



6712-01

## **FEDERAL COMMUNICATIONS COMMISSION**

### **47 CFR Part 25**

**[IB Docket No. 06-154; FCC 12-116]**

### **2006 Biennial Regulatory Review – Revision of the Commission’s Rules**

**AGENCY:** Federal Communications Commission.

**ACTION:** Final rule.

**SUMMARY:** In this document, the Federal Communications Commission amends various provisions of the Commission’s rules pertaining to licensing and operation of satellite service radio stations. With two exceptions, the amendments are non-substantive; that is, they neither impose new requirements nor eliminate or alter existing requirements. The two substantive amendments adopted in this Report and Order amend the rules in minor ways by eliminating requirements to identify a radio service and station location in correspondence and codifying an established practice of allowing applicants to cross-reference, rather than re-submit, previously filed information regarding non-U.S.-licensed satellites. Collectively, the changes adopted in this Report and Order will facilitate preparation of earth and space station applications, promote compliance with the Commission’s operating rules, and ease administrative burdens for applicants, licensees, and the Commission.

**DATES:** Effective **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, except the amendments of 47 CFR 25.110 and 25.137, which contain modified information collection requirements that require approval

by the Office of Management and Budget (OMB) under the Paperwork Reduction Act. The Commission will publish a document in the Federal Register announcing such approval and the effective date of these amendments.

**FOR FURTHER INFORMATION CONTACT:** William Bell, Satellite Division, International Bureau, at 202-418-0741 or via e-mail at William.Bell@fcc.gov.

**SUPPLEMENTARY INFORMATION CONTACT:** This is a summary of Report and Order IB Docket No. 06-154, FCC 12-116, adopted September 24, 2012 and released September 28, 2012. The full text of the Report and Order is available for public inspection and copying during regular business hours at the FCC Reference Information Center, Portals II, 445 12<sup>th</sup> Street, SW., Room CY-A257, Washington, DC 20554. This document may also be purchased from the Commission's duplicating contractor, Best Copy and Printing, Inc. (BCPI), Portals II, 445 12<sup>th</sup> Street, SW., Room CY-B402, Washington, DC 20554, telephone 202-488-5300, facsimile 202-488-5563, or via e-mail to FCC@BCPIWEB.com. When ordering copies from BCPI please provide the FCC document number (FCC12-116). The full text may also be downloaded at: <http://www.fcc.gov>. Alternative formats are available to person with disabilities by sending an e-mail to fcc504@fcc.gov or calling the Consider & Governmental Affairs Bureau at 202-418-0530 (voice), or 202-418-0432 (tty).

### **Synopsis**

1. The Commission has regularly taken action to revise and "streamline" its satellite and earth station licensing rules when warranted. In 2010, we proposed a number of streamlining changes to part 25 in a Notice of Proposed Rulemaking in this proceeding. Three parties filed comments on the NPRM: Comtech Mobile Datacom Corp. (Comtech), Globalstar Licensee LCC

and affiliated companies (collectively, “Globalstar”), and the Satellite Industry Association (SIA). No reply comments were filed.

2. Most of the changes proposed in the NPRM are unopposed and self-explanatory. These changes delete unnecessary definitions or superfluous text, add necessary definitions, clarify existing definitions, clarify revisions to rules, make format changes, delete or amend obsolete cross-references, and correct grammatical, spelling, and typographical errors. We adopt these changes without discussion.

3. In the following paragraphs, we discuss the changes that commenters opposed. We also discuss alternative proposals and additional rule changes suggested by the commenters. Finally, we discuss several non-substantive changes that we did not propose in the NPRM and that are not raised in the comments.

#### **Definitions and Uniform Terminology**

4. Section 25.201 defines technical terms pertaining to satellite communications services. In the NPRM, we proposed to amend section 25.201 in several respects. Although, as noted above, the majority of these amendments were unopposed, we received comments on our proposals to change the definitions of “Fixed-Satellite Service” and “Mobile-Satellite Service” and to add a definition of “feeder link.” SIA recommends retaining the existing definitions of “Fixed-Satellite Service” and “Mobile-Satellite Service” because those existing definitions are identical to corresponding definitions in section 2.1 of the Commission’s rules and in the ITU’s Radio Regulations. Similarly, SIA recommends that we define “feeder link” in section 25.201 in the same terms as it is defined in section 2.1. We agree and adopt SIA’s recommendations. Globalstar also notes that the term “Mobile-Satellite Service” is not consistently capitalized and hyphenated in part 25 and recommends that we use the form “Mobile-Satellite Service,” which is used in section 2.1, consistently in part 25. We adopt this recommendation. Similarly, we correct inconsistent capitalization and hyphenation of the term “Fixed-Satellite Service” in part 25.

5. The NPRM also proposed to add a definition in section 25.201 for “mobile earth terminal” and its acronym, “MET,” which are synonymous with “mobile earth station.” The term “mobile earth station” is defined in both section 25.201 and section 2.1 and is used in many provisions in part 25. Globalstar recommends that instead of adding a definition for “mobile earth terminal” and “MET,” we replace these terms with “mobile earth station.” Because using multiple terms to mean the same thing may cause confusion, we adopt this recommendation, with one modification: we replace “MET” in section 25.149(c) with “mobile station,” which is more appropriate in that context than “mobile earth station.”

6. In addition, commenters propose several changes to section 25.201 that were not included in the NPRM. Globalstar recommends adding a definition of “Big LEO” in section 25.201 or, in the alternative, deleting the term from section 25.149. The term “Big LEO” appears in section 25.254 of the Commission’s rules, as well as in section 25.149. As used in these rule sections, “Big LEO” is synonymous with “1.6/2.4 GHz Mobile-Satellite Service,” which is defined in section 25.201. For the sake of consistency, we amend sections 25.149 and 25.254 to delete the term “Big LEO” and replace it with the defined term “1.6/2.4 GHz Mobile-Satellite Service.”

7. Globalstar also advocates deleting the definition of “land mobile earth station” from section 25.201 because Land Mobile Satellite Service is not a “recognized” service in part 25. We understand Globalstar to mean by this that there are no rules in part 25 that apply only to operation of land mobile earth stations, as opposed to other types of earth stations. To the contrary, section 25.213(a)(1) includes a provision that applies exclusively to land mobile earth stations. Specifically, this rule bars 1.6/2.4 GHz land mobile earth stations from operating within defined geographic protection zones during periods of radioastronomy observation in the 1610.6-1613.8 MHz band. Because the term is used in a substantive provision in part 25, we decline to remove its definition from section 25.201.

## Cross References

8. **Section 25.109** indicates that certain types of satellite services are subject to licensing under rules not included in part 25. Specifically, it indicates that stations in the Amateur Satellite Service are licensed under part 97 and that ship earth stations in the Maritime Mobile Satellite Service are licensed under parts 80 and 83. We proposed to delete the cross-reference to part 83, which no longer exists, and insert a new paragraph to indicate that aircraft earth stations in the Aeronautical Mobile Satellite Service are licensed under part 87.

9. SIA and Comtech raised concern that these proposed amendments might incorrectly give the impression that all earth stations on ships or airplanes must be licensed under parts 80 and 87. We have modified the text of the cross-references to parts 80 and 87 to avoid fostering this misunderstanding.

10. We also proposed to insert a proviso in section 25.109 that Amateur Satellite operators must comply with section 25.111(b), which requires satellite service applicants and licensees to “provide the Commission with all information it requires for the Advance Publication, Coordination, and Notification of frequency assignments pursuant to the International [Telecommunication Union’s] Radio Regulations.” We are not adopting this proposed amendment because there is an existing provision in part 97 of the Commission’s rules, section 97.207(g), that requires amateur satellite operators to file pre-launch notifications with the Commission and include any information needed for international coordination under relevant ITU regulations.

11. The NPRM also proposed to add cross-references in section 25.109 to additional rule parts that include relevant requirements. Upon further review, we have decided not to add additional cross-references to broadly applicable provisions in parts 1, 2, and 17 of the Commission’s rules. These proposed cross-references would be redundant and could cause

confusion. On our own motion, however, we add a cross reference to part 5, which contains licensing rules for experimental operation, including experimental satellite service operation.

12. **Section 25.140** is captioned “Qualifications of fixed-satellite space station licensees,” although most of the provisions in that rule section pertain to applications for 17/24 GHz Broadcasting-Satellite Service (BSS) space stations. We proposed to amend the caption to indicate that the section includes rules for 17/24 GHz BSS applicants. We adopt this proposed amendment with a minor change to make the caption more accurate. The caption will now read, “Further requirements for license applications for space stations in the Fixed-Satellite Service and 17/24 GHz Broadcasting-Satellite Service.” The NPRM also proposed minor clarifying changes in section 25.140(a). SIA asks us to further amend section 25.140(a) by deleting the statement that applications for new Fixed-Satellite Service space stations “shall comply with the requirements established in Report and Order, CC Docket No. 81-704.” SIA contends that the cross-reference to the Report and Order is unnecessary because all currently relevant substantive requirements adopted in that order are incorporated elsewhere in the Commission rules. We agree. Further, the other provisions of section 25.140(a) repeat, in substance, provisions in other paragraphs of section 25.140 and in sections 25.111(a) and 25.112(a)(2). We therefore remove and reserve section 25.140(a).

13. **Section 25.146(a)** While not proposed in the NPRM, we adopt a recommendation from SIA to correct erroneous references to an ITU Recommendation in section 25.146(a). Section 25.146(a) sets forth requirements for license applications for non-geostationary-orbit FSS space stations operating in the 10.7-14.5 GHz band. Specifically, we amend references to Recommendation ITU-R B.O.1503 to reference Recommendation ITU-R S.1503 instead.

14. **Section 25.161(b)** provides that a station license will be automatically terminated upon the expiration of the license period, “unless an application for renewal of the license has

been filed with the Commission pursuant to section 25.120(e).” Globalstar points out that the cross-reference to section 25.120(e) is incorrect and that section 25.121(e) should be referenced instead. We amend section 25.161(b) to effect this correction.

