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subject to a condition that the licensee come into compliance with the PCS spectrum aggregation limits within 90 days of grant.

(b) Within 90 days of license grant, the licensee must certify that the applicant and all parties to the application have come into compliance with the PCS spectrum aggregation limits. If the licensee fails to submit the certification within 90 days, the Commission will immediately cancel all broadband PCS licenses won by the applicant, impose the default penalty and, based on the facts presented, take any other action it may deem appropriate. Divestiture may be to an interim trustee if a buyer has not been secured in the required time frame, as long as the applicant has no interest in or control of the trustee, and the trustee may dispose of the property as it sees fit. In no event may the trustee retain the property for longer than six months from grant of license.

[59 FR 53371, Oct. 24, 1994]

§§ 24.834–24.838 [Reserved]

§ 24.839 Transfer of control or assignment of license.

(a) Restrictions on Assignments and Transfers of Licenses for Frequency Blocks C and F won in closed bidding. No assignment or transfer of control of a license for frequency Block C or frequency Block F won in closed bidding pursuant to the eligibility requirements of § 24.709 will be granted unless:

(1) The application for assignment or transfer of control is filed after five years from the date of the initial license grant; or

(2) The proposed assignee or transferee meets the eligibility criteria set forth in § 24.709 of this part at the time the application for assignment or transfer of control is filed, or the proposed assignee or transferee holds other license(s) for frequency blocks C and F and, at the time of receipt of such license(s), met the eligibility criteria set forth in § 24.709 of this part; or

(3) The application is for partial assignment of a partitioned service area to a rural telephone company pursuant to § 24.714 of this part and the proposed assignee meets the eligibility criteria set forth in § 24.709 of this part; or

(4) The application is for an involuntary assignment or transfer of control to a bankruptcy trustee appointed under involuntary bankruptcy, an independent receiver appointed by a court of competent jurisdiction in a foreclosure action, or, in the event of death or disability, to a person or entity legally qualified to succeed the deceased or disabled person under the laws of the place having jurisdiction over the estate involved; provided that, the applicant requests a waiver pursuant to this paragraph; or

(5) The assignment or transfer of control is pro forma; or

(6) The application for assignment or transfer of control is filed on or after the date the licensee has notified the Commission pursuant to § 24.203(c) that its five-year construction requirement has been satisfied.

(b) If the assignment or transfer of control of a license is approved, the assignee or transferee is subject to the original construction requirement of § 24.203 of this part.

[63 FR 68953, Dec. 14, 1998, as amended at 65 FR 53638, Sept. 5, 2000]

§§ 24.840–24.844 [Reserved]

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AUTHORITY: 47 U.S.C. 154, 301, 302, 303, 307, 309, 310, 319, 332, 605, and 721, unless otherwise noted.

Subpart A—General

§ 25.101 Basis and scope.

(a) The rules and regulations in this part are issued pursuant to the authority contained in section 201(c)(11) of the Communications Satellite Act of 1962, as amended, section 501(c)(6) of the International Maritime Satellite Telecommunications Act, and titles I through III of the Communications Act of 1934, as amended.

(b) The rules and regulations in this part supplement, and are in addition to the rules and regulations contained in or to be added to, other parts of this chapter currently in force, or which may subsequently be promulgated, and which are applicable to matters relating to communications by satellites.

[28 FR 13037, Dec. 5, 1963, as amended at 56 FR 24015, May 28, 1991]

§ 25.102 Station authorization required.

(a) No person shall use or operate apparatus for the transmission of energy or communications or signals by space or earth stations except under, and in accordance with, an appropriate authorization granted by the Federal Communications Commission.

(b) Protection from impermissible levels of interference to the reception of signals by earth stations in the Fixed-Satellite Service from terrestrial stations in a co-equally shared band is provided through the authorizations granted under this part.

[56 FR 24016, May 28, 1991]

§ 25.103 Definitions.

Terms with definitions including the ''(RR)'' designation are defined in the same way in § 2.1 of this chapter and in the Radio Regulations of the International Telecommunication Union.

1.5/1.6 GHz Mobile-Satellite Service. Mobile-Satellite Service provided in any portion of the 1525–1559 MHz space-to-Earth band and the 1626.5–1660.5 MHz Earth-to-space band, which are referred to in this rule part as the ''1.5/1.6 GHz MSS bands.''

1.6/2.4 GHz Mobile-Satellite Service. A Mobile-Satellite Service that operates in the 1610–1626.5 MHz and 2483.5–2500 MHz bands, or in any portion thereof.

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

17/24 GHz Broadcasting-Satellite Service (17/24 GHz BSS). A radiocommunication service involving transmission from one or more feeder-link earth stations to other earth stations via geostationary satellites, in the 17.3–17.7 GHz (space-to-Earth) (domestic allocation), 17.3–17.8 GHz (space-to-Earth) (international allocation) and 24.75–25.25 GHz (Earth-to-space) bands. For purposes of the application processing provisions of this part, the 17/24 GHz BSS is a GSO-like service. Unless specifically stated otherwise, 17/24 GHz BSS systems are subject to the rules in this part applicable to FSS.

Ancillary Terrestrial Component (ATC). A terrestrial communications network used in conjunction with a qualifying satellite network system authorized pursuant to these rules and the conditions established in the Orders issued in IB Docket No. 01–185, *Flexibility for Delivery of Communications by Mobile-Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Band.*

Ancillary Terrestrial Component (ATC) base station. A terrestrial fixed facility used to transmit communications to or receive communications from one or more ancillary terrestrial component mobile terminals.

Ancillary Terrestrial Component (ATC) mobile terminal. A terrestrial mobile facility used to transmit communications to or receive communications from an ancillary terrestrial component base station or a space station.

