. The NPRM proposes several changes to part 25 of the rules. Specifically, it proposes to:

(1) Expand the frequency bands for which routine licensing of ESIMs is available to include the 18.3–18.8 GHz, 19.7–20.2 GHz, 28.35–28.6 GHz, and 29.25–30 GHz frequency bands,

(2) Eliminate the antenna pointing accuracy requirement for ESIMs,

(3) Allow ESIM applicants to certify compliance with the antenna gain pattern masks in § 25.209 and the antenna input power density limits in § 25.212 in lieu of providing off-axis e.i.r.p. data,

(4) Consolidate the technical and operational rules for all types of ESIMs, currently spread over four rule sections, into one rule section,

(5) Consolidate the application rules for all types of ESIMs, currently spread over four rule sections, into § 25.115, the general earth station application rule section,

(6) Cross-reference certain rules governing the application, technical, or operating requirements for all GSO FSS earth stations instead of duplicating those provisions in the rules pertaining specifically to ESIMs,

(7) Clarify the requirements for blanket-licensed earth station licensees to be responsible for the operation of all earth stations operating under their licenses,

(8) Update and improve definitions.

B. Legal Basis

The proposed action is authorized under sections 4(i), 7(a), 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 157(a), 303(c), 303(f), 303(g), and 303(r).

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules May Apply

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).

Satellite Telecommunications. This category comprises firms ''primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite telecommunications.'' The category has a small business size standard of $32.5 million or less in average annual receipts, under SBA rules. For this category, Census Bureau data for 2012 show that there were a total of 333 firms that operated for the entire year. Of this total, 299 firms had annual receipts of less than $25 million. Consequently, we estimate that the majority of satellite telecommunications providers are small entities.

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

The NPRM proposes a number of rule changes that will affect reporting, recordkeeping and other compliance requirements for earth station operators. Most proposed changes, as described below, would decrease the burden for all businesses operators, especially firms that hold licenses to operate earth stations.

The NPRM seeks comment on revisions to simplify information collections in applications for Earth Stations on Vessels, Vehicle-Mounted Earth Stations, and Earth Stations Aboard Aircraft, collectively known as Earth Stations in Motion (ESIMs). For example, the NPRM proposes eliminating the antenna pointing accuracy requirement and associated demonstrations that are currently required in all ESIM applications. The NPRM also seeks comment on extending eligibility for routine processing to applications for ESIMs operating in the 18.3–18.8 GHz, 19.7–20.2 GHz, 28.35–28.6 GHz, and 29.25–30 GHz frequency bands. In addition, the NPRM proposes to consolidate the technical and operational rules for ESIMs into a single rule section to reduce repetition of provisions across multiple rule sections, and to consolidate the application rules for ESIMs into the general earth station application rule section of part 25.

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

The RFA requires an agency to describe any significant, specifically

small business, 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 and reporting requirements under the rules for such 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 such small entities.''

The NPRM seeks comment from all interested parties on revisions to simplify information collections in applications for ESIMs. In this NPRM, the Commission considers rule revisions to reflect changes and advances in the satellite industry. The NPRM proposes to eliminate unnecessary technical and information filing requirements, and reorganize and simplify existing requirements. All of these proposals could lessen the burden of compliance on small entities with more limited resources than larger entities.

The Commission is aware that some of the proposals under consideration may impact small entities. Small entities are encouraged to bring to the Commission's attention any specific concerns they may have with the proposals outlined in the document. The Commission expects to consider the economic impact on small entities, as identified in comments filed in response to the proposed rule, in reaching its final conclusions and taking action in this proceeding.

The proposed changes for earth station licensing would clarify requirements for routine licensing and expand applicability of routine licensing standards. Each of these changes could lessen the burden in the licensing process. Specifically, this NPRM proposes revisions to provide alternatives for filing requirements, reduce filing requirements and clarify ESIM license application requirements in such a way that applicant burden should be reduced. Thus, the Commission anticipates that the proposed revisions would ultimately lead to benefits for small earth station operators in the long-term.

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

None.

List of Subjects

47 CFR Part 2

Radio, Table of frequency allocations.

47 CFR Part 25

Administrative practice and procedure, Earth stations, Satellites.

Federal Communications Commission.

Marlene H Dortch,

Secretary.

Proposed Rules

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR parts 2 and 25 as follows:

PART 2—FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

■ 1. The authority citation for part 2 continues to read as follows:

Authority: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

■ 2. Section 2.106, the Table of Frequency Allocations, is amended as follows:

■ a. Pages 52 and 55 are revised.

■ b. In the list of International Footnotes, footnotes 5.484B and 5.527A are added.

■ c. In the list of United States (US) Footnotes, footnote US133 is revised.

■ d. In the list of non-Federal Government (NG) Footnotes, footnotes NG52, NG55, and NG180 are revised.

§ 2.106 Table of Frequency Allocations.

The revisions and additions read as follows:

* * * * *

	17.8-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE 5.519		17.8-18.3 FIXED-SATELLITE (space-to-Earth) US334 G117 US519	17.8-18.3 FIXED US334 US519	TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
18.1-18.4 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B (Earth-to-space) 5.520 MOBILE 5.519 5.521			18.3-18.6 FIXED-SATELLITE (space-to-Earth) US334 G117	18.3-18.6 FIXED-SATELLITE (space-to-Earth) NG164 NG55	Satellite Communications (25)
18.4-18.6 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE			US139	US139 US334	
18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A 5.522C	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.522B MOBILE except aeronautical mobile SPACE RESEARCH (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) US255 US334 G117 SPACE RESEARCH (passive) US139 US254	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) US255 NG164 NG55 SPACE RESEARCH (passive) US139 US254 US334	
18.8-19.3 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.523A MOBILE			18.8-20.2 FIXED-SATELLITE (space-to-Earth) US334 G117	18.8-19.3 FIXED-SATELLITE (space-to-Earth) NG165 US139 US334	
19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B 5.523C 5.523D 5.523E MOBILE				19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) NG166 US334	Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A Mobile-satellite (space-to-Earth) 5.524	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 5.529	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A Mobile-satellite (space-to-Earth) 5.524		19.7-20.2 FIXED-SATELLITE (space-to-Earth) NG55 MOBILE-SATELLITE (space-to-Earth)	Satellite Communications (25)
20.1-20.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528			US139	5.525 5.526 5.527 5.528 5.529 US334	
20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) 5.524			20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) G117	20.2-21.2 Standard frequency and time signal-satellite (space-to-Earth)	

Table of Frequency Allocations	27-34.7 GHz (SHF/EHF)				Page 55
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE		27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 Inter-satellite 5.536	RF Devices (15)
27.5-28.5 FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540			27.5-30	27.5-29.5 FIXED FIXED-SATELLITE (Earth-to-space) NG55 MOBILE	RF Devices (15) Satellite Communications (25) Upper Microwave Flexible Use (30) Fixed Microwave (101)
28.5-29.1 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540					
29.1-29.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540					
29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 .525 5.526 5.527 5.529 5.5405	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542		29.5-30 FIXED-SATELLITE (Earth-to-space) NG55 MOBILE-SATELLITE (Earth-to-space) 5.525 5.526 5.527 5.529 5.543	Satellite Communications (25)
29.9-30 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542					
30-31 FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) 5.542			30-31 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) G117	30-31 Standard frequency and time signal-satellite (space-to-Earth)	

International Footnotes

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5.484B Resolution 155 (WRC–15) shall apply. (WRC–15)

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5.527A The operation of earth stations in motion communicating with the FSS is subject to Resolution 156 (WRC–15). (WRC–15)

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United States (U.S.) Footnotes

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US133 In the bands 14–14.2 GHz and 14.47–14.5 GHz, the following provisions shall apply to the operations of Earth Stations Aboard Aircraft (ESAA):

(a) In the band 14–14.2 GHz, ESAA licensees proposing to operate within radio line-of-sight of the coordinates specified in 47 CFR 25.228(j)(1) are subject to prior coordination with NTIA in order to minimize harmful interference to the ground terminals of NASA's Tracking and Data Relay Satellite System (TDRSS).