15. **Section 25.276(c)** states that “[t]ransmission to or from foreign points over space stations in the Fixed-Satellite Service, other than those operated by the International Telecommunications Satellite Organization and Inmarsat, are subject to the policies set forth in the Report and Order, adopted January 19, 1996 in IB Docket No. 95-41.” The cross-referenced Commission document is the “DISCO I” order that eliminated the previous distinction between domestic satellites and international separate systems, permitting all U.S.-licensed satellites to provide both domestic and international services. In the NPRM, we proposed to amend this provision by deleting the phrase “other than those operated by the International Telecommunications Satellite Organization and Inmarsat” and replacing the cross-reference to DISCO I with a reference to “the requirements set forth in section 25.137 of this Chapter.” SIA recommends that we delete section 25.276(c) in its entirety, since DISCO I did not impose any requirements that are not prescribed elsewhere in part 25. We agree and delete section 25.276(c).

16. **Section 25.137(b)** states that anyone requesting authority to operate a U.S. earth station with a non-U.S.-licensed space station must file exhibits providing legal and technical information for the non-U.S.-licensed space station. We proposed to amend this provision to add that the submission must include a completed Schedule S to FCC Form 312. SIA agrees with this proposed change but requests that we insert an additional sentence stating that an applicant seeking authority to communicate via a foreign-licensed space station that has previously been declared eligible for U.S. market access need not re-file the information otherwise required by section 25.137(b) but may instead cross-reference the market access grant. SIA maintains that this proposed change would conform to current practice and reduce confusion. We agree with this recommendation and implement it, adding text to indicate that the cross-referenced grant

must pertain to operation in the same service and frequency band(s). By logical extension, we also add text to indicate that the requisite information may be provided by cross-referencing a pending application, which is also consistent with established practice.

17. **Section 25.202(a)(1)** lists some, but not all, of the frequency bands that are allocated for use by stations in the Fixed-Satellite Service, with notations regarding requirements or limitations pertaining to operation in particular bands. In the NPRM, we proposed to adopt a revised list of FSS frequencies that would include previously omitted FSS frequency bands and also include additional notations cross-referencing provisions in the Table of Frequency Allocations. After further consideration, we have decided to insert a general instruction to refer to the Table of Allocations and delete band-specific annotations that merely repeat or cross-reference provisions in the Table. We have also corrected several errors that SIA pointed out in its comments.

18. **Section 25.210** Section 25.210(d) of the Commission's rules states that all space stations in the Fixed-Satellite Service operating in the 20/30 GHz bands shall employ "state-of-the-art full frequency reuse." Section 25.210(f) prescribes an identical requirement for FSS space stations operating in other specified frequency bands, as well as for Broadcasting-Satellite Service space stations operating in the 17.3-17.8 GHz (space-to-Earth) band. In the NPRM, we proposed to consolidate these two rule provisions. SIA supports this proposed change, which we adopt.

19. SIA also advocates amending section 25.210(f) by inserting a sentence stating that the full frequency reuse requirement does not apply to telemetry, tracking, and command transmissions at the edges of frequency bands assigned for FSS operation. We adopt this change. This is a clarifying, rather than a substantive amendment, as we have never construed the full frequency reuse rule to apply to telemetry, tracking, and command operations.

20. Section 25.210(k) states that the co-polarized and cross-polarized performance of FSS space station antennas must be measured, both within the primary coverage area to facilitate coordination with other Commission space station licensees and outside the primary coverage area to facilitate international frequency coordination. The rule also states that licensees must submit the measurements to the Commission within thirty days after completing preliminary in-orbit testing. We proposed to delete the phrases “to facilitate coordination with other Commission space station licensees” and “to facilitate international frequency coordination,” which are of no substantive import. SIA suggests, instead, that we delete section 25.210(k) in its entirety because, according to SIA, it requires licensees to re-submit the same information that section 25.114(d)(3) requires applicants to provide in space station license applications. We do not agree that section 25.210(k) is redundant vis-à-vis section 25.114(d)(3). Section 25.114(d)(3) requires license applicants to provide predicted antenna gain contours, whereas section 25.210(k) requires licensees to submit measured antenna performance data obtained from in-orbit testing. Therefore, we retain the requirement in section 25.210(k), with the non-substantive changes proposed in the NPRM.

21. Finally, we delete the phrase “in the Fixed-Satellite Service” from the caption to section 25.210 because this section includes provisions that apply to space stations other than FSS space stations.

22. In its comments on the NPRM, Globalstar recommends significant substantive changes in several provisions in part 25. These recommendations are beyond the scope of this proceeding.

## **PROCEDURAL MATTERS**

23. Final Regulatory Flexibility Certification. The Regulatory Flexibility Act of 1980, as amended (RFA) requires that a regulatory flexibility analysis be prepared for rulemaking proceedings unless the agency certifies that “the rule will not have a significant economic impact

on a substantial number of small entities.” The RFA generally defines the term “small entity” as referring to any “small business,” “small organization,” or “small governmental jurisdiction.” 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). A small organization is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”

24. In this Report and Order, we have decided to amend the text of rule provisions pertaining to the licensing and/or operation of radio stations used for telecommunication via satellite. The amendments will make the rules in question more concise, more coherent, and/or more lucid without changing or eliminating existing regulatory requirements. We certify that these amendments will not have a significant economic impact on a substantial number of small entities. The Commission will send a copy of the Report and Order, including a copy of this certification, in a report to Congress pursuant to the Congressional Review Act. A copy of the Report and Order and this certification will also be sent to the Chief Counsel for Advocacy of the Small Business Administration, and will be published in the Federal Register.

25. Paperwork Reduction Act. This document contains modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. We invite OMB, the general public, and other Federal agencies to comment on the new or modified information collection requirements. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), we seek specific comment on how the Commission might further reduce the information collection burden for small business concerns with fewer than 25 employees.

## **ORDERING CLAUSES**

26. Accordingly, IT IS ORDERED, pursuant to Sections 4(i), 7(a), 11, 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), 161, 303(c), 303(f), 303(g), 303(r), that Part 25 of the Commission's rules IS AMENDED as set forth in the Appendix to this Order. The rule revisions in the Appendix will take effect 30 days after a summary of this Report and Order is published in the Federal Register, with the exception of the revisions to 47 CFR 25.110 and 25.137. These rule revisions contain modified information collection requirements that require approval by the Office of Management and Budget (OMB) under the PRA. The Federal Communications Commission will publish a document in the Federal Register announcing such approval and the relevant effective date.

27. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center shall send a copy of this Report and Order, including the final regulatory flexibility act certification, to the Chief Counsel for Advocacy of the Small Business Administration, in accordance with Section 603(a) of the Regulatory Flexibility Act, 5 U.S.C. 601, et seq. (1981).

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch,  
Secretary.

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR part 25 as follows:

## **PART 25 -- SATELLITE COMMUNICATIONS**

1. The authority citation for part 25 is revised to read as follows:

**Authority:** Interprets or applies Sections 4, 301, 302, 303, 307, 309, 332, and 705 of the Communications Act, as amended, 47 U.S.C. Sections 154, 301, 302, 303, 307, 309, 332, and 705, unless otherwise noted.

### **§ 25.103 [Amended]**

2. In § 25.103, remove and reserve paragraphs (a) through (f).
3. Revise § 25.109 to read as follows:

### **§ 25.109 Cross-reference.**

(a) Space and earth stations in the Amateur Satellite Service are licensed under 47 CFR part 97.

(b) Ship earth stations in the Maritime Mobile-Satellite Service transmitting in the 1626.5-1646.5 MHz band are subject to licensing under 47 CFR part 80.

(c) Earth stations in the Aeronautical Mobile-Satellite (Route) Service are subject to licensing under 47 CFR part 87.

(d) Space and earth stations in the Experimental Radio Service may be subject to licensing under 47 CFR part 5.

4. In § 25.110, revise paragraphs (a) and (c) to read as follows:

**§ 25.110 Filing of applications, fees, and number of copies.**

(a) Applications may be filed by going online at [licensing.fcc.gov/myibfs](http://licensing.fcc.gov/myibfs) and submitting the application through the International Bureau Filing System (IBFS).

\* \* \* \* \*

(c) All correspondence concerning any application must identify:

- (1) The applicant's name,
- (2) The call sign of the space station or earth station, and
- (3) The file number of the application.

\* \* \* \* \*

5. In § 25.111, revise the first and last sentences in paragraph (c) to read as follows:

**§ 25.111 Additional information.**

\* \* \* \* \*

(c) In the Direct Broadcast Satellite service, applicants and licensees shall also provide the Commission with all information it requires in order to modify the plans for the Broadcasting-Satellite Service (BSS) in Appendix 30 of the ITU Radio Regulations (RR) and associated feeder-link plans in Appendix 30A of the ITU RR, if the system has technical characteristics differing from those specified in the Appendix 30 BSS Plans, the Appendix 30A feederlink Plans, Annex 5 to Appendix 30, or Annex 3 to Appendix 30A.

\* \* \* Applicants and licensees shall also provide the Commission with the information required by Appendix 4 of the ITU RR for advance publication and notification or

coordination of the frequencies to be used for tracking, telemetry and control functions of DBS systems.

6. In § 25.113, revise the first sentence of paragraph (a) to read as follows:

**§ 25.113 Station licenses and launch authority.**

(a) Construction permits are not required for earth stations. \* \* \*

\* \* \* \* \*

7. In § 25.114, in paragraph (d)(7), remove “fixed-satellite service” and “broadcasting-satellite service” and add in their place “Fixed-Satellite Service” and “Broadcasting-Satellite Service”, respectively and revise paragraph (d)(12) to read as follows:

**§ 25.114 Applications for space station authorizations.**

\* \* \* \* \*

(d) \* \* \*

(12) Applications for authorizations in the non-geostationary satellite orbit Fixed-Satellite Service (NGSO FSS) in the 10.7-14.5 GHz bands shall also provide all information specified in § 25.146.

\* \* \* \* \*

8. In § 25.115, revise paragraph (a)(2)(i) and in paragraph (f) remove “fixed-satellite service” and add in its place “Fixed-Satellite Service”.

The revision reads as follows:

**§ 25.115 Application for earth station authorizations.**

(a) \* \* \*

(2) \* \* \*

(i) The earth station will operate in the 3700-4200 MHz and 5925-6425 MHz bands and/or in the 11.7-12.2 GHz and 14.0-14.5 GHz bands; and

\* \* \* \* \*

9. In § 25.116, revise the third sentence of paragraph (e) to read as follows:

**§ 25.116 Amendments to applications.**

\* \* \* \* \*

(e) \* \* \* Amendments to earth station applications must be filed on Form 312 and Schedule B.