Blanket license. A license for:

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

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

Contiguous United States (CONUS). For purposes of subparts B and C of

this part, the contiguous United States consists of the contiguous 48 states and the District of Columbia as defined by Partial Economic Areas Nos. 1–41, 43–211, 213–263, 265–297, 299–359, and 361–411, which includes areas within 12 nautical miles of the U.S. Gulf coastline. In this context, the rest of the United States includes the Honolulu, Anchorage, Kodiak, Fairbanks, Juneau, Puerto Rico, Guam-Northern Mariana Islands, U.S. Virgin Islands, American Samoa, and the Gulf of Mexico PEAs (Nos. 42, 212, 264, 298, 360, 412–416). *See* § 27.6(m) of this chapter.

Conventional C-band. The 3700–4200 MHz (space-to-Earth) and 5925–6425 MHz (Earth-to-space) FSS frequency bands.

Conventional Ka-band. The 18.3–18.8 GHz (space-to-Earth), 19.7–20.2 GHz (space-to-Earth), 28.35–28.6 GHz (Earth-to-space), and 29.25–30.0 GHz (Earth-to-space) frequency bands, which the Commission has designated as primary for GSO FSS operation.

Conventional Ku-band. The 11.7–12.2 GHz (space-to-Earth) and 14.0–14.5 GHz (Earth-to-space) FSS frequency bands.

Coordination distance. When determining the need for coordination, the distance on a given azimuth from an earth station sharing the same frequency band with terrestrial stations, or from a transmitting earth station sharing the same bidirectionally allocated frequency band with receiving earth stations, beyond which the level of permissible interference will not be exceeded and coordination is therefore not required. (RR)

Direct Broadcast Satellite (DBS) Service. A radiocommunication service in which signals transmitted or retransmitted by Broadcasting-Satellite Service space stations in the 12.2–12.7 GHz band are intended for direct reception by subscribers or the general public. For the purposes of this definition, the term direct reception includes individual reception and community reception.

Earth station. A station located either on the Earth's surface or within the major portion of the Earth's atmosphere intended for communication:

(1) With one or more space stations; or

(2) With one or more stations of the same kind by means of one or more reflecting satellites or other objects in space. (RR)

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

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

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

Equivalent diameter. When circular aperture reflector antennas are employed, the size of the antenna is generally expressed as the diameter of the antenna's main reflector. When non-reflector or non-circular-aperture antennas are employed, the equivalent diameter is the diameter of a hypothetical circular-aperture antenna with the same aperture area as the actual antenna. For example, an elliptical aperture antenna with major axis a and minor axis b will have an equivalent diameter of $[a \times b]^{1/2}$. A rectangular aperture antenna with length l and width w will have an equivalent diameter of $[4(l \times w)/\pi]^{1/2}$.

Equivalent Power Flux Density (EPFD). The sum of the power flux densities produced at a geostationary-orbit receive earth or space station on the Earth's surface or in the geostationary orbit, as appropriate, by all the transmit stations within a non-geostationary-orbit Fixed-Satellite Service 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 $dB(W/m^2)$ in the reference bandwidth, is calculated using the following formula:

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

Where:

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

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

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

θ_i is the off-axis angle between the boresight of the transmit station considered in the non-geostationary 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 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 orbit system and the GSO receive station;

φ_i is the off-axis angle between the boresight of the antenna of the GSO receive station and the direction of the ith transmit station considered in the non-geostationary orbit system;

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

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

Extended C-band. The 3600–3700 MHz (space-to-Earth), 5850–5925 MHz (Earth-to-space), and 6425–6725 MHz (Earth-to-space) FSS frequency bands.

Extended Ka-band. The 17.3–18.3 GHz (space-to-Earth), 18.8–19.4 GHz (space-to-Earth), 19.6–19.7 GHz (space-to-Earth), 27.5–28.35 GHz (Earth-to-space), and 28.6–29.1 GHz (Earth-to-space) FSS frequency bands.

Extended Ku-band. The 10.95–11.2 GHz (space-to-Earth), 11.45–11.7 GHz (space-to-Earth), and 13.75–14.0 GHz bands (Earth-to-space) FSS frequency bands.

Feeder link. A radio link from a fixed 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 (FSS). 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)

Geographically independent area (GIA). Any of the following six areas:

(1) CONUS;

(2) Alaska;

(3) Hawaii;

(4) American Samoa;

(5) Puerto Rico/U.S. Virgin Islands; and

(6) Guam/Northern Mariana Islands.

Geostationary-orbit (GSO) satellite. A geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's equator and which thus remains fixed relative to the Earth; by extension, a geosynchronous satellite which remains approximately fixed relative to the Earth.

Inter-Satellite Service. A radiocommunication service providing links between artificial earth satellites.

Ku band. In this rule part, the terms ''Ku band'' and ''conventional Ku band'' refer to the 11.7–12.2 GHz (space-to-Earth) and 14.0–14.5 GHz (Earth-to-space) bands. These paired bands are allocated to the Fixed-Satellite Service and are also referred to as the 12/14 GHz bands.

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)

Land Mobile Earth Station. A mobile earth station in the land mobile-satellite service capable of surface movement within the geographical limits of a country or continent. (RR)

Mobile Earth Station. An earth station in the Mobile-Satellite Service intended to be used while in motion or during halts at unspecified points. (RR)

Mobile-Satellite Service (MSS). (1) A radiocommunication service:

(i) Between mobile earth stations and one or more space stations, or between space stations used by this service; or

(ii) Between mobile earth stations, by means of one or more space stations.

(2) This service may also include feeder links necessary for its operation. (RR)

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

NGSO. Non-geostationary orbit.

NGSO FSS gateway earth station. An earth station or complex of multiple earth station antennas that supports the routing and switching functions of an NGSO FSS system and that does not originate or terminate communication traffic. An NGSO FSS gateway earth station may also be used for telemetry, tracking, and command transmissions and is not for the exclusive use of any customer.

Non-Voice, Non-Geostationary (NVNG) 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.

Permitted Space Station List. A list of all U.S.-licensed geostationary-orbit space stations providing Fixed-Satellite Service in the conventional C band, the conventional Ku band, or the 18.3–18.8 GHz, 19.7–20.2 GHz, 28.35–28.6 GHz, and 29.25–30.0 GHz bands, as well as non-U.S.-licensed geostationary-orbit space stations approved for U.S. market access to provide Fixed-Satellite Service in the conventional C band, conventional Ku band, or 18.3–18.8 GHz, 19.7–20.2 GHz, 28.35–28.6 GHz, and 29.25–30.0 GHz bands.