(b) In the band 14.47–14.5 GHz, operations within radio line-of-sight of the radio astronomy stations specified in 47 CFR 25.228(j)(3) are subject to coordination with the National Science Foundation in accordance with 47 CFR 25.228(j)(3).

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Non-Federal Government (NG) Footnotes

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NG52 Except as otherwise provided for herein, use of the bands 10.7–11.7 GHz (space-to-Earth) and 12.75–13.25 GHz (Earth-to-space) by geostationary satellites in the fixed-satellite service (FSS) shall be limited to international systems, *i.e.,* other than domestic systems. In the sub-bands 10.95–11.2 GHz and 11.45–11.7 GHz, Earth Stations in Motion (ESIMs), as regulated under 47 CFR part 25, may be authorized for the reception of FSS emissions from geostationary satellites, subject to the condition that these earth stations shall not claim protection from transmissions of non-Federal stations in the fixed service.

* * * * *

NG55 In the bands 11.7–12.2 GHz (space-to-Earth), 14.0–14.5 GHz (Earth-to-space), 18.3–18.8 GHz (space-to-Earth), 19.7–20.2 GHz (space-to-Earth), 28.35–28.6 GHz (Earth-to-space), and 29.25–30.0 GHz (Earth-to-space), Earth Stations in Motion (ESIMs), as regulated under 47 CFR part 25, are applications of the fixed-satellite service and may be authorized to communicate with geostationary satellites in the fixed-satellite service on a primary basis.

* * * * *

NG180 In the band 3700–4200 MHz (space-to-Earth) earth stations on vessels (ESVs) may be authorized to communicate with space stations of the fixed-satellite service and, while docked, may be coordinated for up to 180 days, renewable. ESVs in motion have the same status as other operations in the FSS, but must operate on a secondary basis with respect to non-Federal stations in the fixed service.

* * * * *

■ 3. Amend § 25.103 by revising the definitions of ''Blanket license,'' and ''Earth Stations Aboard Aircraft *(ESAA),*'' adding in alphabetical order the definitions of ''Earth Stations in Motion (ESIMs)'' and ''Network Control and Monitoring Center *(NCMC),*'' and revising the definitions of ''Routine processing or licensing,'' ''Two-degree compliant space station,'' and ''Vehicle-Mounted Earth Station'' to read as follows:

§ 25.103 Definitions.

* * * * *

Blanket license. A license for:

(1) Multiple earth stations in the FSS or MSS, or for SDARS terrestrial repeaters, that may be operated anywhere within a geographic area specified in the license; or

(2) For multiple space stations in non-geostationary-orbit.

* * * * *

Earth Station Aboard Aircraft (ESAA). An earth station operating aboard an aircraft that receives from and transmits to geostationary-orbit Fixed-Satellite Service space stations.

* * * * *

Earth Station in Motion (ESIM). A term that collectively designates ESV, VMES and ESAA earth stations, as defined in this section.

* * * * *

Network Control and Monitoring Center (NCMC). An NCMC, as used in Part 25, is a facility that has the capability to remotely control earth stations operating as part of a satellite network or system.

* * * * *

Routine processing or licensing. Expedited processing of unopposed applications for earth stations in the FSS communicating with GSO space stations that satisfy the criteria in § 25.211(d), § 25.212(c), § 25.212(d), § 25.212(e), § 25.212(f), § 25.218, or § 25.223(b), include all required information, are consistent with all Commission rules, and do not raise any policy issues. Some, but not all, routine earth station applications are eligible for an autogrant procedure under § 25.115(a)(3).

* * * * *

Two-degree-compliant space station. A GSO FSS space station operating in the conventional or extended C-bands, the conventional or extended Ku-bands, or the conventional Ka-band within the limits on downlink e.i.r.p. density or PFD specified in § 25.140(a)(3) and communicating only with earth stations operating in conformance with routine uplink parameters specified in § 25.211(d), § 25.212(c), (d), (e), or (f), or § 25.218.

Vehicle-Mounted Earth Station (VMES). An earth station, operating from a motorized vehicle that travels primarily on land, that receives from and transmits to geostationary orbit Fixed-Satellite Service space stations and operates within the United States.

■ 4. Amend § 25.115 by:

■ a. Revising paragraphs (a)(1) and (a)(2)(iii);

■ b. Removing and reserving paragraph (a)(4);

■ c. Adding paragraphs (a)(5) through (10);

■ d. Revising paragraph (b);

■ e. Revising paragraphs (c)(1) introductory text, (c)(1)(i)(A), (c)(3)(i)(B), (c)(3)(ii), (e), (g)(1)(vii), and (k)(1) and (2); and

■ f. Adding paragraphs (l), (m), and (n).

The revisions and additions read as follows:

§ 25.115 Applications for earth station authorizations.

(a)(1) *Transmitting earth stations.* Commission authorization must be obtained for authority to operate a transmitting earth station. Applications for transmitting earth stations must be filed electronically through the International Bureau Filing System (IBFS) in accordance with the applicable provisions of part 1, subpart Y of this chapter. Applications must be filed electronically on FCC Form 312, Main Form and Schedule B, and include the information specified in this section, except as set forth in paragraph (a)(2) of this section.

(2) * * *

(iii) The application meets all relevant criteria in §§ 25.211 or 25.212 or includes information filed pursuant to paragraph (g)(1) of this section indicating that off-axis e.i.r.p. density from the proposed earth stations will not exceed relevant levels specified in § 25.218; and

* * * * *

(5) Applicants that are not permitted to submit applications under paragraph (a)(2) of this section on Form 312EZ,

must submit, as an attachment to their application, the following information to be used as an ''informative'' in the public notice issued under § 25.151:

(i) A detailed description of the service to be provided, including frequency bands and satellites to be used. The applicant must identify either the specific satellite(s) with which it plans to operate, or the eastern and western boundaries of the arc it plans to coordinate.

(ii) The diameter or equivalent diameter of the antenna.

(iii) Proposed power and power density levels.

(iv) Identification of any random access technique, if applicable.

(v) Identification of a specific rule or rules for which a waiver is requested.