10. In § 25.117, add paragraph (b), revise paragraph (c), and add paragraph (e) to read as follows:

**§25.117 Modification of station licenses.**

\* \* \* \* \*

(b) Both earth station and space station modification 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.

(c) Applications for modification of earth station authorizations must be submitted on FCC Form 312, Main Form and Schedule B. Applications for modification of space station authorizations must be submitted on FCC Form 312, Main Form and Schedule S. Only those items that change need to be specified, provided that the applicant certifies that the remaining information has not changed.

\* \* \* \* \*

(e) Any application for modification of authorization to extend a required date of completion, as set forth in § 25.133 for earth station authorizations or § 25.164 for space stations, or included as a condition of any earth station or space station authorization, must include a verified statement from the applicant:

(1) That states that the additional time is required due to unforeseeable circumstances beyond the applicant's control, describes these circumstances with specificity, and justifies the precise extension period requested; or

(2) That states there are unique and overriding public interest concerns that justify an extension, identifies these interests and justifies a precise extension period.

\* \* \* \* \*

11. In § 25.119, revise paragraph (b)(2) to read as follows:

**§ 25.119 Assignment or transfer of control of station authorization.**

\* \* \* \* \*

(b) \* \* \*

(2) Effect any change in a controlling interest in the ownership of the licensee, including changes in legal or equitable ownership.

\* \* \* \* \*

**§ 25.131 [Amended]**

12. In 47 CFR 25.131(b), remove the words “fixed-satellite service” and “fixed service” and add in their place the words “Fixed-Satellite Service” and “Fixed Service”.

13. In § 25.133, revise the first sentence of paragraph (a)(1) and revise paragraph (a)(2) to read as follows:

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

(a)(1) Each license for an earth station governed by this part, except for mobile earth stations, shall specify as a condition therein the period in which construction of facilities must be completed and station operation commenced. \* \* \*

(2) Each license for mobile earth stations shall specify as a condition therein the period in which station operation must be commenced. The networks in which the mobile earth stations will be operated must be brought into operation within 12 months from the date of the license grant except as may be determined by the Commission for any particular application.

\* \* \* \* \*

14. In § 25.134, revise the section heading, remove and reserve paragraph (d), and revise paragraph (h) to read as follows:

**§ 25.134 Licensing provisions for Very Small Aperture Terminal (VSAT) and C-band Small Aperture Terminal (CSAT) networks.**

\* \* \* \* \*

(h) VSAT operators licensed pursuant to this section are prohibited from using remote earth stations in their networks that are not designed to stop transmission when synchronization with the signal received from the target satellite fails.

15. In § 25.136, remove the words “Mobile Satellite Services” in the section heading and the introductory text and add in their place words “Mobile-Satellite Service”; remove the words “Mobile Satellite Service” in the first sentence of paragraph (c) and add in their place the words “Mobile-Satellite Service”; and revise paragraph (d) introductory text and the first sentence in paragraph (e) to read as follows:

**§ 25.136 Licensing provisions for user transceivers in the 1.6/2.4 GHz, 1.5/1.6 GHz, and 2 GHz Mobile-Satellite Services.**

\* \* \* \* \*

(d) Any mobile earth station (MES) associated with the Mobile-Satellite Service operating in the 1530-1544 MHz and 1626.5-1645.5 MHz bands shall have the following minimum set of capabilities to ensure compliance with Footnote 5.353A in 47 CFR 2.106 and the priority and real-time preemption requirements imposed by Footnote US315 in that rule section.

\* \* \* \* \*

(e) Any Land Earth Station (LES) associated with the Mobile-Satellite Service operating in the 1530-1544 MHz and 1626.5-1645.5 MHz bands must have the following minimum set of capabilities to ensure that the MSS system complies with Footnote 5.353A and the priority and real-time preemption requirements imposed by Footnote US315. \* \* \*

\* \* \* \* \*

16. In § 25.137, revise paragraphs (b), (c) introductory text, (c)(1), and (e) to read as follows:

**§ 25.137 Application requirements for earth stations operating with non-U.S.**

**licensed space stations.**

\* \* \* \* \*

(b) Any request pursuant to paragraph (a) of this section must be filed electronically through the International Bureau Filing System and must include an exhibit providing legal and technical information for the non-U.S.-licensed space station of the kind that § 25.114 would require in a license application for that space-station, including but not limited to, information required to complete Schedule S. An applicant may satisfy this requirement by cross-referencing a pending application containing the requisite information or by citing a prior grant of authority to communicate via the space station in question in the same frequency bands to provide the same type of service.

(c) A non-U.S.-licensed NGSO-like satellite system seeking to serve the United States can be considered contemporaneously with other U.S. NGSO-like satellite systems pursuant to § 25.157 and considered before later-filed applications of other U.S. satellite system operators, and a non-U.S.-licensed GSO-like satellite system seeking to serve the United States can have its request placed in a queue pursuant to § 25.158 and considered before later-filed applications of other U.S. satellite system operators, if the non-U.S.-licensed satellite system:

(1) Is in orbit and operating;

\* \* \* \* \*

(e) A non-U.S.-licensed satellite operator that is seeking to serve the United States pursuant to a Letter of Intent may amend its request by submitting an additional Letter of Intent. Such additional Letters of Intent will be treated on the same basis as amendments filed by U.S. space station applicants for purposes of determining the order in which the Letters of Intent will be considered relative to other pending applications.

\* \* \* \* \*

17. In § 25.140, revise the section heading, remove and reserve paragraph (a), and revise the first sentence in paragraph (b) to read as follows:

**§ 25.140 Qualifications of Fixed-Satellite space station licensees.**

\* \* \* \* \*

(b) Each applicant for a space station authorization in the Fixed-Satellite Service must demonstrate, on the basis of the documentation contained in its application, that it is legally, technically, and otherwise qualified to proceed expeditiously with the construction, launch and/or operation of each proposed space station facility immediately upon grant of the requested authorization. \* \* \*

\* \* \* \* \*

18. In § 25.142, revise the section heading, paragraph (a)(2), and the first and last sentences in paragraph (b)(2)(ii) to read as follows:

**§ 25.142 Licensing provisions for the non-voice, non-geostationary Mobile-Satellite Service.**

(a) \* \* \*

(2) Applicants for a non-voice, non-geostationary Mobile-Satellite Service space station license must identify the power flux density produced at the Earth's surface by each space station of their system in the 137-138 MHz and 400.15-401 MHz bands, to allow determination of whether coordination with terrestrial services is required under any applicable footnote to the Table of Frequency Allocations in § 2.106 of this chapter. In addition, applicants must identify the measures they would employ to protect the radio astronomy service in the 150.05-153 MHz and 406.1-410 MHz bands from harmful interference from unwanted emissions.

\* \* \* \* \*

(b) \* \* \*

(2) \* \* \*

(ii) The Commission will use its existing procedures for liaison with NTIA to reach agreement with respect to achieving compatible operations between Federal Government users under the jurisdiction of NTIA and non-voice, non-geostationary Mobile-Satellite Service systems (including user transceivers subject to blanket licensing under § 25.115(d)) through the frequency assignment and coordination practices established by NTIA and the Interdepartment Radio Advisory Committee

(IRAC). \* \* \* The frequency assignment and coordination of the satellite system with Federal Government users shall be completed prior to grant of authorization.

\* \* \* \* \*

19. In § 25.143, revise the section heading and paragraphs (b)(2)(ii) through (iv), (e)(1)(iii), (e)(2), (h), and (i) to read as follows:

**§ 25.143 Licensing provisions for the 1.6/2.4 GHz Mobile-Satellite Service and 2 GHz Mobile-Satellite Service.**

\* \* \* \* \*

(b) \* \* \*

(2) \* \* \*

(ii) That a system proposed to operate using non-geostationary satellites be capable of providing Mobile-Satellite Service to all locations as far north as 70° North latitude and as far south as 55° South latitude for at least 75% of every 24-hour period, i.e., that at least one satellite will be visible above the horizon at an elevation angle of at least 5° for at least 18 hours each day within the described geographic area;

(iii) That a system proposed to operate using non-geostationary satellites be capable of providing Mobile-Satellite Service on a continuous basis throughout the fifty states, Puerto Rico and the U.S. Virgin Islands, i.e., that at least one satellite will be visible above the horizon at an elevation angle of at least 5° at all times within the described geographic areas; and

(iv) That a system only using geostationary orbit satellites, at a minimum, be capable of providing Mobile-Satellite Service on a continuous basis throughout the 50 states, Puerto Rico, and the U.S. Virgin Islands, if technically feasible.

\* \* \* \* \*

(e) \* \* \*

(1) \* \* \*

(iii) A detailed description of the use made of the in-orbit satellite system. That description should identify the percentage of time that the system is actually used for U.S. domestic transmission, the amount of capacity (if any) sold but not in service within U.S. territorial geographic areas, and the amount of unused system capacity. 2 GHz Mobile-Satellite Service systems receiving expansion spectrum as part of the unserved areas spectrum incentive must provide a report on the actual number of subscriber minutes originating or terminating in unserved areas as a percentage of the actual U.S. system use; and

(2) All operators of 1.6/2.4 GHz Mobile-Satellite Service systems shall, within 10 days after a required implementation milestone as specified in the system authorization, certify to the Commission by affidavit that the milestone has been met or notify the Commission by letter that it has not been met. At its discretion, the Commission may require the submission of additional information (supported by affidavit of a person or persons with knowledge thereof) to demonstrate that the milestone has been met.

\* \* \* \* \*

(h) Prohibition of certain agreements. No license shall be granted to any applicant for a space station in the Mobile-Satellite Service operating at 1610-1626.5 MHz/2483.5-2500 MHz if that applicant, or any persons or companies controlling or controlled by the applicant, shall acquire or enjoy any right, for the purpose of handling traffic to or from the United States, its territories or possession, to construct or operate space segment or earth stations, or to interchange traffic, which is denied to any other United States company by reason of any concession, contract, understanding, or working arrangement to which the Licensee or any persons or companies controlling or controlled by the Licensee are parties.

(i) Incorporation of ancillary terrestrial component base stations into a 1.6/2.4 GHz Mobile-Satellite Service network or a 2 GHz Mobile-Satellite Service network. Any licensee authorized to construct and launch a 1.6/2.4 GHz or a 2 GHz Mobile-Satellite Service system may construct ancillary terrestrial component (ATC) base stations as defined in § 25.201 at its own risk and subject to the conditions specified in this subpart any time after commencing construction of the Mobile-Satellite Service system.