Plane perpendicular to the GSO arc. The plane that is perpendicular to the ''plane tangent to the GSO arc,'' as defined below, and includes a line between the earth station in question and the GSO space station that it is communicating with.

Plane tangent to the GSO arc. The plane defined by the location of an earth station's transmitting antenna and a line in the equatorial plane that is tangent to the GSO arc at the location of the GSO space station that the earth station is communicating with.

Power flux density (PFD). The amount of power flow through a unit area within a unit bandwidth. The units of power flux density are those of power spectral density per unit area, namely watts per hertz per square meter. These units are generally expressed in decibel form as dB(W/Hz/m^2), dB(W/m^2) in a 4 kHz band, or dB(W/m^2) in a 1 MHz band.

Power Spectral Density (PSD). 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/MHz) when measured in a 1 MHz bandwidth.

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

Radiodetermination-Satellite Service. A radiocommunication service for the purpose of radiodetermination involving the use of one of more space stations. This service may also include

feeder links necessary for its own operation. (RR)

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

Satellite Digital Audio Radio Service (SDARS). A radiocommunication service in which audio programming is digitally transmitted by one or more space stations directly to fixed, mobile, and/or portable stations, and which may involve complementary repeating terrestrial transmitters and telemetry, tracking and command facilities.

Satellite system. A space system using one or more artificial earth satellites. (RR)

SCS earth stations. Any earth station used for the provision of supplemental coverage from space consistent with § 25.115(q).

Selected assignment. A spectrum assignment voluntarily identified by a 2 GHz MSS licensee at the time that the licensee's first 2 GHz Mobile-Satellite Service satellite reaches its intended orbit.

Shapeable antenna beam. A satellite transmit or receive antenna beam, the gain pattern of which can be modified at any time without physically repositioning a satellite antenna reflector.

Skew angle. The angle between the minor axis of an axially asymmetric antenna beam and the plane tangent to the GSO arc.

Small satellite. An NGSO space station eligible for authorization under the application process described in § 25.122.

Small spacecraft. An NGSO space station operating beyond Earth's orbit that is eligible for authorization under the application process described in § 25.123.

Space radiocommunication. Any radiocommunication involving the use of one or more space stations or the use of one or more reflecting satellites or other objects in space.

Space station. A station located on an object which is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere. (RR)

Space system. Any group of cooperating earth stations and/or space stations employing space radiocommunication for specific purposes. (RR)

Spacecraft. A man-made vehicle which is intended to go beyond the major portion of the Earth's atmosphere. (RR)

Supplemental coverage from space (SCS). The provision of coverage to terrestrial wireless subscribers through an arrangement or agreement (see § 1.9047 of this chapter) between one or more NGSO or GSO operator(s) and one or more terrestrial wireless licensee(s), involving transmissions between space stations and SCS earth stations. NGSO and GSO operators and terrestrial wireless service licensees seeking to provide SCS must be authorized in compliance with § 25.125.

Terrestrial radiocommunication. Any radiocommunication other than space radiocommunication or radio astronomy. (RR)

Terrestrial station. A station effecting terrestrial radiocommunication.

Two-degree-compliant space station. A GSO FSS space station operating in the conventional or extended C-bands, the conventional or extended Ku-bands, the 24.75–25.25 GHz band, or the conventional or extended Ka-bands within the limits on downlink equivalent isotropically radiated power (EIRP) density or PFD specified in § 25.140(a)(3) or (b)(3) and communicating only with earth stations operating in conformance with routine uplink parameters specified in § 25.211(d), § 25.212(c), (d), or (f), or § 25.218.

Vehicle-Mounted Earth Station (VMES). An earth station, operating from a motorized vehicle that travels primarily on land, that receives from

and transmits to Fixed-Satellite Service space stations and operates within the United States.

[79 FR 8311, Feb. 12, 2014, as amended at 79 FR 26868, May 12, 2014; 81 FR 55324, Aug. 18, 2016; 83 FR 34489, July 20, 2018; 84 FR 53651, Oct. 8, 2019; 84 FR 66779, Dec. 5, 2019; 85 FR 22864, Apr. 23, 2020; 85 FR 44786, July 24, 2020; 85 FR 43733, July 20, 2020; 87 FR 72403, Nov. 25, 2022; 89 FR 34166, Apr. 30, 2024]

§ 25.104 Preemption of local zoning of earth stations.

(a) Any state or local zoning, land-use, building, or similar regulation that materially limits transmission or reception by satellite earth station antennas, or imposes more than minimal costs on users of such antennas, is preempted unless the promulgating authority can demonstrate that such regulation is reasonable, except that non-federal regulation of radio frequency emissions is not preempted by this section. For purposes of this paragraph (a), reasonable means that the local regulation:

(1) Has a clearly defined health, safety, or aesthetic objective that is stated in the text of the regulation itself; and

(2) Furthers the stated health, safety or aesthetic objective without unnecessarily burdening the federal interests in ensuring access to satellite services and in promoting fair and effective competition among competing communications service providers.

(b)(1) Any state or local zoning, land-use, building, or similar regulation that affects the installation, maintenance, or use of a satellite earth station antenna that is two meters or less in diameter and is located or proposed to be located in any area where commercial or industrial uses are generally permitted by non-federal land-use regulation shall be presumed unreasonable and is therefore preempted subject to paragraph (b)(2) of this section. No civil, criminal, administrative, or other legal action of any kind shall be taken to enforce any regulation covered by this presumption unless the promulgating authority has obtained a waiver from the Commission pursuant to paragraph (e) of this section, or a final declaration from the Commission or a court of competent jurisdiction that the presumption has been rebutted pursuant to paragraph (b)(2) of this section.