(6) A frequency coordination analysis in accordance with § 25.203 (b) must be provided for earth stations transmitting in the frequency bands shared with equal rights between terrestrial and space services, except applications for user transceiver units associated with the NVNG MSS, which must instead provide the information required by § 25.135, and applications for 1.6/2.4 GHz MSS user transceivers, which must demonstrate that the transceivers will operate in compliance with relevant requirements in § 25.213. Also, applications for transmitting earth stations must include any notification or demonstration required by any other relevant provision in § 25.203.

(7) In those cases where an applicant is filing a number of essentially similar applications, showings of a general nature applicable to all of the proposed stations may be submitted in the initial application and incorporated by reference in subsequent applications.

(8) Transmissions of signals or programming to non-U.S. licensed satellites, and to and/or from foreign points by means of U.S.-licensed fixed satellites may be subject to restrictions as a result of international agreements or treaties. The Commission will maintain public information on the status of any such agreements.

(9) Applicants seeking to operate in a shared government/non-government band must provide the half-power beam width of their proposed earth station antenna, as an attachment to their applications.

(10) Parties may apply, either in an initial application or an application for modification of license, for operating authority for multiple transmitting FSS earth stations that are not eligible for blanket or network licensing under another section of this part in the following circumstances:

(i) The antennas would transmit in frequency bands shared with terrestrial services on a co-primary basis and the antennas would be sited within an area bounded by 1 second of latitude and 1 second of longitude.

(ii) The antennas would transmit in frequency bands allocated to FSS on a primary basis and there is no co-primary allocation for terrestrial services, and the antennas would be sited within an area bounded by 10 seconds of latitude and 10 seconds of longitude.

Note To Paragraph (a)(10): This paragraph does not apply to applications for blanket-licensed earth station networks filed pursuant to paragraph (c) of this section or § 25.218; applications for conventional Ka-band hub stations filed pursuant to paragraph (e) of this section; applications for NGSO FSS gateway earth stations filed pursuant to paragraph (f) of this section; applications for ESIMs filed pursuant to paragraphs (l) through (n) of this section; or applications for 29 GHz NGSO MSS feeder-link stations in a complex as defined in § 25.257.

(b) *Receive-only earth stations.* Except as provided in paragraphs (b)(1) and (8) of this section, applications for licenses for receive-only earth stations must be submitted on FCC Form 312, Main Form and Schedule B, accompanied by any required exhibits and the information described in paragraphs (a)(5)(i) through (v) of this section. Such applications must be filed electronically through the International Bureau Filing System (IBFS) in accordance with the applicable provisions of part 1, subpart Y of this chapter.

(1) Receive-only earth stations in the FSS that operate with U.S.-licensed space stations, or with non-U.S.-licensed space stations that have been duly approved for U.S. market access, may be registered with the Commission in order to protect them from interference from terrestrial microwave stations in bands shared co-equally with the Fixed Service in accordance with the procedures of §§ 25.203 and 25.251, subject to the stricture in § 25.209(c).

(2) Licensing or registration of receive-only earth stations with the Commission confers no authority to receive and use signals or programming received from satellites. *See* section 705 of the Communications Act. 47 U.S.C. 605.

(3) Applications for registration must be accompanied by the coordination exhibit required by § 25.203 and any other required exhibits.

(4) Complete applications for registration will be placed on public notice for 30 days and automatically granted if no objection is submitted to the Commission and served on the applicant. Additional pleadings are authorized in accordance with § 1.45 of this chapter.

(5) The registration of a receive-only earth station results in the listing of an authorized frequency band at the location specified in the registration. Interference protection levels are those agreed to during coordination.

(6) Reception of signals or programming from non-U.S. satellites may be subject to restrictions as a result of international agreements or treaties. The Commission will maintain public information on the status of any such agreements.

(7) Registration term: Registrations for receive-only earth stations governed by this section will be issued for a period of 15 years from the date on which the application was filed. Applications for renewals of registrations must be submitted on FCC Form 312R (Application for Renewal of Radio Station License in Specified Services) no earlier than 90 days and no later than 30 days before the expiration date of the registration.

(8) Applications for modification of license or registration of receive-only earth stations must be made in conformance with §§ 25.117 and 25.118. In addition, registrants are required to notify the Commission when a receive-only earth station is no longer operational or when it has not been used to provide any service during any 6-month period.

(9)(i) Except as set forth in paragraph (9)(ii) of this section, receive-only earth stations operating with non-U.S. licensed space stations must file an FCC Form 312 requesting a license or modification to operate such station.

(ii) Operators of receive-only earth stations need not apply for a license to receive transmissions from non-U.S.-licensed space stations that have been duly approved for U.S. market access, provided the space station operator and earth station operator comply with all applicable rules in this chapter and with applicable conditions in the Permitted Space Station List or market-access grant.

(c) * * *

(1) *Networks of earth stations operating in the 11.7–12.2 GHz and 14.0–14.5 GHz bands with U.S.-licensed or non-U.S.-licensed space stations.* Applications to license networks of earth stations operating in any portion of the 11.7–12.2 GHz and 14.0–14.5 GHz bands under blanket operating authority may be filed on FCC Form 312 or Form 312EZ, with a Schedule B for each large (5 meters or larger) hub station antenna and each representative type of small antenna (less than 5 meters) operating within the network.

(i) * * *

(A) No more than three geostationary satellites to be accessed;

* * * * *

(3) * * *

(i) * * *

(B) The application includes information filed pursuant to paragraph (g)(1) of this section indicating that off-axis e.i.r.p. density from the proposed earth stations will not exceed relevant routine levels specified in § 25.218(i).

(ii) Applications to license networks of earth stations operating in the 28.35–28.6 GHz and/or 29.25–30.0 GHz bands under blanket operating authority that do not meet the requirements of §§ 25.212(e) or 25.218(i) must comply with the requirements in § 25.220 and must be filed on FCC Form 312 with a Schedule B for each large (5 meters or larger) hub station antenna and each representative type of small antenna (less than 5 meters) operating within the network.

* * * * *

(e) License applications for earth station operation in any portion of the 18.3–20.2 GHz and 28.35–30.0 GHz bands not filed on FCC Form 312EZ pursuant to paragraph (a)(2) of this section must be filed on FCC Form 312, Main Form and Schedule B, and must include any information required by paragraphs (a)(5)–(10), (g), or (j) of this section. An applicant may request authority for operation of GSO FSS earth stations in the conventional Ka-band, or for operation of NGSO FSS earth stations in the 18.8–19.3 GHz (space-to-Earth) and 28.6–29.1 (Earth-to-space) bands, without specifying the location of user terminals but must specify the geographic area(s) in which they will operate and the location of hub and/or gateway stations.

* * * * *

(g) * * *

(1) * * *

(vii) The relevant off-axis e.i.r.p. density envelopes in § 25.218 or § 25.223 must be superimposed on plots submitted pursuant to paragraphs (g)(1)(i) through (vi) of this section.