\* \* \* \* \*

20. In § 25.145, revise the section heading and paragraphs (c)(1), (c)(2), and (e) to read as follows:

**§ 25.145 Licensing provisions for the Fixed-Satellite Service in the 20/30 GHz bands.**

\* \* \* \* \*

(c) \* \* \*

(1) That the proposed system is capable of providing Fixed-Satellite Service to all locations as far north as 70° North Latitude and as far south as 55° South Latitude for at least 75% of every 24-hour period; and

(2) That the proposed system is capable of providing Fixed-Satellite Service on a continuous basis throughout the fifty states, Puerto Rico and the U.S. Virgin Islands.

\* \* \* \* \*

(e) Prohibition of certain agreements. No license shall be granted to any applicant for a space station in the Fixed-Satellite Service operating in the 20/30 GHz band if that applicant, or any persons or companies controlling or controlled by the applicant, shall acquire or enjoy any right, for the purpose of handling traffic to or from the United States, its territories or possession, to construct or operate space segment or earth stations, or to interchange traffic, which is denied to any other United States company by reason of any concession, contract, understanding, or working arrangement to which the Licensee or any persons or companies controlling or controlled by the Licensee are parties.

\* \* \* \* \*

21. In § 25.146:

- a. Revise the section heading and the first sentence in paragraph (a) introductory text;
- b. Revise paragraphs (a)(1)(i) and (iii), (a)(2) introductory text, (a)(2)(i) and (iii), (b) introductory text, and (b)(1)(i), (iii), and (v);
- c. Revise the last two sentences of paragraph (b)(2); and
- d. Revise paragraphs (c), (e), (h), and (i)(2) and (3).

The revisions read as follows:

**§ 25.146 Licensing and operating rules for the non-geostationary satellite orbit Fixed-Satellite Service (NGSO FSS) in the 10.7 GHz-14.5 GHz bands.**

(a) A comprehensive technical showing shall be submitted for the proposed non-geostationary satellite orbit Fixed-Satellite Service (NGSO FSS) system in the 10.7-14.5 GHz bands. \* \* \*

(1) \* \* \*

(i) Provide a set of power flux-density (PFD) masks, on the surface of the Earth, for each space station in the NGSO FSS system. The PFD masks shall be generated in accordance with the specification stipulated in the most recent version of ITU-R Recommendation S.1503, “Functional Description to be used in Developing Software Tools for Determining Conformity of Non-GSO FSS Networks with Limits Contained in Article 22 of the Radio Regulations.” In particular, the PFD masks must encompass the power flux-density radiated by the space station regardless of the satellite transmitter power resource allocation and traffic/beam switching strategy that are used at different periods of a NGSO FSS system’s life. The PFD masks shall also be in an electronic form that can be accessed by the computer program specified in paragraph (a)(1)(iii) of this section.

\* \* \* \* \*

(iii) If a computer program that has been approved by the ITU for determining compliance with the single-entry EPFD<sub>down</sub> validation limits is not yet available, the applicant shall provide a computer program for the single-entry EPFD<sub>down</sub> validation computation, including both the source code and the executable file. This computer program shall be developed in accordance with the specification stipulated in the most recent version of Recommendation ITU-R S.1503. If the applicant uses the ITU approved software, the applicant shall indicate the program name and the version used.

\* \* \* \* \*

(2) Single-entry additional operational equivalent power flux-density, in the space-to-Earth direction, (additional operational EPFD<sub>down</sub>) limits. (i) Provide a set of NGSO FSS earth station maximum equivalent isotropically radiated power (EIRP) masks as a function of the off-axis angle generated by an NGSO FSS earth station. The maximum EIRP mask shall be generated in accordance with the specification stipulated in the most recent version of ITU-R Recommendation S.1503. In particular, the results of calculations encompass what would be radiated regardless of the earth station transmitter power resource allocation and traffic/beam switching strategy are used at different periods of an NGSO FSS system's life. The EIRP masks shall be in an electronic form that can be accessed by the computer program specified in paragraph (a)(2)(iii) of this section.

\* \* \* \* \*

(iii) If a computer program that has been approved by the ITU for determining compliance with the single-entry EPFD<sub>up</sub> validation limits is not yet available, the applicant shall provide a computer program for the single-entry EPFD<sub>up</sub> validation computation, including both the source code and the executable file. This computer program shall be developed in accordance with the specification stipulated in the most recent version of Recommendation ITU-R S.1503. If the applicant uses the ITU approved software, the applicant shall indicate the program name and the version used.

\* \* \* \* \*

(b) Ninety days prior to the initiation of service to the public, the NGSO FSS system licensee shall submit a comprehensive technical showing for the non-geostationary satellite orbit Fixed-Satellite Service (NGSO FSS) system in the 10.7-14.5 GHz bands. The technical information shall demonstrate that the NGSO FSS system is expected not to operate in excess of the

additional operational EPFD<sub>down</sub> limits and the operational EPFD<sub>down</sub> limits as specified in § 25.208(i) and (j), and notes 2 and 3 to Table 1L in § 25.208(l). If the technical demonstration exceeds the additional operational EPFD<sub>down</sub> limits or the operational EPFD<sub>down</sub> limits at any test points within the United States for domestic service and at any test points outside of the United States for international service, the NGSO FSS system licensee shall not initiate service to the public until the deficiency has been rectified by reducing satellite transmission power or other adjustments. This must be substantiated by subsequent technical showings. The technical showings consist of the following:

(1) \* \* \*

(i) Provide a set of anticipated operational power flux density (PFD) masks, on the surface of the Earth, for each space station in the NGSO FSS system. The anticipated operational PFD masks could be generated by using the method specified in the most recent version of ITU-R Recommendation S.1503. In particular, the anticipated operational PFD mask shall take into account the expected maximum traffic loading distributions and geographic specific scheduling of the actual measured space station antenna patterns (see § 25.210(k)). The anticipated operational PFD masks shall also be in an electronic form that can be accessed by the computer program contained in paragraph (b)(1)(iii) of this section.

\* \* \* \* \*

(iii) Provide a computer program for the single-entry additional operational EPFD<sub>down</sub> verification computation, including both the source code and the executable file. This computer program could be developed by using the method specified in the most recent version of ITU-R Recommendation S.1503.

\* \* \* \* \*

(v) Provide the result, the cumulative probability distribution function of EPFD, of the execution of the verification computer program described in paragraph (b)(1)(iii) of this section by using only the input parameters contained in paragraphs (b)(1)(i) and (iv) of this section for each of the submitted test points provided by the Commission. These test points are based on information from U.S.-licensed geostationary satellite orbit Fixed-Satellite Service and Broadcasting-Satellite Service operators in the 10.7-14.5 GHz bands. Each U.S.-licensed geostationary satellite orbit Fixed-Satellite Service and Broadcasting-Satellite Service operator in the 10.7-14.5 GHz bands may submit up to 10 test points for this section containing the latitude, longitude, altitude, azimuth, elevation angle, antenna size, efficiency to be used by non-geostationary satellite orbit Fixed-Satellite Service licensees in the 10.7-14.5 GHz bands during the upcoming year.

(2) \* \* \* Submitted test points are based on inputs from U.S.-licensed geostationary satellite orbit Fixed-Satellite Service and Broadcasting-Satellite Service operators in the 10.7- 14.5 GHz bands. Each U.S.-licensed geostationary satellite orbit Fixed-Satellite Service and Broadcasting-Satellite Service operator in the 10.7-14.5 GHz bands may submit up to 10 test points for this section containing the latitude, longitude, altitude, azimuth, elevation angle, antenna size, efficiency to be used by non-geostationary satellite orbit Fixed-Satellite Service licensees in the 10.7-14.5 GHz bands during the upcoming year.

\* \* \* \* \*

(c) The NGSO FSS system licensee shall, on June 30 of each year, file a report with the International Bureau and the Commission's Columbia Operations Center in Columbia, Maryland, certifying that the system continues to operate within the bounds of the masks and other input parameters specified under § 25.146(a) and (b) as well as certifying the status of the additional operational EPFDdown levels into the 3 m and 10 m geostationary satellite orbit Fixed-Satellite Service receiving Earth station antennas, the operational EPFDdown levels into the 3 m, 4.5 m,

6.2 m and 10 m geostationary satellite orbit Fixed-Satellite Service receiving Earth station antennas and the operational EPFDdown levels into the 180 cm geostationary satellite orbit Broadcasting-Satellite Service receiving Earth station antennas in Hawaii and 240 cm geostationary satellite orbit Broadcasting-Satellite Service receiving Earth station antennas in Alaska.

\* \* \* \* \*

(e) An NGSO FSS system licensee operating a system in compliance with the limits specified in § 25.208(g), (i), (j), (k), (l), and (m) shall be considered as having fulfilled its obligations under ITU Radio Regulations Article 22.2 with respect to any GSO network. However, such NGSO FSS system shall not claim protection from GSO FSS and BSS networks operating in accordance with part 25 of this chapter and the ITU Radio Regulations.

\* \* \* \* \*

(h) System License. Applicants authorized to construct and launch a system of technically identical non-geostationary satellite orbit Fixed-Satellite Service satellites will be awarded a single “blanket” license covering a specified number of space stations to operate in a specified number of orbital planes.