(2) Any presumption arising from paragraph (b)(1) of this section may be rebutted upon a showing that the regulation in question:

(i) Is necessary to accomplish a clearly defined health or safety objective that is stated in the text of the regulation itself;

(ii) Is no more burdensome to satellite users than is necessary to achieve the health or safety objective; and

(iii) Is specifically applicable on its face to antennas of the class described in paragraph (b)(1) of this section.

(c) Any person aggrieved by the application or potential application of a state or local zoning or other regulation in violation of paragraph (a) of this section may, after exhausting all nonfederal administrative remedies, file a petition with the Commission requesting a declaration that the state or local regulation in question is preempted by this section. Nonfederal administrative remedies, which do not include judicial appeals of administrative determinations, shall be deemed exhausted when:

(1) The petitioner's application for a permit or other authorization required by the state or local authority has been denied and any administrative appeal and variance procedure has been exhausted;

(2) The petitioner's application for a permit or other authorization required by the state or local authority has been on file for ninety days without final action;

(3) The petitioner has received a permit or other authorization required by the state or local authority that is conditioned upon the petitioner's expenditure of a sum of money, including costs required to screen, pole-mount, or otherwise specially install the antenna, greater than the aggregate purchase or total lease cost of the equipment as normally installed; or

(4) A state or local authority has notified the petitioner of impending civil or criminal action in a court of law and there are no more nonfederal administrative steps to be taken.

(d) Procedures regarding filing of petitions requesting declaratory rulings

and other related pleadings will be set forth in subsequent Public Notices. All allegations of fact contained in petitions and related pleadings must be supported by affidavit of a person or persons with personal knowledge thereof.

(e) Any state or local authority that wishes to maintain and enforce zoning or other regulations inconsistent with this section may apply to the Commission for a full or partial waiver of this section. Such waivers may be granted by the Commission in its sole discretion, upon a showing by the applicant that local concerns of a highly specialized or unusual nature create a necessity for regulation inconsistent with this section. No application for waiver shall be considered unless it specifically sets forth the particular regulation for which waiver is sought. Waivers granted in accordance with this section shall not apply to later-enacted or amended regulations by the local authority unless the Commission expressly orders otherwise.

(f) A satellite earth station antenna that is designed to receive direct broadcast satellite service, including direct-to-home satellite services, that is one meter or less in diameter or is located in Alaska is covered by the regulations in §1.4000 of this chapter.

[61 FR 10898, Mar. 18, 1996, as amended at 61 FR 46562, Sept. 4, 1996]

EFFECTIVE DATE NOTE: At 61 FR 46562, Sept. 4, 1996, §25.104 was amended by revising paragraph (b)(1) and adding paragraph (f). These paragraphs contain information collection and recordkeeping requirements and will not become effective until approval has been given by the Office of Management and Budget.

§ 25.105 Citizenship.

The rules that establish the requirements and conditions for obtaining the Commission's prior approval of foreign ownership in common carrier licensees that would exceed the 20 percent limit in section 310(b)(3) of the Communications Act (47 U.S.C. 310(b)(3)) and/or the 25 percent benchmark in section 310(b)(4) of the Act (47 U.S.C. 310(b)(4)) are set forth in §§1.5000 through 1.5004 of this chapter.

[81 FR 86613, Dec. 1, 2016]

§§ 25.106–25.107 [Reserved]

§ 25.108 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. All approved incorporation by reference (IBR) material is available for inspection at the FCC and the National Archives and Records Administration (NARA). Contact FCC through the Federal Communications Commission's Reference Information Center, phone: (202) 418–0270. For information on the availability of this material at NARA, visit *www.archives.gov/federal-register/cfr/ibr-locations.html* or email *fr.inspection@nara.gov* or go to. The material may be obtained from the sources in the following paragraphs of this section.

(b) European Telecommunications Standards Institute (ETSI), 650 Route des Lucioles, 06921 Sophia-Antipolis Cedex, France; *http://www.etsi.org;* Voice: +33 (0)4 92 94 42 00; Fax: +33 (0)4 93 65 47 16; email: *webstore@etsi.org*.

(1) ETSI TS 103 129 V1.1.2 (2014–03), ''Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation of a carrier identification system (DVB–CID) for satellite transmission,'' Version 1.1.2, March 2014. Incorporation by reference approved for §25.281(b).

(2) [Reserved]

(c) International Telecommunication Union (ITU), Place des Nations, 1211 Geneva 20 Switzerland; *www.itu.int;* Voice: +41 22 730 5111; Fax: +41 22 733 7256; email: *itumail@itu.int*.

(1) ITU Radio Regulations, Volume 1: Articles, Article 9, ''Procedure for effecting coordination with or obtaining agreement of other administrations,'' Section II, ''Procedure for effecting coordination,'' Edition of 2012, *http://www.itu.int/pub/R–REG–RR–2012*. Incorporation by reference approved for §25.111(e).

(2) ITU Radio Regulations, Volume 1: Articles, Article 21, ''Terrestrial and space services sharing frequency bands above 1 GHz,'' Section V, ''Limits of power flux-density from space stations,'' Edition of 2016, copyright 2016, *http://www.itu.int/pub/R-REG-RR-2016*.

Incorporation by reference approved for § 25.146(a).

(3) ITU Radio Regulations, Volume 1: Articles, Article 22, ''Space services,'' Section II, ''Control of interference to geostationary-satellite systems,'' Edition of 2016, copyright 2016, *http://www.itu.int/pub/R-REG-RR-2016*. Incorporation by reference approved for §§ 25.146(a), 25.289.

(4) ITU Radio Regulations, Volume 2: Appendices, Appendix 7, ''Methods for the determination of the coordination areas around an earth station in the frequency bands between 100 MHz and 105 GHz,'' Edition of 2012, *http://www.itu.int/pub/R-REG-RR-2012*. Incorporation by reference approved for § 25.203(m).

(5) ITU Radio Regulations, Volume 2: Appendices, Appendix 30, ''Provisions for all services and associated Plans and List for the broadcasting-satellite service in the frequency bands 11.7–12.2 GHz (in Region 3), 11.7–12.5 GHz (in Region 1) and 12.2–12.7 GHz (in Region 2),'' Edition of 2012, *http://www.itu.int/pub/R–REG–RR–2012*. Incorporation by reference approved for §§ 25.110(b), 25.117(h), 25.118(e), and 25.140(b).