* * * * *

(k)(1) Applicants for FSS earth stations that qualify for routine processing in the conventional or extended C-bands, the conventional or extended Ku-bands, the conventional Ka-band, or the 24.75–25.25 GHz band, including ESV applications filed pursuant to paragraph (m)(1) or (n)(1) of this section, VMES applications filed pursuant to paragraph (m)(1) or (n)(1) of this section, and ESAA applications filed pursuant to paragraph (m)(1) or (n)(1) of this section, may designate the Permitted Space Station List as a point of communication. Once such an application is granted, the earth station operator may communicate with any space station on the Permitted Space Station List, provided that the operation is consistent with the technical parameters and conditions in the earth station license and any limitations placed on the space station authorization or noted in the Permitted Space Station List.

(2) Notwithstanding paragraph (k)(1) of this section, an earth station that would receive signals in the 17.8–20.2 GHz band may not communicate with a space station on the Permitted Space Station List in that band until the space station operator has completed coordination under Footnote US334 to § 2.106 of this chapter.

(l) The requirements of this paragraph apply to applications for ESV operation in the 5925–6425 MHz (Earth-to-space) band with GSO satellites in the Fixed-Satellite Service, in addition to the requirements in paragraphs (a)(1), (a)(5), (a)(6), and (i) of this section:

(1) Applications where any necessary frequency coordination has been satisfactorily completed, and the proposed earth station transmissions comport with the applicable provisions in § 25.212(d) or the applicable off-axis e.i.r.p. density limits in § 25.218(d) will be routinely processed. Such applications must include the relevant information specified by paragraph (g) of this section. Applicants for ESIMs operating in a network using variable power density control of earth stations transmitting simultaneously in shared frequencies to the same target satellite receiving beam must also provide the certification required by section 25.212(g) or 25.218(d)(4), whichever is applicable.

(2) Applications where the proposed earth station transmissions do not comport with the applicable provisions in § 25.212(d) or the applicable off-axis e.i.r.p. density limits in § 25.218(d) must include the information specified by paragraph (g)(1) of this section, and are subject to the requirements of § 25.220.

(3) Applications must include the following information:

(i) A demonstration that the ESV system is capable of detecting and automatically ceasing emissions within 100 milliseconds when the transmitter exceeds the off-axis EIRP spectral-density limits specified in § 25.218(d), or the limits provided to the target satellite operator for operation under § 25.220. ESV applicants must provide a detailed showing that an individual ESV terminal is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESV transmitter exceeds the relevant off-axis e.i.r.p. spectral-density limits. Variable-power ESV applicants must provide a detailed showing that one or more transmitters are capable of automatically ceasing or reducing emissions within 100 milliseconds of receiving a command to do so from the system's network control and monitoring center, if the aggregate off-axis e.i.r.p. spectral-densities of the transmitter or transmitters exceed the relevant off-axis e.i.r.p. spectral-density limits.

(ii) An exhibit describing the geographic area(s) in which the ESVs will operate.

(iii) The point of contact information referred to in § 25.228(e)(2).

(iv) Applicants for ESVs that will exceed the guidelines in § 1.1310 of this chapter for radio frequency radiation exposure must provide, with their environmental assessment, a plan for mitigation of radiation exposure to the extent required to meet those guidelines.

(m) The requirements of this paragraph apply to applications for ESIM operation in the 14.0–14.5 GHz (Earth-to-space) band with GSO satellites in the Fixed-Satellite Service, in addition to the requirements in paragraphs (a)(1), (a)(5), and (i) of this section:

(1) Applications where any necessary frequency coordination has been satisfactorily completed, and the proposed earth station transmissions comport with the applicable provisions in § 25.212(d) or the applicable off-axis e.i.r.p. density limits in § 25.218(f) will be routinely processed. Such applications must include the relevant information specified by paragraph (g) of this section. Applicants for ESIMs operating in a network using variable power density control of earth stations transmitting simultaneously in shared frequencies to the same target satellite receiving beam must also provide the certification required by section 25.212(g) or section 25.218(f)(4), whichever is applicable.

(2) Applications where the proposed earth station transmissions do not comport with the applicable provisions in § 25.212(d) or the applicable off-axis e.i.r.p. density limits in § 25.218(f) must include the information specified by paragraph (g)(1) of this section, and are subject to the requirements of § 25.220.

(3) Applications must include the following information:

(i) A demonstration that the ESIM system is capable of detecting and automatically ceasing emissions within 100 milliseconds when the transmitter

exceeds the off-axis e.i.r.p. spectral-density limits specified in § 25.218(f), or the limits provided to the target satellite operator for operation under § 25.220. ESIM applicants must provide a detailed showing that an individual ESIM terminal is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESIM transmitter exceeds the relevant off-axis e.i.r.p. spectral-density limits. Variable-power ESIM applicants must provide a detailed showing that one or more transmitters are capable of automatically ceasing or reducing emissions within 100 milliseconds of receiving a command to do so from the system's network control and monitoring center, if the aggregate off-axis e.i.r.p. spectral-densities of the transmitter or transmitters exceed the relevant off-axis e.i.r.p. spectral-density limits.

(ii) An exhibit describing the geographic area(s) in which the ESIMs will operate.

(iii) The point of contact information referred to in § 25.228(e)(2), (f), or (g)(1) as appropriate.

(iv) Applicants for ESIMs that will exceed the guidelines in § 1.1310 of this chapter for radio frequency radiation exposure must provide, with their environmental assessment, a plan for mitigation of radiation exposure to the extent required to meet those guidelines.

(n) The requirements of this paragraph apply to applications for ESIM operation in the 28.35–28.6 GHz or 29.25–30.0 GHz (Earth-to-space) band with GSO satellites in the Fixed-Satellite Service, in addition to the requirements in paragraphs (a)(1), (a)(5), and (i) of this section:

(1) Applications where any necessary frequency coordination has been satisfactorily completed, and the proposed earth station transmissions comport with the applicable provisions in § 25.212(e) or the applicable off-axis e.i.r.p. density limits in § 25.218(i) will be routinely processed. Such applications must include the relevant information specified by paragraph (g) of this section. Applicants for ESIMs operating in a network using variable power density control of earth stations transmitting simultaneously in shared frequencies to the same target satellite receiving beam must also provide the certification required by section 25.212(g) or section 25.218(i)(5), whichever is applicable.

(2) Applications where the proposed earth station transmissions do not comport with the applicable provisions in § 25.212(e) or the applicable off-axis e.i.r.p. density limits in § 25.218(i) must include the information specified by paragraph (g)(1) of this section, and are subject to the requirements of § 25.220.

(3) Applications must include the following information:

(i) A demonstration that the ESIM system is capable of detecting and automatically ceasing emissions within 100 milliseconds when the transmitter exceeds the off-axis e.i.r.p. spectral-density limits specified in § 25.218(i), or the limits provided to the target satellite operator for operation under § 25.220. ESIM applicants must provide a detailed showing that an individual ESIM terminal is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESIM transmitter exceeds the relevant off-axis e.i.r.p. spectral-density limits. Variable-power ESIM applicants must provide a detailed showing that one or more transmitters are capable of automatically ceasing or reducing emissions within 100 milliseconds of receiving a command to do so from the system's network control and monitoring center, if the aggregate off-axis e.i.r.p. spectral-densities of the transmitter or transmitters exceed the relevant off-axis e.i.r.p. spectral-density limits.