(i) \* \* \*

(2) A demonstration that the proposed system is capable of providing Fixed-Satellite Services to all locations as far north as 70° North Latitude and as far south as 55° South Latitude for at least 75 percent of every 24-hour period; and

(3) Sufficient information on the NGSO FSS system characteristics to properly model the system in computer sharing simulations, including, at a minimum, NGSO hand-over and satellite switching strategies, NGSO satellite antenna gain patterns, and NGSO

earth station antenna gain patterns. In particular, each NGSO FSS applicant must explain the switching protocols it uses to avoid transmitting while passing through the geostationary satellite orbit arc, or provide an explanation as to how the PFD limits in § 25.208 are met without using geostationary satellite orbit arc avoidance. In addition, each NGSO FSS applicant must provide the orbital parameters contained in Section A.4 of Annex 2A to Appendix 4 of the ITU Radio Regulations (2008). Further, each NGSO FSS applicant must provide a sufficient technical showing to demonstrate that the proposed non-geostationary satellite orbit system meets the PFD limits contained in § 25.208, as applicable, and

\* \* \* \* \*

22. In § 25.149, revise the section heading and paragraphs (a)(1) introductory text, (a)(2)(iii), (a)(3), (b)(1)(iii), (b)(5)(ii), (c)(1), and (c)(3) to read as follows:

**§ 25.149 Application requirements for ancillary terrestrial components in the Mobile-Satellite Service networks operating in the 1.5/1.6 GHz, 1.6/2.4 GHz and 2 GHz Mobile-Satellite Service.**

(a) \* \* \*

(1) ATC shall be deployed in the forward-band mode of operation whereby the ATC mobile terminals transmit in the MSS uplink bands and the ATC base stations transmit in the MSS downlink bands in portions of the 2000-2020 MHz/2180-2200 MHz bands (2 GHz band), the 1626.5-1660.5 MHz/1525-1559 MHz bands (L-band), and the 1610-1626.5 MHz/2483.5-2500 MHz bands.

\* \* \* \* \*

(2) \* \* \*

(iii) In the 1610-1626.5 MHz/2483.5-2500 MHz bands, ATC operations are limited to the 1610-1617.775 MHz, 1621.35-1626.5 MHz, and 2483.5-2495 MHz bands and to the specific frequencies authorized for use by the MSS licensee that seeks ATC authority.

(3) ATC operations shall not exceed the geographical coverage area of the Mobile-Satellite Service network of the applicant for ATC authority.

\* \* \* \* \*

(b) \* \* \*

(1) \* \* \*

(iii) For the 1.6/2.4 GHz Mobile-Satellite Service bands, an applicant must demonstrate that it can provide space-segment service to all locations as far north as 70° North latitude and as far south as 55° South latitude for at least seventy-five percent of every 24-hour period, i.e., that at least one satellite will be visible above the horizon at an elevation angle of at least 5° for at least 18 hours each day, and on a continuous basis throughout the fifty states, Puerto Rico and the U.S. Virgin Islands, i.e., that at least one satellite will be visible above the horizon at an elevation angle of at least 5° at all times.

\* \* \* \* \*

(5) \* \* \*

(ii) In the 1.6/2.4 GHz Mobile-Satellite Service bands, MSS ATC is limited to no more than 7.775 MHz of spectrum in the L-band and 11.5 MHz of spectrum in the S-band. Licensees in these bands may implement ATC only on those channels on which MSS is authorized, consistent with the 1.6/2.4 GHz Mobile-Satellite Service band-sharing arrangement.

\* \* \* \* \*

(c) Equipment certification. (1) Each ATC mobile station utilized for operation under this part and each transmitter marketed, as set forth in § 2.803 of this chapter, must be of a type that has been authorized by the Commission under its certification procedure for use under this part.

\* \* \* \* \*

(3) Licensees and manufacturers are subject to the radiofrequency radiation exposure requirements specified in §§ 1.1307(b), 2.1091, and 2.1093 of this chapter, as appropriate. MSS ATC base stations must comply with the requirements specified in § 1.1307(b) of this chapter for PCS base stations. MSS ATC mobile stations must comply with the requirements specified for mobile and portable PCS transmitting devices in § 1.1307(b) of this chapter. MSS ATC mobile terminals must also comply with the requirements in §§ 2.1091 and 2.1093 of this chapter for Satellite Communications Services devices. Applications for equipment authorization of mobile or portable devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

\* \* \* \* \*

23. Revise § 25.150 to read as follows:

**§ 25.150 Receipt of applications.**

Applications received by the Commission are given a file number and a unique station identifier for administrative convenience. Neither the assignment of a file number and/or other identifier nor the listing of the application on public notice as received for filing indicates that the application has been found acceptable for filing or precludes subsequent return or dismissal of the application if it is found to be defective or not in accordance with the Commission's rules.

24. In § 25.161, revise paragraph (b) to read as follows:

**§ 25.161 Automatic termination of station authorization.**

\* \* \* \* \*

(b) The expiration of the license period, unless an application for renewal of the license has been filed with the Commission pursuant to § 25.121(e); or

\* \* \* \* \*

25. In § 25.201:

a. Remove the definitions of active satellite, base earth station, passive satellite, space operation service, space telecommand, space telemetering, space tracking, and structural attenuation;

- b. Revise the definitions of 2 GHz Mobile-Satellite Service, Earth Station on Vessel (“ESV”), equivalent power flux density, fixed earth station, Fixed-Satellite Service, land earth station, Non-Voice, Non-Geostationary Mobile-Satellite Service, power spectral density, protection areas, routine processing or licensing, and vehicle-mounted earth station (VMES); and
- c. Add definitions for feeder link and 1.5/1.6 GHz Mobile-Satellite Service.

The revisions and additions read as follows:

**§ 25.201 Definitions.**

1.5/1.6 GHz Mobile-Satellite Service. Mobile-Satellite Service provided in any portions of the 1525-1559 MHz downlink band and the 1626.5-1660.5 MHz uplink band, which are referred to in this rule part as the “1.5/1.6 GHz MSS bands.”

\* \* \* \* \*

2 GHz Mobile-Satellite Service. A Mobile-Satellite Service that is operated in the 2000-2020 MHz and 2180-2200 MHz bands, or in any portion thereof.

\* \* \* \* \*

Earth Station on Vessel (“ESV”). An ESV is an earth station onboard a craft designed for traveling on water receiving from and transmitting to Fixed-Satellite Service space stations.

\* \* \* \* \*

Equivalent power flux density. Equivalent power flux density (EPFD) is the sum of the power flux-densities produced at a geostationary satellite orbit (GSO) receive earth or space station on the Earth’s surface or in the geostationary satellite orbit, as appropriate, by all the transmit stations within a non-geostationary satellite orbit Fixed-Satellite

Service (NGSO FSS) system, taking into account the off-axis discrimination of a reference receiving antenna assumed to be pointing in its nominal direction. The equivalent power flux density, in dB(W/m<sup>2</sup>) in the reference bandwidth, is calculated using the following formula:

$$EPFD = 10 \log_{10} \left[ \sum_{i=1}^{N_a} 10^{10} \frac{P_i}{4\pi d_i^2} \frac{G_t(\theta_i)}{G_{r,\max}} \right]$$

Where:

$N_a$  is the number of transmit stations in the non-geostationary satellite orbit system that are visible from the GSO receive station considered on the Earth's surface or in the geostationary satellite orbit, as appropriate;

$i$  is the index of the transmit station considered in the non-geostationary satellite orbit system;

$P_i$  is the RF power at the input of the antenna of the transmit station, considered in the non-geostationary satellite orbit system in dBW in the reference bandwidth;

$\theta_i$  is the off-axis angle between the boresight of the transmit station considered in the non-geostationary satellite orbit system and the direction of the GSO receive station;

$G_t(\theta_i)$  is the transmit antenna gain (as a ratio) of the station considered in the non-geostationary satellite orbit system in the direction of the GSO receive station;

$d_i$  is the distance in meters between the transmit station considered in the non-geostationary satellite orbit system and the GSO receive station;

$\Phi_i$  is the off-axis angle between the boresight of the antenna of the GSO receive station and the direction of the  $i$ th transmit station considered in the non-geostationary satellite orbit system;

$G_r(\Phi_i)$  is the receive antenna gain (as a ratio) of the GSO receive station in the direction of the  $i$ th transmit station considered in the non-geostationary satellite orbit system;

$G_{r,max}$  is the maximum gain (as a ratio) of the antenna of the GSO receive station.

Feeder link. A radio link from an earth station at a given location to a space station, or vice versa, conveying information for a space radiocommunication service other than the Fixed-Satellite Service. The given location may be at a specified fixed point or at any fixed point within specified areas. (RR)

Fixed earth station. An earth station intended to be used at a fixed position. The position may be a specified fixed point or any fixed point within a specified area.

Fixed-Satellite Service. A radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the Fixed-Satellite Service may also include feeder links of other space radiocommunication services. (RR)

\* \* \* \* \*

Land earth station. An earth station in the Fixed-Satellite Service or, in some cases, in the Mobile-Satellite Service, located at a specified fixed point or within a specified area on land to provide a feeder link for the Mobile-Satellite Service. (RR)

\* \* \* \* \*

Non-Voice, Non-Geostationary Mobile-Satellite Service. A Mobile-Satellite Service reserved for use by non-geostationary satellites in the provision of non-voice communications which may include satellite links between land earth stations at fixed locations.

\* \* \* \* \*

Power spectral density. The amount of an emission's transmitted carrier power applied at the antenna input falling within the stated bandwidth. The units of power spectral density are watts per hertz and are generally expressed in decibel form as dB(W/Hz) when measured in a 1 Hz bandwidth, dB(W/4kHz) when measured in a 4 kHz bandwidth, or dB(W/1MHz) when measured in a 1 MHz bandwidth.

Protection areas. The geographic regions on the surface of the Earth where U.S. Department of Defense meteorological satellite systems or National Oceanic and Atmospheric Administration meteorological satellite systems, or both such systems, are receiving signals from low earth orbiting satellites. Also, geographic protection areas around Ka-band feeder-link earth stations in the 1.6/2.4 GHz Mobile-Satellite Service are determined in the manner specified in § 25.203(j).

\* \* \* \* \*

Routine processing or licensing. A licensing process whereby applications are processed in an expedited manner. To be eligible for routine processing, an application must be complete in all regards, must be consistent with all Commission Rules, and must not raise any policy issues. With respect to fixed earth station licensing (including temporary

fixed stations), an application is “routine” only if it is for an individual earth station that conforms to all applicable provisions of the Commission’s rules pertaining to antenna performance, power, frequency coordination, radiation hazard, and FAA notification, and accesses only “Permitted Space Station List” satellites in the conventional C-band or Ku-band frequency bands.

\* \* \* \* \*

Vehicle-mounted earth station (VMES). A VMES is an earth station, operating from a motorized vehicle that travels primarily on land, that receives from and transmits to geostationary satellite orbit Fixed-Satellite Service space stations and operates within the United States pursuant to the requirements set out in § 25.226.