(6) ITU Radio Regulations, Volume 2: Appendices, Appendix 30A, ''Provisions and associated Plans and List for feeder links for the broadcasting-satellite service (11.7–12.5 GHz in Region 1, 12.2–12.7 GHz in Region 2 and 11.7–12.2 GHz in Region 3) in the frequency bands 14.5–14.8 GHz and 17.3–18.1 GHz in Regions 1 and 3, and 17.3–17.8 GHz in Region 2,'' Edition of 2012, *http://www.itu.int/pub/R-REG-RR-2012*. Incorporation by reference approved for §§ 25.110(b), 25.117(h), 25.118(e), and 25.140(b).

(7) ITU Radio Regulations, Volume 2: Appendices, Appendix 30B, ''Provisions and associated Plan for the fixed-satellite service in the frequency bands 4 500–4 800 MHz, 6 725–7 025 MHz, 10.70–10.95 GHz, 11.2–11.45 GHz and 12.75–13.25 GHz,'' Edition of 2012, *http://www.itu.int/pub/R-REG-RR-2012*. Incorporation by reference approved for §§ 25.110(b) and 25.140(a).

(8) ITU Radio Regulations, Volume 3: Resolutions and Recommendations, Resolution 76 (Rev.WRC-15), ''Protection of geostationary fixed-satellite service and geostationary broadcasting-satellite service networks from the maximum aggregate equivalent power flux-density produced by multiple non-geostationary fixed-satellite service systems in frequency bands where equivalent power flux-density limits have been adopted,'' Edition of 2016, copyright 2016, *http://www.itu.int/pub/R-REG-RR-2016*. Incorporation by reference approved for § 25.146(a).

(9) ITU Radio Regulations, Volume 3: Resolutions and Recommendations, Resolution 85 (WRC–03), ''Application of Article 22 of the Radio Regulations to the protection of geostationary fixed-satellite service and broadcasting-satellite service networks from non-geostationary fixed-satellite service systems,'' Edition of 2016, copyright 2016, *http://www.itu.int/pub/R-REG-RR-2016*. Incorporation by reference approved for § 25.146(c).

(10) 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). Incorporation by reference approved for § 25.254(c).

(d) Radio Technical Commission for Maritime Services (RTCM). 1611 N. Kent St., Suite 605, Arlington, VA 22209; email: *info@rtcm.org*; website: *www.rtcm.org*.

(1) RTCM 12800.0, ''Satellite Emergency Notification Devices (SENDs),'' dated August 1, 2011. Incorporation by reference approved for § 25.301.

(2) [Reserved]

[81 FR 55324, Aug. 18, 2016, as amended at 82 FR 37029, Aug. 8, 2017; 82 FR 40494, Aug. 25, 2017; 82 FR 59984, Dec. 18, 2017; 85 FR 64407, Oct. 13, 2020; 86 FR 49488, Sept. 3, 2021; 88 FR 21439, Apr. 10, 2023; 86 FR 49488, Sept. 3, 2021; 89 FR 58072, July 17, 2024]

§ 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.

(e) Space and earth stations in the 3700–4200 MHz band may be subject to transition rules in part 27 of this chapter.

(f) Space and SCS earth stations providing SCS are subject to technical rules in parts 2, 22, 24, and 27 of this chapter where applicable.

[78 FR 8420, Feb. 6, 2013, as amended at 85 FR 22864, Apr. 23, 2020; 89 FR 34166, Apr. 30, 2024]

Subpart B—Applications and Licenses

SOURCE: 56 FR 24016, May 28, 1991, unless otherwise noted.

GENERAL APPLICATION FILING REQUIREMENTS

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

(a) *Filing.* Applications may be filed by going online at *https://www.fcc.gov/icfs* and submitting the application through the International Communications Filing System (ICFS).

(b) *Submitting your application.* (1) All earth station license applications must be filed electronically on FCC Form 312 in accordance with the applicable provisions of part 1, subpart Y of this chapter.

(2) Except as provided in paragraph (b)(3) of this section, applications for space station licenses must be filed electronically on FCC Form 312 in accordance with the applicable provisions of part 1, subpart Y of this chapter and include all information required by § 25.114.

(b)(3) A license application for 17/24 GHz BSS space station operation, for GSO FSS space station operation, or for GSO space station operation subject to the provisions in Appendices 30 and 30A of the ITU Radio Regulations (incorporated by reference, see § 25.108) may be submitted in two steps, as follows:

(i) An application for 17/24 GHz BSS space station operation or for GSO FSS space station operation not subject to the provisions in Appendix 30B of the ITU Radio Regulations (incorporated by reference, *see* § 25.108) may be initiated by filing with the Commission, in accordance with the applicable provisions of part 1, subpart Y of this chapter, a draft Coordination Request and simplified Form 312 for the proposed operation and a declaration of acceptance of ITU cost-recovery responsibility in accordance with § 25.111(d). The simplified Form 312, Main Form submission must include the information required by items 1–17, 43, 45, and 46.

(ii) An application for GSO FSS space station operation subject to the provisions in Appendix 30B of the ITU Radio Regulations (incorporated by reference, *see* § 25.108) may be initiated by submitting to the Commission, in accordance with the applicable provisions of part 1, subpart Y of this chapter, a draft ITU filing to convert an allotment into an assignment, to introduce an additional system, or to modify an assignment in the Appendix 30B List accompanied by a simplified Form 312 and a declaration of acceptance of ITU cost-recovery responsibility in accordance with § 25.111(d). The simplified Form 312, Main Form submission must include the information required by items 1–17, 43, 45, and 46. In addition, the applicant must submit the results of an analysis demonstrating that no U.S. filing under Appendix 30B would be deemed affected by the proposed operation under the relevant ITU criteria or, for any affected filings, a letter signed by the affected operator that it consents to the new filing.