(ii) An exhibit describing the geographic area(s) in which the ESIM s will operate.

(iii) The point of contact information referred to in § 25.228(e)(2), (f), or (g)(1) as appropriate.

(iv) Applicants for ESIMs that will exceed the guidelines in § 1.1310 of this chapter for radio frequency radiation exposure must provide, with their environmental assessment, a plan for mitigation of radiation exposure to the extent required to meet those guidelines.

§ 25.130 [Removed and Reserved]

■ 5. Remove and reserve § 25.130.

§ 25.131 [Removed and Reserved]

■ 6. Remove and reserve § 25.131.

■ 7. Amend § 25.132 by revising paragraph (d) to read as follows:

§ 25.132 Verification of earth station antenna performance.

* * * * *

(d) For each new or modified transmitting antenna over 3 meters in diameter, the following on-site verification measurements must be completed at one frequency on an available transponder in each frequency band of interest and submitted to the Commission.

* * * * *

■ 8. Amend § 25.133 by revising paragraph (d) to read as follows:

§ 25.133 Period of construction; certification of commencement of operation.

* * * * *

(d) Each receiving earth station licensed or registered pursuant to § 25.115(b) must be constructed and placed into service within 6 months after coordination has been completed. Each licensee or registrant must file with the Commission a certification that the facility is completed and operating as provided in paragraph (b) of this section, with the exception of certification of antenna patterns.

§ 25.138 [Removed and Reserved]

■ 9. Remove and reserve § 25.138.

■ 10. Amend § 25.140 by revising paragraphs (a)(3)(iii) and (d)(1) to read as follows:

§ 25.140 Further requirements for license applications for GSO space station operation in the FSS and the 17/24 GHz BSS.

(a) * * *

(3) * * *

(iii) With respect to proposed operation in the conventional Ka-band, a certification that the proposed space station will not generate power flux-density at the Earth's surface in excess of −118 dBW/m^2/MHz and that associated uplink operation will not exceed applicable e.i.r.p. density envelopes in § 25.218(i) unless the non-routine uplink and/or downlink operation is coordinated with operators of authorized co-frequency space stations at assigned locations within six degrees of the orbital location and except as provided in paragraph (d) of this section.

* * * * *

(d) * * *

(1) The letter notification must include the downlink off-axis e.i.r.p. density levels or power flux density levels and/or uplink off-axis e.i.r.p. density levels, specified per frequency range and space station antenna beam, that exceed the relevant routine limits set forth in paragraphs (a)(3)(i) through (iii) of this section and § 25.218.

* * * * *

■ 11. Amend § 25.202 by revising paragraphs (a)(8), (10), and (11) to read as follows:

§ 25.202 Frequencies, frequency tolerance, and emission limits.

(a) * * *

(8) The following frequencies are available for use by ESVs:

3700–4200 MHz (space-to-Earth)
5925–6425 MHz (Earth-to-space)
10.95–11.2 GHz (space-to-Earth)
11.45–11.7 GHz (space-to-Earth)

11.7–12.2 GHz (space-to-Earth)
14.0–14.5 GHz (Earth-to-space)
18.3–18.8 GHz (space-to-Earth)
19.7–20.2 GHz (space-to-Earth)
28.35–28.6 GHz (Earth-to-space)
29.25–30.0 GHz (Earth-to-space)

* * * * *

(10) The following frequencies are available for use by Vehicle-Mounted Earth Stations (VMESs):

10.95–11.2 GHz (space-to-Earth)
11.45–11.7 GHz (space-to-Earth)
11.7–12.2 GHz (space-to-Earth)
14.0–14.5 GHz (Earth-to-space)
18.3–18.8 GHz (space-to-Earth)
19.7–20.2 GHz (space-to-Earth)
28.35–28.6 GHz (Earth-to-space)
29.25–30.0 GHz (Earth-to-space)

(11) The following frequencies are available for use by Earth Stations Aboard Aircraft (ESAAs):

10.95–11.2 GHz (space-to-Earth)
11.45–11.7 GHz (space-to-Earth)
11.7–12.2 GHz (space-to-Earth)
14.0–14.5 GHz (Earth-to-space)
18.3–18.8 GHz (space-to-Earth)
19.7–20.2 GHz (space-to-Earth)
28.35–28.6 GHz (Earth-to-space)
29.25–30.0 GHz (Earth-to-space)

* * * * *

■ 12. Amend § 25.204 by revising paragraph (e)(3) and removing paragraphs (h) through (k).

The revision reads as follows:

§ 25.204 Power limits for earth stations.

* * * * *

(e) * * *

(3) FSS earth stations transmitting to geostationary space stations in the 28.35–28.6 GHz and/or 29.25–30.0 GHz bands may employ uplink adaptive power control or other methods of fade compensation. For stations employing uplink power control, the values in paragraphs (i)(1), (i)(2), and (i)(4) of § 25.218 may be exceeded by up to 20 dB under conditions of uplink fading due to precipitation. The amount of such increase in excess of the actual amount of monitored excess attenuation over clear sky propagation conditions must not exceed 1.5 dB or 15 percent of the actual amount of monitored excess attenuation in dB, whichever is larger, with a confidence level of 90 percent except over transient periods accounting for no more than 0.5 percent of the time during which the excess is no more than 4.0 dB.

* * * * *

■ 13. Amend § 25.209 by revising paragraphs (c)(1) and (f) to read as follows:

§ 25.209 Earth station antenna performance standards.

* * * * *

(c)(1) An earth station licensed for operation with a GSO FSS space station or registered for reception of transmissions from such a space station pursuant to §§ 25.115(b)(1) and (3) is not entitled to protection from interference from authorized operation of other stations that would not cause harmful interference to that earth station if it were using an antenna with receive-band gain patterns conforming to the levels specified in paragraphs (a) and (b) of this section.

* * * * *

(f) A GSO FSS earth station with an antenna that does not conform to the applicable standards in paragraphs (a) and (b) of this section will be authorized only if the applicant demonstrates that the antenna will not cause unacceptable interference. This demonstration must show that the transmissions of the earth station comport with the requirements in § 25.218 or § 25.223, or the applicant must demonstrate that the operations of the earth station have been coordinated under § 25.220.

■ 14. Amend § 25.212 by revising paragraphs (c), (d), (g), and (h) to read as follows:

§ 25.212 Narrowband analog transmissions and digital transmissions in the GSO Fixed Satellite Service.

* * * * *

(c)(1) An earth station, other than an ESIM, may be routinely licensed for analog transmissions in the conventional Ku-band or the extended Ku-band with bandwidths up to 200 kHz (or up to 1 MHz for command carriers at the band edge) if the input power spectral density into the antenna will not exceed −8 dBW/4 kHz, and the application includes certification pursuant to § 25.132(a)(1) of conformance with the antenna gain performance requirements in § 25.209(a) and (b).