26. In § 25.202, revise paragraphs (a)(1) and (a)(4)(iii)(A) to read as follows:

**§ 25.202 Frequencies, frequency tolerance and emission limitations.**

(a)(1) Frequency band. The following frequencies are available for use by the Fixed-Satellite Service. Precise frequencies and bandwidths of emission shall be assigned on a case-by-case basis. Refer to the U.S. Table of Frequency Allocations, 47 CFR 2.106, including relevant footnotes, for band-specific use restrictions and coordination requirements. Restrictions and coordination conditions not mentioned in the Table of Frequency Allocations are set forth in the annotations to the following list:

-----

Space-to-Earth (GHz)	Earth-to-space (GHz)
----------------------	----------------------

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3.6-3.65	5.091-5.25
3.65-3.7	5.85-5.925
3.7-4.2	5.925-6.425
4.5-4.8	6.425-6.525
6.7-7.025	6.525-6.7
7.025-7.075	6.7-7.025
10.7-11.7	7.025-7.075
11.7-12.2	12.7-12.75
12.2-12.7	12.75-13.25
18.3-18.58 <sup>1,2</sup>	13.75-14
18.58-18.8	14-14.2
18.8-19.3	14.2-14.5
19.3-19.7	15.43-15.63
19.7-20.2	17.3-17.8
37.5-40 <sup>3</sup>	24.75-25.05
40-42	25.05-25.25
	27.5-28.35 <sup>2</sup>
	28.35-28.6 <sup>4</sup>
	28.6-29.1 <sup>5</sup>
	29.1-29.25 <sup>6</sup>
	29.25-29.5 <sup>7</sup>
	29.5-30.0 <sup>4</sup>
	47.2-50.2

-----  
<sup>1</sup> The 18.3-18.58 GHz band is shared co-equally with existing terrestrial radiocommunication systems until November 19, 2012.

<sup>2</sup> FSS is secondary to LMDS in this band.

<sup>3</sup> Use of this band by the Fixed-Satellite Service is limited to gateway earth station operations, provided the licensee under this Part obtains a license under part 101 of this chapter or an agreement from a part 101 licensee for the area in which an earth station is to be located. Satellite earth station facilities in this band may not be ubiquitously deployed and may not be used to serve individual consumers.

<sup>4</sup> This band is primary for GSO FSS and secondary for NGSO FSS.

<sup>5</sup> This band is primary for NGSO FSS and secondary for GSO FSS.

<sup>6</sup> This band is primary for MSS feeder links and LMDS hub-to-subscriber transmission.

<sup>7</sup> This band is primary for MSS feeder links and GSO FSS.

\* \* \* \* \*

(4) \* \* \*

(iii)(A) The following frequencies are available for use by the 1.5/1.6 GHz Mobile-Satellite Service:

1525-1559 MHz: space-to-Earth

1626.5-1660.5 MHz: Earth-to-space

\* \* \* \* \*

27. In § 25.203, revise paragraphs (g)(2), (g)(4), and (j) to read as follows:

**§ 25.203 Choice of sites and frequencies.**

\* \* \* \* \*

(g) \* \* \*

(2) In the event that the calculated value of the expected field strength exceeds 10 mV/m ( $-65.8 \text{ dBW/m}^2$ ) at the reference coordinates, or if there is any question whether field strength levels might exceed the threshold value, advance consultation with the FCC to discuss any protection necessary should be considered. See § 0.401 of this chapter for contact information.

\* \* \* \* \*

(4) Advance coordination for stations operating above 1000 MHz is recommended only where the proposed station is in the vicinity of a monitoring station designated as a satellite monitoring facility in § 0.121(c) of this chapter and also meets the criteria outlined in paragraphs (g)(2) and (3) of this section.

\* \* \* \* \*

(j) Applicants for non-geostationary 1.6/2.4 GHz Mobile-Satellite Service/Radiodetermination-Satellite Service feeder links in the 17.7-20.2 GHz and 27.5-30.0 GHz bands shall indicate the frequencies and spacecraft antenna gain contours towards each feeder-link earth station location and will coordinate with licensees of other Fixed-Satellite Service and terrestrial-service systems sharing the band to determine geographic protection areas around each non-geostationary Mobile-Satellite Service/Radiodetermination-Satellite Service feeder-link earth station.

\* \* \* \* \*

28. In § 25.204, revise the first sentence in paragraph (f) and revise paragraph (g) to read as follows:

**§ 25.204 Power limits.**

\* \* \* \* \*

(f) In the 13.75-14 GHz band, an earth station in the Fixed-Satellite Service shall have a minimum antenna diameter of 4.5 m and the e.i.r.p. of any emission should be at least 68 dBW and should not exceed 85 dBW. \* \* \*

\* \* \* \* \*

(g) All earth stations in the Fixed-Satellite Service in the 20/30 GHz band, and feeder-link earth stations operating in the 24.75-25.25 GHz band (Earth-to-space) and providing service to geostationary satellites in the 17/24 GHz BSS, shall employ uplink adaptive power control or other methods of fade compensation such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between networks.

\* \* \* \* \*

29. In § 25.208, revise the introductory text in paragraphs (g), (h), (i), (j), (k), (l), (m), (n), and (s) to read as follows:

**§ 25.208 Power flux density limits.**

\* \* \* \* \*

(g) In the 10.7-11.7 GHz and 11.7-12.2 GHz bands, the single-entry equivalent power-flux density in the space-to-Earth direction (EPFD<sub>down</sub>), at any point on the Earth's surface, produced by emissions from all co-frequency space stations of a single non-geostationary-satellite orbit (NGSO) system operating in the Fixed-Satellite Service (FSS) shall not exceed the following limits for the given percentages of time. Tables 1G and 2G follow:

\* \* \* \* \*

(h) In the 10.7-11.7 GHz and 11.7-12.2 GHz bands, the aggregate equivalent power-flux density in the space-to-Earth direction (EPFD<sub>down</sub>), at any point on the Earth's surface, produced by emissions from all co-frequency space stations of all non-geostationary-satellite orbit systems operating in the Fixed-Satellite Service (FSS) shall not exceed the following limits for the given percentages of time. Tables 1H and 2H follow:

\* \* \* \* \*

(i) In the 10.7-11.7 GHz and 11.7-12.2 GHz bands, the additional operational equivalent power-flux density, in the space-to-Earth direction, (additional operational EPFD<sub>down</sub>) at any point on the Earth's surface, produced by actual operational emissions from all co-frequency space stations of a non-geostationary-satellite orbit (NGSO) system operating in the Fixed-Satellite Service (FSS) shall not exceed the following operational limits for the given percentages of time:

\* \* \* \* \*

(j) In the 10.7-11.7 GHz and 11.7-12.2 GHz bands, the operational equivalent power-flux density, in the space-to-Earth direction, (operational EPFD<sub>down</sub>) at any point on the

Earth's surface, produced by actual operational emissions from the in-line co-frequency space station of a non-geostationary-satellite orbit (NGSO) system operating in the Fixed-Satellite Service (FSS) shall not exceed the following operational limits for 100% of the time:

\* \* \* \* \*

(k) In the 12.75-13.15 GHz, 13.2125-13.25 GHz and 13.75-14.5 GHz bands, the equivalent power flux-density, in the Earth-to-space direction, ( $EPFD_{up}$ ) produced at any point on the geostationary satellite orbit (GSO) by the emissions from all co-frequency earth stations in a non-geostationary satellite orbit Fixed-Satellite Service (NGSO FSS) system, for all conditions and for all methods of modulation, shall not exceed the following limits for the specified percentages of time limits:

\* \* \* \* \*

(l) In the 11.7-12.2 GHz and 12.5-12.75 GHz bands in Region 3, 11.7-12.5 GHz bands in Region 1, and 12.2-12.7 GHz band in Region 2, the single-entry equivalent power-flux density, in the space-to-Earth direction, ( $EPFD_{down}$ ), at any point on the Earth's surface, produced by emissions from all co-frequency space stations of a single non-geostationary-satellite orbit (NGSO) system operating in the Fixed-Satellite Service (FSS) shall not exceed the following limits in Tables 1L and 2L for the given percentages of time:

\* \* \* \* \*

(m) In the 11.7-12.2 GHz and 12.5-12.75 GHz bands in Region 3, 11.7-12.5 GHz bands in Region 1, and 12.2-12.7 GHz band in Region 2, the aggregate equivalent power-flux

density, in the space-to-Earth direction, (EPFD<sub>down</sub>) at any point on the Earth's surface, produced by emissions from all co-frequency space stations of all non-geostationary-satellite orbit systems operating in the Fixed-Satellite Service (FSS) shall not exceed the following limits in Tables 1M and 2M for the given percentages of time:

\* \* \* \* \*

(n) The power-flux density at the Earth's surface produced by emissions from a space station in the Fixed-Satellite Service (space-to-Earth), for all conditions and for all methods of modulation, shall not exceed the limits given in Table N. These limits relate to the power flux-density which would be obtained under assumed free-space conditions.

\* \* \* \* \*

(s) In the 40.0-40.5 GHz band, the power flux density at the Earth's surface produced by emissions from a space station for all conditions and for all methods of modulation shall not exceed the following values:

\* \* \* \* \*

30. In § 25.209, revise the section heading and paragraphs (a) introductory text, (b) introductory text, and (c)(1) to read as follows:

**§ 25.209 Earth station antenna performance standards.**

(a) The gain of any antenna to be employed in transmission from an earth station in the Fixed-Satellite Service shall lie below the envelope defined in paragraphs (a)(1) through (4) of this section:

\* \* \* \* \*

(b) The off-axis cross-polarization gain of any antenna to be employed in transmission from an earth station to a space station in the domestic Fixed-Satellite Service shall be defined as follows:

\* \* \* \* \*

(c)(1) Earth station antennas licensed for reception of radio transmissions from a space station in the Fixed-Satellite Service are protected from radio interference caused by other space stations only to the degree to which harmful interference would not be expected to be caused to an earth station employing an antenna conforming to the referenced patterns defined in paragraphs (a) and (b) of this section, and protected from radio interference caused by terrestrial radio transmitters identified by the frequency coordination process only to the degree to which harmful interference would not be expected to be caused to an earth station conforming to the reference pattern defined in paragraphs (a)(3) and (4) of this section.