(iii) An application for GSO space station operation subject to the provisions in Appendices 30 and 30A of the ITU Radio Regulations (incorporated by reference, see § 25.108) may be initiated by submitting to the Commission, in accordance with the applicable provisions of part 1, subpart Y of this chapter, a draft ITU filing to: modify an existing frequency assignment in the Region 2 Plan; to include a new frequency assignment in the Region 2 Plan; or to include a new or modified frequency assignment in the List of the

Regions 1 and 3 Plan, accompanied by a simplified Form 312 and a declaration of acceptance of ITU cost-recovery responsibility in accordance with § 25.111(d). The simplified Form 312, Main Form submission must include the information required by items 1–17, 43, 45, and 46. In addition, the applicant must submit the results of an analysis demonstrating that no U.S. filing under Appendix 30 and 30A would be deemed affected by the proposed operation under the relevant ITU criteria or, for any affected filings, a letter signed by the affected operator that it consents to the new filing.

(iv) An application initiated pursuant to paragraphs (b)(3)(i), (ii), or (iii) of this section will be considered completed by the filing of an FCC Form 312 and the remaining information required in a complete license application, including the information required by § 25.114, within two years of the date of submission of the initial application materials.

(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.

(d) *Copies*. Applications must be filed electronically though ICFS. The Commission will not accept any paper version of any application.

(e) *Signing*. Upon filing an application electronically, the applicant must print out the filed application, obtain the proper signatures, and keep the original in its files.

(f) An applicant must pay the appropriate filing fee in accordance with part 1, subpart G of this chapter, at the time when it files a FCC Form 312.

[69 FR 47793, Aug. 6, 2004, as amended at 78 FR 8420, Feb. 6, 2013; 81 FR 55325, Aug. 18, 2016; 86 FR 49488, Sept. 3, 2021; 88 FR 21440, Apr. 10, 2023]

EFFECTIVE DATE NOTE: At 90 FR 41800, Aug. 27, 2025, § 25.110 was amended, delayed indefinitely.

§ 25.111 Additional information, ITU filings, and ITU cost recovery.

(a) The Commission may request from any party at any time additional information concerning any application, or any other submission or pleading regarding an application, filed under this part.

(b) Applicants and licensees of radio stations governed by this part must provide the Commission with the information required for Advance Publication, Coordination, and Notification of frequency assignment filings, including due diligence information, pursuant to the Radio Regulations of the International Telecommunication Union. No protection from interference caused by radio stations authorized by other Administrations is guaranteed unless ITU procedures are timely completed or, with respect to individual Administrations, coordination agreements are successfully completed. A license for which such procedures have not been completed may be subject to additional terms and conditions required for coordination of the frequency assignments with other Administrations.

(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. For such systems, no protection from interference caused by radio stations authorized by other Administrations is guaranteed until the agreement of all affected Administrations is obtained and the frequency assignment becomes a part of the appropriate Region 2 BSS and feeder-link Plans. Authorizations for which coordination is not completed and/or for which the necessary agreements under Appendices 30 and 30A have not been obtained may be subject to additional terms and conditions as required to effect coordination or obtain the agreement of other Administrations. 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.

(d) The Commission will submit filings to the ITU on behalf of an applicant, licensee, or other requesting party only after the party has filed a signed declaration of unconditional acceptance of all consequent ITU cost-recovery responsibility. Applicants and licensees must file the declaration electronically in the application file in the International Communications Filing System (ICFS). In addition, applicants and licensees must reference the call sign and name of the satellite network in the declaration. All cost-recovery declarations must include the name(s), address(es), email address(es), and telephone number(s) of a contact person, or persons, responsible for cost recovery inquiries and ITU correspondence and filings. Supplements must be filed as necessary to apprise the Commission of changes in the contact information until the ITU cost-recovery responsibility is discharged. The applicant, licensee, or other party must remit payment of any resultant cost-recovery fee to the ITU by the due date specified in the ITU invoice, unless an appeal is pending with the ITU that was filed prior to the due date. A license granted in reliance on such a commitment will be conditioned upon discharge of any such cost-recovery obligation. Where an applicant or licensee has an overdue ITU cost-recovery fee and does not have an appeal pending with the ITU, the Commission will dismiss any application associated with that satellite network.

(e) The Commission will process and forward to the ITU up to five Advance Publication filings by an entity that are not accompanied by a complete space station license application or by an application pursuant to §25.110(b)(3)(i) or (b)(3)(ii). Such Advance Publication filing requests not contained in an application must be accompanied by a letter request and a signed ITU cost-recovery declaration pursuant to paragraph (d) of this section. A request for filing of Advance Publication information will be attributed to an entity in the same manner as a space station license application under the criteria set forth in §25.159(c).

NOTE TO PARAGRAPH (e): After June 30, 2016, the Commission will not forward Advance Publication information for satellite networks or systems subject to Article 9, Section II of the ITU Radio Regulations (incorporated by reference, *see* §25.108).

[56 FR 24016, May 28, 1991, as amended at 67 FR 51113, Aug. 7, 2002; 68 FR 63997, Nov. 12, 2003; 78 FR 8421, Feb. 6, 2013; 79 FR 8314, Feb. 12, 2014; 81 FR 55325, Aug. 18, 2016; 86 FR 54399, Oct. 1, 2021; 88 FR 21440, Apr. 10, 2023]

§25.112 Dismissal and return of applications.

(a) An application will be unacceptable for filing and will be returned to the applicant with a brief statement identifying the omissions or discrepancies if:

(1) The application is defective with respect to completeness of answers to questions, informational showings, internal inconsistencies, execution, or other matters of a formal character; or

(2) The application does not substantially comply with the Commission's rules, regulations, specific requests for additional information, or other requirements.

(3) [Reserved]

(4) The application is identical to a pending application that was timely filed pursuant to §25.157 or §25.158.

(b) Applications for space station authority found defective under paragraph (a)(4) of this section will not be considered. Applications for authority found defective under paragraph (a)(1) or (2) of this section may be accepted for filing if:

(1) The application is accompanied by a request which sets forth the reasons in support of a waiver of (or an exception to), in whole or in part, any specific rule, regulation, or requirement with which the application is in conflict;

(2) The Commission, upon its own motion, waives (or allows an exception to), in whole or in part, any rule, regulation or requirement.