(2) An earth station may be routinely licensed for digital transmission, including digital video transmission, in the conventional Ku-band, or, except for an ESIM, in the extended Ku-band, if input power spectral density into the antenna will not exceed −14 dBW/4 kHz and the application includes certification pursuant to § 25.132(a)(1) of conformance with the antenna gain performance requirements in § 25.209(a) and (b).

(d) An individual earth station may be routinely licensed for digital transmission in the conventional C-band or, except for an ESIM, in the extended C-band, if the applicant certifies conformance with relevant antenna performance standards in § 25.209(a) and (b), and power density into the antenna will not exceed −2.7 dBW/4 kHz. An individual earth station, other than an ESIM, may be routinely licensed for analog transmission with carrier bandwidths up to 200 kHz (or up to 1 MHz for command carriers at the band edge) in the conventional C-band or the extended C-band, if the applicant certifies conformance with relevant antenna performance standards in § 25.209(a) and (b), and power density into the antenna will not exceed +0.5 dBW/4 kHz.

* * * * *

(g) A license application for earth station operation in a network using variable power density control of earth stations transmitting simultaneously in shared frequencies to the same target satellite receiving beam may be routinely processed if the applicant certifies that the aggregate off-axis EIRP density from all co-frequency earth stations transmitting simultaneously to the same target satellite receiving beam, not resulting from colliding data bursts transmitted pursuant to a contention protocol, will not exceed the applicable off-axis EIRP density limits permissible for a single earth station, as specified in § 25.218.

(h) Applications for authority for fixed earth station operation in the conventional C-band, the extended C-band, the conventional Ku-band, the extended Ku-band or the conventional Ka-band that do not qualify for routine processing under relevant criteria in this section, § 25.211, or § 25.218 are subject to the requirements in § 25.220.

■ 15. Amend § 25.218 by revising paragraphs (a), (b) introductory text, and (i), and adding paragraph (j) to read as follows:

§ 25.218 Off-axis e.i.r.p. density envelopes for FSS earth stations transmitting in certain frequency bands.

(a) This section applies to applications for fixed and temporary-fixed FSS earth stations transmitting to geostationary space stations in the conventional C-band, extended C-band, conventional Ku-band, extended Ku-band, or conventional Ka-band, and applications for ESIMs transmitting in the conventional C-band, conventional Ku-band, or conventional Ka-band, except for applications proposing transmission of analog command signals at a band edge with bandwidths greater than 1 MHz or transmission of any other type of analog signal with bandwidths greater than 200 kHz.

(b) Earth station applications subject to this section may be routinely processed if they meet the applicable

off-axis e.i.r.p. density envelopes set forth in this section.

* * * * *

(i) *Digital earth station operation in the conventional Ka-band.* (1) For co-polarized transmissions in the plane tangent to the GSO arc:

32.5–25log(θ)	dBW/MHz	for	2.0° ≤ θ ≤ 7°
11.5	dBW/MHz	for	7° ≤ θ ≤ 9.2°
35.5–25log(θ)	dBW/MHz	for	9.2° ≤ θ ≤ 19.1°
3.5	dBW/MHz	for	19.1° < θ ≤ 180°

Where θ is as defined in paragraph (c)(1) of this section.

(2) For co-polarized transmissions in the plane perpendicular to the GSO arc:

35.5–25log(θ)	dBW/MHz	for	3.5° ≤ θ ≤ 7°
14.4	dBW/MHz	for	7° < θ ≤ 9.2°
38.5–25log(θ)	dBW/MHz	for	9.2° < θ ≤ 19.1°
6.5	dBW/MHz	for	19.1° < θ ≤ 180°

Where θ is as defined in paragraph (c)(1) of this section.

(3) The e.i.r.p. density levels specified in paragraphs (i)(1) and (2) of this section may be exceeded by up to 3 dB, for values of θ > 7°, over 10% of the range of theta (θ) angles from 7–180° on each side of the line from the earth station to the target satellite.

(4) For cross-polarized transmissions in the plane tangent to the GSO arc and in the plane perpendicular to the GSO arc:

22.5–25log(θ)	dBW/MHz	for	2.0° < θ ≤ 7.0°

Where θ is as defined in paragraph (c)(1) of this section.

(5) A license application for earth station operation in a network using variable power density control of earth stations transmitting simultaneously in shared frequencies to the same target satellite receiving beam may be routinely processed if the applicant certifies that the aggregate off-axis e.i.r.p. density from all co-frequency earth stations transmitting simultaneously to the same target satellite receiving beam, not resulting from colliding data bursts transmitted pursuant to a contention protocol, will not exceed the off-axis e.i.r.p. density limits permissible for a single earth station, as specified in paragraphs (i)(1) through (4) of this section.

(j) Applications for authority for fixed earth station operation in the conventional C-band, extended C-band, conventional Ku-band, extended Ku-band, or conventional Ka-band that do not qualify for routine processing under relevant criteria in this section, § 25.211, or § 25.212 are subject to the requirements in § 25.220.

■ 16. Amend § 25.220 revising paragraph (a) to read as follows:

§ 25.220 Non-conforming transmit/receive earth station operations.

(a) The requirements in this section apply to applications for, and operation of, earth stations transmitting in the conventional or extended C-bands, the conventional or extended Ku-bands, or the conventional Ka-band that do not qualify for routine licensing under relevant criteria in §§ 25.211, 25.212, or 25.218.

* * * * *

§ 25.221 [Removed]

■ 17. Remove § 25.221.

§ 25.222 [Removed]

■ 18. Remove § 25.222.

§ 25.226 [Removed]

■ 19. Remove § 25.226.

§ 25.227 [Removed]

■ 20. Remove § 25.227.

■ 21. Add § 25.228 to read as follows:

§ 25.228 Operating and coordination requirements for earth stations in motion (ESIMs).

(a) ESIM transmissions must comport with the applicable e.i.r.p. density limits in § 25.218, unless coordinated pursuant to the requirements in § 25.220.

(b) Each ESIM must be self-monitoring and, should a condition occur that would cause the ESIM to exceed its authorized off-axis e.i.r.p. density limits, the ESIM must automatically cease transmissions within 100 milliseconds, and not resume transmissions until the condition that caused the ESIM to exceed those limits is corrected.

(c) Each ESIM must be monitored and controlled by a network control and monitoring center (NCMC) or equivalent facility. Each ESIM must comply with ''disable transmission'' commands from the NCMC. In addition, the NCMC must monitor the operation of each ESIM in its network, and transmit a ''disable transmission'' command to any ESIM that operates in such a way as to exceed the authorized off-axis e.i.r.p. density limit for that ESIM or for all ESIMs that simultaneously transmit on the same frequency to the same target satellite receiving beam. The NCMC must not allow the ESIM(s) under its control to resume transmissions until the condition that caused the ESIM(s) to exceed the authorized e.i.r.p. density limits is corrected.

(d) ESIM licensees must ensure installation of ESIM terminals on vehicles by qualified installers who have an understanding of the antenna's radiation environment and the measures best suited to maximize protection of the general public and persons operating the vehicle and equipment. An ESIM terminal exhibiting radiation exposure levels exceeding 1.0 mW/cm^2 in accessible areas, such as at the exterior surface of the radome, must have a label attached to the surface of the terminal warning about the radiation hazard and must include thereon a diagram showing the regions around the terminal where the radiation levels could exceed the maximum radiation exposure limit specified in 47 CFR 1.1310 Table 1.