\* \* \* \* \*

31. In § 25.210, revise the section heading, remove and reserve paragraph (d), and revise paragraphs (f) and (k) to read as follows:

**§ 25.210 Technical requirements for space stations.**

\* \* \* \* \*

(f) All space stations in the Fixed-Satellite Service operating in any portion of the 3600-4200 MHz, 5091-5250 MHz, 5850-7025 MHz, 10.7-12.7 GHz, 12.75-13.25 GHz, 13.75-14.5 GHz, 15.43-15.63 GHz, 18.3-20.2 GHz, 24.75-25.25 GHz, or 27.5-30.0 GHz bands,

including feeder links for other space services, and in the Broadcasting-Satellite Service in the 17.3-17.8 GHz band (space-to-Earth), shall employ state-of-the-art full frequency reuse, either through the use of orthogonal polarizations within the same beam and/or the use of spatially independent beams.

\* \* \* \* \*

(k) Antenna measurements of both co-polarized and cross-polarized performance must be made on all antennas employed by space stations both within and outside the primary coverage area. The results of such measurements shall be submitted to the Commission within thirty days after preliminary in-orbit testing is completed.

\* \* \* \* \*

32. In § 25.211, revise paragraphs (e) and (f) to read as follows:

**§ 25.211 Analog video transmissions in the Fixed-Satellite Service.**

\* \* \* \* \*

(e) Antennas smaller than those specified in paragraph (d) of this section are subject to the provisions of § 25.220. These antennas will not be routinely licensed for transmission of full transponder services.

(f) Each applicant for authorization for analog transmissions in the Fixed-Satellite Service proposing to use maximum power into the antenna in excess of those specified in § 25.211(d), must comply with the procedures set forth in § 25.220.

33. In § 25.212, revise the section heading and paragraphs (c), (d)(2) and (3), and (e) to read as follows:

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

\* \* \* \* \*

(c)(1) In the 14.0-14.5 GHz band, an earth station with an antenna equivalent diameter of 1.2 meters or greater may be routinely licensed for transmission of narrowband analog services with bandwidths up to 200 kHz if the maximum input power spectral density into the antenna does not exceed -8 dBW/4 kHz and the maximum transmitted satellite carrier EIRP density does not exceed 17 dBW/4 kHz.

(2) In the 14.0-14.5 GHz band, an earth station with an antenna equivalent diameter of 1.2 meters or greater may be routinely licensed for transmission of narrowband and/or wideband digital services, including digital video services, if the maximum input spectral power density into the antenna does not exceed -14 dBW/4 kHz, and the maximum transmitted satellite carrier EIRP density does not exceed +10.0 dBW/4 kHz.

(3) Antennas transmitting in the 14.0-14.5 GHz band with a major and/or minor axis smaller than 1.2 meters are subject to the provisions of either § 25.218 or § 25.220.

(d) \* \* \*

(2) For earth stations licensed after March 10, 2005 in the 5925-6425 MHz band, an earth station with an equivalent diameter of 4.5 meters or greater may be routinely licensed for transmission of SCPC services if the maximum power densities into the antenna do not exceed +0.5 dBW/4 kHz for analog SCPC carriers with bandwidths up

to 200 kHz, and do not exceed  $-2.7 - 10\log(N)$  dBW/4 kHz for digital SCPC carriers. For digital SCPC using a frequency division multiple access (FDMA) or time division multiple access (TDMA) technique, N is equal to one. For digital SCPC using a code division multiple access (CDMA) technique, N is the maximum number of co-frequency simultaneously transmitting earth stations in the same satellite receiving beam.

(3) Antennas with an equivalent diameter smaller than 4.5 meters in the 5925-6425 MHz band are subject to the provisions of either § 25.218 or § 25.220.

(e) Each applicant for authorization for transmissions in the Fixed-Satellite Service proposing to use transmitted satellite carrier EIRP densities, and/or maximum antenna input power densities in excess of those specified in paragraph (c) of this section in the 14.0-14.5 GHz band, or in paragraph (d) of this section in the 5925-6425 MHz band, respectively, must comply with the procedures set forth in either § 25.218 or § 25.220.

\* \* \* \* \*

34. In § 25.213, revise the section heading, the first sentence in paragraph (a)(1) introductory text, and paragraph (a)(1)(vi) to read as follows:

**§ 25.213 Inter-Service coordination requirements for the 1.6/2.4 GHz Mobile-Satellite Service.**

(a) \* \* \*

(1) Protection zones. All 1.6/2.4 GHz Mobile-Satellite Service systems shall be capable of determining the position of the user transceivers accessing the space segment through

either internal radiodetermination calculations or external sources such as LORAN-C or the Global Positioning System. \* \* \*

\* \* \* \* \*

(vi) The ESMU shall notify Mobile-Satellite Service space station licensees authorized to operate mobile earth stations in the 1610.0-1626.5 MHz band of periods of radio astronomy observations. The Mobile-Satellite systems shall be capable of terminating operations within the frequency bands and protection zones specified in paragraphs (a)(1)(i) through (iv) of this section, as applicable, after the first position fix of the mobile earth station either prior to transmission or, based upon its location within the protection zone at the time of initial transmission of the mobile earth station. Once the Mobile-Satellite Service system determines that a mobile earth station is located within an RAS protection zone, the Mobile-Satellite Service system shall immediately initiate procedures to relocate the mobile earth station operations to a non-RAS frequency.

\* \* \* \* \*

35. In § 25.214, revise the section heading to read as follows:

**§ 25.214 Technical requirements for space stations in the Satellite Digital Audio Radio Service and associated terrestrial repeaters.**

\* \* \* \* \*

36. In § 25.218, revise paragraphs (a) introductory text and (a)(2) to read as follows:

**§ 25.218 Off-axis EIRP envelopes for FSS earth station operations.**

(a) This section applies to all applications for FSS earth stations operating in the C-band, Ku-band, or extended Ku-band, except for:

\* \* \* \* \*

(2) Analog video earth station applications, and

\* \* \* \* \*

37. In § 25.221, revise the first sentence in paragraph (a) introductory text, the third sentence in paragraph (a)(5), paragraph (a)(7), the introductory text in paragraph (b), and paragraph (b)(1)(ii) to read as follows:

**§ 25.221 Blanket Licensing provisions for Earth Stations on Vessels (ESVs) receiving in the 3700-4200 MHz (space-to-Earth) band and transmitting in the 5925-6425 MHz (Earth-to-space) band, operating with Geostationary Satellite Orbit (GSO) Satellites in the Fixed-Satellite Service.**

(a) The following ongoing requirements govern all ESV licensees and operations in the 3700-4200 MHz (space-to-Earth) and 5925-6425 MHz (Earth-to-space) bands transmitting to GSO satellites in the Fixed-Satellite Service.

\* \* \* \* \*

(5) \* \* \* The ESV operator will make this data available upon request to a coordinator, fixed system operator, Fixed-Satellite system operator, or the Commission within 24 hours of the request.

\* \* \* \* \*

(7) ESV operators transmitting in the 5925-6425 MHz (Earth-to-space) bands to GSO satellites in the Fixed-Satellite Service (FSS) shall 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.

\* \* \* \* \*

(b) Applications for ESV operation in the 5925-6425 MHz (Earth-to-space) band to GSO satellites in the Fixed-Satellite Service must include, in addition to the particulars of operation identified on Form 312, and associated Schedule B, the applicable technical demonstrations in paragraphs (b)(1) or (2) of this section and the documentation identified in paragraphs (b)(3) through (5) of this section.

(1) \* \* \*

(ii) A certification, in Schedule B, that the ESV antenna conforms to the gain pattern criteria of § 25.209(a) and (b), that, combined with the maximum input power density calculated from the EIRP density less the antenna gain, which is entered in Schedule B, demonstrates that the off-axis EIRP spectral density envelope set forth in paragraphs (a)(1)(i)(A) through (C) of this section will be met under the assumption that the antenna is pointed at the target satellite. If an antenna proposed for use by the applicant does not comply with the antenna performance standards in § 25.209(a) and (b), the applicant must provide, as an exhibit to its application, antenna gain test plots pursuant to § 25.132(b)(3).

\* \* \* \* \*

38. In § 25.222, revise the section heading, the first sentence in paragraph (a) introductory text, the third sentence in paragraph (a)(5), paragraph (b) introductory text, and paragraph (b)(1)(ii) to read as follows:

**§ 25.222 Blanket Licensing provisions for Earth Stations on Vessels (ESVs) receiving in the 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) bands and transmitting in the 14.0-14.5 GHz (Earth-to-space) band, operating with Geostationary Orbit (GSO) Satellites in the Fixed-Satellite Service.**

(a) The following ongoing requirements govern all ESV licensees and operations in the 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) and 14.0-14.5 GHz (Earth-to-space) bands transmitting to GSO satellites in the Fixed-Satellite Service. \* \* \*

\* \* \* \* \*

(5) \* \* \* The ESV operator will make this data available upon request to a coordinator, fixed system operator, Fixed-Satellite system operator, NTIA, or the Commission within 24 hours of the request.

\* \* \* \* \*

(b) Applications for ESV operation in the 14.0-14.5 GHz (Earth-to-space) band to GSO satellites in the Fixed-Satellite Service must include, in addition to the particulars of operation identified on Form 312, and associated Schedule B, the applicable technical

demonstrations in paragraphs (b)(1) or (2) of this section and the documentation identified in paragraphs (b)(3) through (5) of this section.

(1) \* \* \*

(ii) A certification, in Schedule B, that the ESV antenna conforms to the gain pattern criteria of § 25.209(a) and (b), that, combined with the maximum input power density calculated from the EIRP density less the antenna gain, which is entered in Schedule B, demonstrates that the off-axis EIRP spectral density envelope set forth in paragraphs (a)(1)(i)(A) through (C) of this section will be met under the assumption that the antenna is pointed at the target satellite. If an antenna proposed for use by the applicant does not comply with the antenna performance standards contained in § 25.209(a) and (b), the applicant must provide, as an exhibit to its application, antenna gain test plots pursuant to § 25.132(b)(3).

\* \* \* \* \*

39. In § 25.226, revise the section heading, the first sentence in paragraph (a) introductory text, the third sentence in paragraph (a)(6), paragraph (b) introductory text, and paragraph (b)(1)(ii) to read as follows:

**§ 25.226 Blanket Licensing provisions for domestic, U.S. Vehicle-Mounted Earth Stations (VMESs) 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 transmitting in the 14.0-14.5 GHz (Earth-to-space) band, operating with Geostationary Satellites in the Fixed-Satellite Service.**

(a) The following ongoing requirements govern all VMES licensees and operations in the 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz

(space-to-Earth) and 14.0-14.5 GHz (Earth-to-space) bands receiving from and transmitting to geostationary orbit satellites in the Fixed-Satellite Service. \* \* \*

\* \* \* \* \*

(6) \* \* \* The VMES operator shall make this data available upon request to a coordinator, fixed system operator, Fixed-Satellite Service system operator, NTIA, or the Commission within 24 hours of the request.