(c) The Commission will dismiss an application for failure to prosecute or for failure to respond substantially within a specified time period to official correspondence or requests for additional information. Dismissal will be

without prejudice unless the application is mutually exclusive pursuant to § 25.155, in which case it will be dismissed with prejudice.

(d) An application will be dismissed without prejudice as a matter of right if the applicant requests its dismissal prior to final Commission action.

[56 FR 24016, May 28, 1991, as amended at 68 FR 51502, Aug. 27, 2003; 79 FR 8314, Feb. 12, 2014; 81 FR 55326, Aug. 18, 2016; 85 FR 43733, July 20, 2020; 88 FR 84753, Dec. 6, 2023]

§ 25.113 Station construction, deployment approval, and operation of spare satellites.

(a) Construction permits are not required for earth stations. Construction of such stations may commence prior to grant of an earth station license at the applicant's own risk, subject to the requirements of § 1.1312 and part 17 of this chapter concerning environmental processing and construction, marking, and lighting of antenna structures.

(b) Construction permits are not required for Ancillary Terrestrial Component (ATC) stations. A party with licenses issued under this part for launch and operation of 1.5/1.6 GHz or 1.6/2.4 GHz GHz Mobile-Satellite Service space stations and operation of associated ATC facilities may commence construction of ATC base stations at its own risk after commencing physical construction of the space stations, subject to the requirements of § 1.1312 and part 17 of this chapter. Such an MSS/ATC licensee may also conduct equipment tests for the purpose of making adjustments and measurements necessary to ensure compliance with the terms of its ATC license, applicable rules in this part, and technical design requirements. Prior to commencing such construction and pre-operational testing, an MSS/ATC licensee must notify the Commission of the commencement of physical satellite construction and the licensee's intention to construct and test ATC facilities. This notification must be filed electronically in the appropriate file in the International Communications Filing System database. The notification must specify the frequencies the licensee proposes to use for pre-operational testing and the name, address, and telephone number of a representative for the reporting and mitigation of any interference resulting from such testing. MSS/ATC licensees engaging in pre-operational testing must comply with §§ 5.83, 5.85(c), 5.111, and 5.117 of this chapter regarding experimental operations. An MSS/ATC licensee may not offer ATC service to the public for compensation during pre-operational testing.

(c)–(e) [Reserved]

(f) Construction permits are not required for U.S.-licensed space stations, except for stations that the applicant proposes to operate to disseminate program content to be received by the public at large, rather than only by subscribers. Construction of a station for which a construction permit is not required may commence, at the applicant's own risk, prior to grant of a license.

(g) Except as set forth in paragraphs (h) and (i) of this section, approval for orbital deployment and a station license (*i.e.*, operating authority) must be applied for and granted before a space station may be deployed and operated in orbit. Approval for orbital deployment may be requested in an application for a space station license. However, an application for authority to deploy and operate an on-ground spare satellite will be considered pursuant to the following procedures:

(1) Applications for deployment and operation of an on-ground spare NGSO-like satellite will be considered pursuant to the procedures set forth in § 25.157, except as provided in paragraph (g)(3) of this section.

(2) Applications for deployment and operation of an on-ground spare GSO-like satellite will be considered pursuant to the procedures set forth in § 25.158, except as provided in paragraph (g)(3) of this section.

(3) Neither paragraph (g)(1) nor (g)(2) of this section will apply in cases where the space station to be deployed is determined to be an emergency replacement for a previously authorized space station that has been lost as a result of a launch failure or a catastrophic in-orbit failure.

(h) An operator of NGSO space stations under a blanket license granted by the Commission, except for those granted pursuant to the application

process in § 25.122 or § 25.123, need not apply for license modification to operate technically identical in-orbit spare satellites in an authorized orbit. However, the licensee must notify the Commission within 30 days of bringing an in-orbit spare into service and certify that its activation has not exceeded the number of space stations authorized to provide service and that the licensee has determined by measurement that the activated spare is operating within the terms of the license.

(i) An operator of NGSO space stations under a blanket license granted by the Commission, except for those granted pursuant to the application process in § 25.122 or § 25.123, need not apply for license modification to deploy and operate technically identical replacement satellites in an authorized orbit within the term of the system authorization. However, the licensee must notify the Commission of the intended launch at least 30 days in advance and certify that its operation of the additional space station(s) will not increase the number of space stations providing service above the maximum number specified in the license.

[56 FR 24016, May 28, 1991, as amended at 61 FR 4366, Feb. 6, 1996; 61 FR 9951, Mar. 12, 1996; 61 FR 55582, Oct. 28, 1996; 62 FR 5927, Feb. 10, 1997; 62 FR 64172, Dec. 4, 1997; 68 FR 51502, Aug. 27, 2003; 69 FR 47794, Aug. 6, 2004; 70 FR 32253, June 2, 2005; 77 FR 3954, Jan. 26, 2012; 78 FR 8421, Feb. 6, 2013; 79 FR 8314, Feb. 12, 2014; 79 FR 27503, May 14, 2014; 81 FR 55326, Aug. 18, 2016; 85 FR 43733, July 20, 2020; 88 FR 21440, Apr. 10, 2023]

§ 25.114 Applications for space station authorizations.

(a)(1) A license application filed pursuant to § 25.110(b)(2) for a GSO space station or NGSO space station or space-station constellation must comprise a comprehensive proposal and must be submitted on FCC Form 312, Main Form and Schedule S, with attached exhibits required by paragraph (d) of this section.

(2) An application for blanket authority for an NGSO constellation of space stations that are not all technically identical must provide the information required by paragraphs (c) and (d) of this section for each type of station in the constellation.

(3) For an application filed pursuant to the two-step procedure in § 25.110(b)(3), the filing pursuant to § 25.110(b)(3)(iv) must be submitted on FCC Form 312, Main Form and Schedule S, with attached exhibits as required by paragraph (d) of this section, and must constitute a comprehensive proposal.