(e) The following requirements govern all ESV operations.

(1) ESV operators must control all ESVs by a NCMC located in the United States, except that an ESV on U.S.-

registered vessels may operate under control of a NCMC location outside the United States provided the ESV operator maintains a point of contact within the United States that will have the capability and authority to cause an ESV on a U.S.-registered vessel to cease transmitting if necessary.

(2) There must be a point of contact in the United States, with phone number and address, available 24 hours a day, seven days a week, with authority and ability to cease all emissions from the ESVs, either directly or through the facilities of a U.S. NCMC or a NCMC located in another country with which the United States has a bilateral agreement that enables such cessation of emissions.

(3) ESV NCMC operators communicating with ESVs on vessels of foreign registry must maintain detailed information on each such vessel's country of registry and a point of contact for the relevant administration responsible for licensing those ESVs.

(f) For all VMES operations, there must be a point of contact in the United States, with phone number and address, available 24 hours a day, seven days a week, with authority and ability to cease all emissions from the VMESs.

(g) The following requirements govern all ESAA operations.

(1) There must be a point of contact in the United States, with phone number and address, available 24 hours a day, seven days a week, with authority and ability to cease all emissions from the ESAAs.

(2) All ESAA terminals operated in U.S. airspace, whether on U.S.-registered civil aircraft or non-U.S.-registered civil aircraft, must be licensed by the Commission. All ESAA terminals on U.S.-registered civil aircraft operating outside of U.S. airspace must be licensed by the Commission, except as provided by section 303(t) of the Communications Act.

(3) Prior to operations within a foreign nation's airspace, the ESAA operator must ascertain whether the relevant administration has operations that could be affected by ESAA terminals, and must determine whether that administration has adopted specific requirements concerning ESAA operations. When the aircraft enters foreign airspace, the ESAA terminal must operate under the Commission's rules, or those of the foreign administration, whichever is more constraining. To the extent that all relevant administrations have identified geographic areas from which ESAA operations would not affect their radio operations, ESAA operators may operate within those identified areas without further action. To the extent that the foreign administration has not adopted requirements regarding ESAA operations, ESAA operators must coordinate their operations with any potentially affected operations.

(h) The following requirements govern all operations in the 3700–4200 MHz (space-to-Earth) and 5925–6425 MHz (Earth-to-space) frequency bands of ESVs receiving from or transmitting to GSO satellites in the Fixed-Satellite Service.

(1) ESVs must not operate in the 5925–6425 MHz (Earth-to-space) and 3700–4200 MHz (space-to-Earth) frequency bands on vessels smaller than 300 gross tons.

(2) ESV operators transmitting in the 5925–6425 MHz (Earth-to-space) frequency band to GSO satellites in the Fixed-Satellite Service (FSS) must not seek to coordinate, in any geographic location, more than 36 megahertz of uplink bandwidth on each of no more than two GSO FSS satellites.

(3) ESVs, operating while docked, for which coordination with terrestrial stations in the 3700–4200 MHz band is completed in accordance with § 25.251, will receive protection from such terrestrial stations in accordance with the coordination agreements, for 180 days, renewable for 180 days.

(4) ESVs in motion must not claim protection from harmful interference from any authorized terrestrial stations to which frequencies are already assigned, or any authorized terrestrial station to which frequencies may be assigned in the future in the 3700–4200 MHz (space-to-Earth) frequency band.

(5) ESVs operating within 200 km from the baseline of the United States, or within 200 km from a U.S.-licensed fixed service offshore installation, must complete coordination with potentially affected U.S.-licensed fixed service operators prior to operation. The coordination method and the interference criteria objective will be determined by the frequency coordinator. The details of the coordination must be maintained and available at the frequency coordinator, and must be filed with the Commission electronically via the International Bureau Filing System (*http://licensing.fcc.gov/myibfs/*) to be placed on public notice. The coordination notifications must be filed in the form of a statement referencing the relevant call signs and file numbers. Operation of each individual ESV may commence immediately after the public notice that identifies the notification sent to the Commission is released. Continuance of operation of that ESV for the duration of the coordination term must be dependent upon successful completion of the normal public notice process. If, prior to the end of the 30-day comment period of the public notice, any objections are received from U.S.-licensed Fixed Service operators that have been excluded from coordination, the ESV licensee must immediately cease operation of that particular station on frequencies used by the affected U.S.-licensed Fixed Service station until the coordination dispute is resolved and the ESV licensee informs the Commission of the resolution. As used in this section, ''baseline'' means the line from which maritime zones are measured. The baseline is a combination of the low-water line and closing lines across the mouths of inland water bodies and is defined by a series of baseline points that include islands and ''low-water elevations,'' as determined by the U.S. Department of State's Baseline Committee.

(6) An ESV must automatically cease transmission if the ESV operates in violation of the terms of its coordination agreement, including, but not limited to, conditions related to speed of the vessel or if the ESV travels outside the coordinated area, if within 200 km from the baseline of the United States, or within 200 km from a U.S.-licensed fixed service offshore installation. Transmissions may be controlled by the ESV network control and monitoring center. The frequency coordinator may decide whether ESV operators should automatically cease transmissions if the vessel falls below a prescribed speed within a prescribed geographic area.

(7) ESV transmissions in the 5925–6425 MHz (Earth-to-space) band shall not exceed an e.i.r.p. spectral density towards the radio-horizon of 17 dBW/MHz, and shall not exceed an e.i.r.p. towards the radio-horizon of 20.8 dBW. The ESV network shall shut-off the ESV transmitter if either the e.i.r.p. spectral density towards the radio-horizon or the e.i.r.p. towards the radio-horizon is exceeded.

(i) For ESAA transmissions in the 14.0–14.5 GHz band from international airspace within line-of-sight of the territory of a foreign administration where fixed service networks have primary allocation in this band, the maximum power flux density (pfd) produced at the surface of the Earth by emissions from a single aircraft carrying an ESAA terminal must not exceed the following values unless the foreign Administration has imposed other conditions for protecting its fixed service stations:

$-132 + 0.5 \cdot \theta$	dB(W/(m^2 · MHz))	For	$\theta \leq 40°$
-112	dB(W/(m^2 · MHz))	For	$40° \leq \theta \leq 90°$

Where: θ is the angle of arrival of the radio-frequency wave (degrees above the horizontal) and the aforementioned limits relate to the pfd under free-space propagation conditions.

(j) The following requirements govern all ESIMs transmitting to GSO satellites in the Fixed-Satellite Service in the 14.0–14.5 GHz band.