\* \* \* \* \*

(b) Applications for VMES operation in the 14.0-14.5 GHz (Earth-to-space) band to GSO satellites in the Fixed-Satellite Service shall include, in addition to the particulars of operation identified on Form 312, and associated Schedule B, the applicable technical demonstrations in paragraphs (b)(1), (2) or (3) of this section and the documentation identified in paragraphs (b)(4) through (8) of this section.

(1) \* \* \*

(ii) A VMES applicant shall include a certification, in Schedule B, that the VMES antenna conforms to the gain pattern criteria of §§ 25.209(a) and (b), that, combined with the maximum input power density calculated from the EIRP density less the antenna gain, which is entered in Schedule B, demonstrates that the off-axis EIRP spectral density envelope set forth in paragraphs (a)(1)(i)(A) through (C) of this section will be met under the assumption that the antenna is pointed at the target satellite. If an antenna proposed for use by the applicant does not comply with the antenna performance standards contained in § 25.209(a) and (b), the applicant must

provide, as an exhibit to its application, antenna gain test plots pursuant to § 25.132(b)(3).

\* \* \* \* \*

40. In § 25.251, revise paragraph (b) to read as follows:

**§ 25.251 Special requirements for coordination.**

\* \* \* \* \*

(b) The technical aspects of coordination are based on Appendix 7 of the International Telecommunication Union Radio Regulations and certain recommendations of the ITU Radiocommunication Sector (available at the address in § 0.445 of this chapter).

41. In § 25.254, revise the first sentence in paragraph (c) and the section note to read as follows:

**§ 25.254 Special requirements for ancillary terrestrial components operating in the 1610–1626.5 MHz/2483.5–2500 MHz bands.**

\* \* \* \* \*

(c) Applicants for an ancillary terrestrial component to be used in conjunction with a Mobile-Satellite Service system using CDMA technology shall coordinate the use of the 1.6/2.4 GHz Mobile-Satellite Service spectrum designated for CDMA systems using the framework established by the ITU in Recommendation ITU-R M.1186 “Technical Considerations for the Coordination Between Mobile Satellite Service (MSS) Networks

Utilizing Code Division Multiple Access (CDMA) and Other Spread Spectrum  
Techniques in the 1-3 GHz Band” (1995). \* \* \*

\* \* \* \* \*

NOTE to § 25.254: The preceding rules of § 25.254 are based on cdma2000 and IS-95 system architecture. To the extent that a 1.6/2.4 GHz Mobile-Satellite Service licensee is able to demonstrate that the use of different system architectures would produce no greater potential interference than would be produced as a result of implementing the rules of this section, the licensee may apply for ATC authorization based on another system architecture.

**§ 25.256 [Amended]**

42. In § 25.256, remove the words “fixed satellite service” and add in their place the words “Fixed-Satellite Service”.

**§ 25.257 [Amended]**

43. In § 25.257, remove the words “mobile satellite service” in paragraph (a) and add in their place the words “Mobile-Satellite Service”.

44. In § 25.259, revise paragraph (a) to read as follows:

**§ 25.259 Time sharing between NOAA meteorological satellite systems and non-voice, non-geostationary satellite systems in the 137-138 MHz band.**

(a) The space stations of a non-voice, non-geostationary Mobile-Satellite Service (NVNG MSS) system time-sharing downlink spectrum in the 137-138 MHz band with National

Oceanic and Atmospheric Administration (NOAA) satellites shall not transmit signals into the “protection areas” of the NOAA satellites.

(1) With respect to transmission in the 137.333-137.367 MHz, 137.485-137.515 MHz, 137.605-137.635 MHz, and 137.753-137.787 MHz bands, the protection area for a NOAA satellite is the area on the Earth’s surface in which the NOAA satellite is in line of sight from the ground at an elevation angle of five degrees or more above the horizon. No NVNG MSS satellite shall transmit in these bands when it is in line of sight at an elevation angle of zero degrees or more from any point on the ground within a NOAA satellite’s protected area for that band.

(2) With respect to transmission in the 137.025-137.175 MHz and 137.825-138 MHz bands, the protection area for a NOAA satellite is the area on the Earth’s surface in which the NOAA satellite is in line of sight from the ground at any elevation angle above zero degrees. No NVNG MSS satellite shall transmit in these bands when at a line-of-sight elevation angle of zero degrees or more from any point on the ground within a NOAA satellite’s protected area for that band. In addition, such an NVNG MSS satellite shall cease transmitting when it is at an elevation angle of less than zero degrees from any such point, if reasonably necessary to protect reception of the NOAA satellite’s signal.

(3) An NVNG MSS licensee is responsible for obtaining the ephemeris data necessary for compliance with these restrictions. The ephemeris information must be updated system-wide on at least a weekly basis. For calculation required for compliance with these restrictions an NVNG MSS licensee shall use an orbital propagator algorithm with an accuracy equal to or greater than the NORAD propagator used by NOAA.

\* \* \* \* \*

45. In § 25.260, revise paragraph (a) to read as follows:

**§ 25.260 Time sharing between DoD meteorological satellite systems and non-voice, non-geostationary satellite systems in the 400.15-401 MHz band.**

(a) The space stations of a non-voice, non-geostationary Mobile-Satellite Service (NVNG MSS) system time-sharing downlink spectrum in the 400.15-401.0 MHz band with Department of Defense (DoD) satellites shall not transmit signals into the “protection areas” of the DoD satellites.

(1) The protection area for such a DoD satellite is the area on the Earth’s surface in which the DoD satellite is in line of sight from the ground at an elevation angle of five degrees or more above the horizon.

(2) An NVNG MSS space station shall not transmit in the 400.15-401 MHz band when at a line-of-sight elevation angle of zero degrees or more from any point on the ground within the protected area of a DoD satellite operating in that band.

(3) An NVNG MSS licensee is responsible for obtaining the ephemeris data necessary for compliance with this restriction. The ephemeris information must be updated system-wide at least once per week. For calculation required for compliance with this restriction an NVNG MSS licensee shall use an orbital propagator algorithm with an accuracy equal to or greater than the NORAD propagator used by DoD.

\* \* \* \* \*

46. In § 25.261, revise the section heading to read as follows:

**§ 25.261 Procedures for avoidance of in-line interference events for Non-Geostationary Satellite Orbit (NGSO) Satellite Network Operations in the Fixed-Satellite Service (FSS) Bands.**

\* \* \* \* \*

47. In § 25.271, revise paragraphs (c)(1) and (3) to read as follows:

**§ 25.271 Control of transmitting stations.**

\* \* \* \* \*

(c) \* \* \*

(1) The parameters of the transmissions of the remote station monitored at the control point, and the operational functions of the remote earth stations that can be controlled by the operator at the control point, are sufficient to ensure that the operations of the remote station(s) are at all times in full compliance with the remote station authorization(s);

\* \* \* \* \*

(3) Upon detection by the licensee, or upon notification from the Commission of a deviation or upon notification by another licensee of harmful interference, the operation of the remote station shall be immediately suspended by the operator at the control point until the deviation or interference is corrected, except that transmissions concerning the immediate safety of life or property may be conducted for the duration of the emergency; and

\* \* \* \* \*

48. In § 25.272, revise paragraph (a) to read as follows:

**§ 25.272 General inter-system coordination procedures.**

(a) Each space station licensee in the Fixed-Satellite Service shall establish a satellite network control center which will have the responsibility to do the following:

- (1) Monitor space-to-Earth transmissions in its system (thus indirectly monitoring uplink earth station transmissions in its system) and
- (2) Coordinate transmissions in its satellite system with those of other systems to prevent harmful interference incidents or, in the event of a harmful interference incident, to identify the source of the interference and correct the problem promptly.

\* \* \* \* \*

49. In § 25.273, revise paragraph (a)(2) to read as follows:

**§ 25.273 Duties regarding space communications transmissions.**

(a) \* \* \*

- (2) Conduct transmissions over a transponder unless the operator is authorized to transmit at that time by the satellite licensee or the satellite licensee's successor in interest; or

\* \* \* \* \*

50. In § 25.274, revise paragraph (b) to read as follows:

**§ 25.274 Procedures to be followed in the event of harmful interference.**

\* \* \* \* \*

(b) The earth station operator shall then check all other earth stations in the licensee's network that could be causing the harmful interference to ensure that none of them is the source of the interference and to verify that the interference is not from a local terrestrial source.

\* \* \* \* \*

**§ 25.276 [Amended]**

51. In § 25.276, remove paragraph (c).

**§ 25.278 [Amended]**

52. In § 25.278, remove the words “fixed-satellite service” and add in their place the words “Fixed-Satellite Service” each place it appears.

53. In § 25.283, revise paragraph (a) to read as follows:

**§ 25.283 End-of-life disposal.**

(a) Geostationary orbit space stations. Unless otherwise explicitly specified in an authorization, a space station authorized to operate in the geostationary satellite orbit under this part shall be relocated, at the end of its useful life, barring catastrophic failure of satellite components, to an orbit with a perigee with an altitude of no less than:

36,021 km + (1000·C<sub>R</sub>·A/m)

where  $C_R$  is the solar radiation pressure coefficient of the spacecraft, and  $A/m$  is the Area to mass ratio, in square meters per kilogram, of the spacecraft.

\* \* \* \* \*

**§ 25.284 [Amended]**

43. In § 25.284, remove the words “mobile satellite service” and add in their place the words “Mobile-Satellite Service” each place it appears.

**§ 25.601 [Amended]**

44. In § 25.601, remove the words “fixed-satellite service,” “direct broadcast satellite service,” and “broadcasting-satellite service” and add in their place the words “Fixed-Satellite Service,” “Direct Broadcast Satellite Service,” and “Broadcasting-Satellite Service”, respectively.

**§ 25.701 [Amended]**

45. In § 25.701, remove the words “fixed satellite service” in paragraph (a)(2) and add in their place the words “Fixed-Satellite Service.”

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