(1) Operations of ESIMs in the 14.0–14.2 GHz (Earth-to-space) frequency band within 125 km (for ESVs and VMESs) or within radio line of sight (for ESAAs) of the NASA TDRSS facilities on Guam (latitude 13°36′55″ N., longitude 144°51′22″ E.), White Sands, New Mexico (latitude 32°20′59″ N., longitude 106°36′31″ W. and latitude 32°32′40″ N., longitude 106°36′48″ W.), or Blossom Point, Maryland (latitude 38°25′44″ N., longitude 77°05′02″ W.) are subject to coordination with the National Aeronautics and Space Administration (NASA) through the National Telecommunications and Information Administration (NTIA) Interdepartment Radio Advisory Committee (IRAC). Licensees must notify the International Bureau once they have completed coordination. Upon receipt of such notification from a licensee, the International Bureau will issue a public notice stating that the licensee may commence operations within the coordination zone in 30 days if no party has opposed the operations. When NTIA seeks to provide similar protection to future TDRSS sites that have been coordinated through the IRAC Frequency Assignment Subcommittee process, NTIA will notify the Commission's International Bureau that the site is nearing operational status. Upon public notice from the International Bureau, all Ku-band ESIM licensees must cease operations in the 14.0–14.2 GHz band within 125 km (for ESVs and VMESs) or within radio line of sight (for ESAAs) of the new TDRSS site until the licensees complete coordination with NTIA/IRAC for the new TDRSS facility. Licensees must notify the International Bureau once they have completed coordination for the new TDRSS site. Upon receipt of such notification from a licensee, the International Bureau will issue a public notice stating that the licensee may commence operations within the coordination zone in 30 days if no party has opposed the operations. The ESIM licensee then will be permitted to commence operations in the 14.0–14.2 GHz band within 125 km (for ESVs and VMESs) or within radio line of sight (for ESAAs) of the new TDRSS site, subject to any operational constraints developed in the coordination process.

(2) Within 125 km (for ESVs and VMESs) or within radio line of sight (for ESAAs) of the NASA TDRSS facilities identified in paragraph (j)(1) of this section, ESIM transmissions in the 14.0–14.2 GHz (Earth-to-space) band shall not exceed an e.i.r.p. spectral density towards the horizon of 12.5 dBW/MHz, and shall not exceed an e.i.r.p. towards the horizon of 16.3 dBW.

(3) Operations of ESIMs in the 14.47–14.5 GHz (Earth-to-space) frequency band in the vicinity (for ESVs and VMESs) or within radio line of sight (for ESAAs) of radio astronomy service (RAS) observatories observing in the 14.47–14.5 GHz band are subject to coordination with the National Science Foundation (NSF). The appropriate NSF contact point to initiate coordination is Electromagnetic Spectrum Manager, NSF, 4201 Wilson Blvd., Suite 1045, Arlington VA 22203, fax 703–292–9034, email *esm@nsf.gov.* Licensees must notify the International Bureau once they have completed coordination. Upon receipt of the coordination agreement from a licensee, the International Bureau will issue a public notice stating that the licensee may commence operations within the coordination zone in 30 days if no party has opposed the operations. Table 1 provides a list of each applicable RAS site, its location, and the applicable coordination zone.

TABLE 1—APPLICABLE RADIO ASTRONOMY SERVICE (RAS) FACILITIES AND ASSOCIATED COORDINATION DISTANCES

Observatory	Latitude (north)	Longitude (west)	Radius (km) of coordination zone
Arecibo, Observatory, Arecibo, PR	18°20′37″	66°45′11″	Island of Puerto Rico.
Green Bank, WV	38°25′59″	79°50′23″	160.
Very Large Array, near Socorro, NM	34°04′44″	107°37′06″	160.
Pisgah Astronomical Research Institute, Rosman, NC	35°11′59″	82°52′19″	160.
U of Michigan Radio Astronomy Observatory, Stinchfield Woods, MI.	42°23′56″	83°56′11″	160.
Very Long Baseline Array (VLBA) stations:			
Owens Valley, CA	37°13′54″	118°16′37″	160. *
Mauna Kea, HI	19°48′05″	155°27′20″	50.
Brewster, WA	48°07′52″	119°41′00″	50.
Kitt Peak, AZ	31°57′23″	111°36′45″	50.
Pie Town, NM	34°18′04″	108°07′09″	50.
Los Alamos, NM	35°46′30″	106°14′44″	50.
Fort Davis, TX	30°38′06″	103°56′41″	50.
North Liberty, IA	41°46′17″	91°34′27″	50.
Hancock, NH	42°56′01″	71°59′12″	50.
St. Croix, VI	17°45′24″	64°35′01″	50.

* Owens Valley, CA operates both a VLBA station and single-dish telescopes.

When NTIA seeks to provide similar protection to future RAS sites that have been coordinated through the IRAC Frequency Assignment Subcommittee process, NTIA will notify the Commission's International Bureau that the site is nearing operational status. Upon public notice from the International Bureau, all Ku-band ESIMs licensees must cease operations in the 14.47–14.5 GHz band within the relevant geographic zone (160 kms for single-dish radio observatories and Very Large Array antenna systems and 50 kms for Very Long Baseline Array

antenna systems for ESVs and VMESs, radio line of sight for ESAAs) of the new RAS site until the licensees complete coordination for the new RAS facility. Licensees must notify the International Bureau once they have completed coordination for the new RAS site and must submit the coordination agreement to the Commission. Upon receipt of such notification from a licensee, the International Bureau will issue a public notice stating that the licensee may commence operations within the coordination zone in 30 days if no party opposed the operations. The ESIMs licensee then will be permitted to commence operations in the 14.47–14.5 GHz band within the relevant coordination distance around the new RAS site, subject to any operational constraints developed in the coordination process.

(4) ESIMs licensees must use Global Positioning Satellite-related or other similar position location technology to ensure compliance with the provisions of subparagraphs 1–3 of this paragraph.

■ 22. Amend § 25.258 by revising paragraph (b) to read as follows:

§ 25.258 Sharing between NGSO MSS feeder-link stations and GSO FSS services in the 29.25–29.5 GHz band.

* * * * *

(b) Licensed GSO FSS earth stations in the vicinity of operational NGSO MSS feeder-link earth station complexes must, to the maximum extent possible, operate with frequency/polarization selections that will minimize unacceptable interference with reception of GSO FSS and NGSO MSS uplink transmissions in the 29.25–29.5 GHz band. Earth station licensees operating with GSO FSS systems shall be capable of providing earth station locations to support coordination of NGSO MSS feeder link stations under paragraphs (a) and (c) of this section. Operation of ubiquitously deployed GSO FSS earth stations in the 29.25–29.5 GHz frequency band must conform to the rules contained in § 25.218(i).

* * * * *

§ 25.287 [Amended].

■ 23. Amend § 25.287 by removing paragraph (d).

■ 24. Add § 25.289 to read as follows:

§ 25.289 Responsibility of licensee for blanket-licensed earth station operation.

The holder of an FCC blanket earth station license is responsible for operation of any earth station under that license. Operators of satellite networks and systems must not transmit communications to or from such earth stations in the United States unless such communications are authorized under a service contract with the holder of a pertinent FCC blanket earth station license or under a service contract with another party with authority for such operation delegated by such a blanket licensee.

[FR Doc. 2017–12189 Filed 6–15–17; 8:45 am]

BILLING CODE 6712–01–P