(4) For an application filed pursuant to the SCS procedure in § 25.125, the filing must be submitted on FCC Form 312, Main Form and Schedule S, with attached exhibits as required by paragraph (d) of this section, and must constitute a comprehensive proposal.

(b) Each application for a new or modified space station authorization must contain the formal waiver required by 47 U.S.C. 304.

(c) The following information shall be filed on FCC Form 312, Main Form and Schedule S:

(1) Name, address, and telephone number of the applicant;

(2) Name, address, and telephone number of the person(s), including counsel, to whom inquiries or correspondence should be directed;

(3) Type of authorization requested (*e.g.*, launch authority, station license, modification of authorization);

(4)(i) For each space station transmitting and receiving antenna beam (including telemetry and tracking beams but not command beams), specify channel center frequencies and bandwidths and polarization plan. For command beams, specify each of the center frequencies within a 5 MHz range or a range of 2 percent of the assigned bandwidth, whichever is smaller, and the polarization plan. If the space station can vary channel bandwidth in a particular frequency band with on-board processing, specify only the range of frequencies in that band over which the beam can operate and the polarization plan.

(ii) Specify maximum EIRP and maximum EIRP density for each space station transmitting antenna beam. If the satellite uses shapeable antenna beams, as defined in § 25.103, specify instead maximum possible EIRP and maximum possible EIRP density within each shapeable beam's proposed coverage area. Provide this information for each frequency band in which the

transmitting antenna would operate. For bands below 15 GHz, specify EIRP density in dBW/4 kHz; for bands at and above 15 GHz, specify EIRP density in dBW/MHz. If the EIRP density varies over time, specify the maximum possible EIRP density.

(iii)–(iv) [Reserved]

(v) For each space station receiving beam other than command beams, specify the gain-to-temperature ratio at beam peak. For receiving beams fed into transponders, also specify the minimum and maximum saturation flux density at beam peak. If the satellite uses shapeable beams, specify the minimum and maximum gain-to-temperature ratio within each shapeable beam's proposed coverage area, and for shapeable receiving beams fed into transponders, specify the minimum and maximum saturation power flux density within the 0 dB relative antenna gain isoline. Provide this information for each frequency band in which the receiving beam can operate. For command beams, specify the beam peak flux density at the command threshold;

(vi)(A) For space stations in geostationary orbit, specify predicted space station antenna gain contour(s) for each transmit and receive antenna beam, except for beams where the contour at 8 dB below peak falls entirely beyond the edge of the visible Earth. These contour(s) should be plotted on an area map at 2 dB intervals down to 10 dB below the peak gain and at 5 dB intervals between 10 dB and 20 dB below the peak gain. Applicants must present this information in a GIMS-readable format.

(B) For space stations in non-geostationary orbits, specify for each unique orbital plane the predicted antenna gain contour(s) for each transmit and receive antenna beam for one space station if all space stations are identical in the constellation. If individual space stations in the constellation have different antenna beam configurations, specify the predicted antenna gain contours for each transmit and receive beam for each space station type and orbit or orbital plane requested. The contours should be plotted on an area map with the beam depicted on the surface of the earth with the space stations' peak antenna gain pointed at nadir to a latitude and longitude within the proposed service area. The contour(s) should be plotted at 2 dB intervals down to 10 dB below the peak gain and at 5 dB intervals between 10 dB and 20 dB below the peak gain. For inter-satellite links, specify the peak antenna gain and 3 dB beamwidth.

(C) For space stations with shapeable antenna beams, specify the contours, as defined in paragraph (c)(4)(vi)(A) or (B) of this section, for the transmitting beam configuration that results in the highest EIRP density for the beams listed in paragraph (c)(4)(ii) of this section and for the receiving beam configuration with the smallest gain-to-temperature ratio and the highest required saturation power flux density for the beams listed in paragraph (c)(4)(v) of this section. If the shapeable beams are also steerable, include the contours that would result from moving the beam peak around the limit of the effective beam peak area and the 0 dB relative antenna gain isoline. The proposed maximum coverage area must be clearly specified.

(D) For a space station with steerable beams that are not shapeable, specify the applicable contours, as defined in paragraph (c)(4)(vi)(A) or (c)(4)(vi)(B) of this section, with a description of a proposed coverage area for each steerable beam or provide the contour information described in paragraph (c)(4)(vi)(C) of this section for each steerable beam.

(vii) For geostationary satellites with large numbers of identical fixed spot beams, other than DBS satellites, applicants may, as an alternative to submitting the information described in paragraph (c)(4)(vi) of this section with respect to these beams, provide the predicted antenna gain contours for one transmit and receive antenna beam, together with one of the following:

(A) An area map showing all of the spot beams depicted on the surface of the Earth;

(B) A table identifying the maximum antenna gain point(s) in latitude and longitude to the nearest 0.1 degree; or

(C) A map of the isolines formed by combining all of the spot beams into one or more composite beams. For non-geostationary satellites with large

numbers of identical fixed beams on each satellite, applicants may, as an alternative to submitting the information described in paragraph (c)(4)(vi) of this section with respect to those beams, specify the predicted antenna gain contours for one transmit and receive beam pointed to nadir, together with an area map showing all of the spot beams depicted on the surface of the earth with the satellites' peak antenna gain pointed to a selected latitude and longitude within the service area.

(5) For space stations in geostationary orbit:

(i) Orbital location requested,

(ii) [Reserved]

(iii) East-west station-keeping range,

(iv) North-south station-keeping range, and

(v) Accuracy to which antenna axis attitude will be maintained;

(6) For space stations in non-geostationary orbits:

(i) The number of orbital planes and the number of space stations in each plane,

(ii) The inclination of the orbital plane(s),

(iii) The orbital period,

(iv) The apogee,

(v) The perigee,

(vi) The argument(s) of perigee,

(vii) Active service arc(s),

(viii) Right ascension of the ascending node(s), and

(ix) For each satellite in each orbital plane, the initial phase angle at the reference time;

(7) The frequency bands, types of service, and coverage areas;

(8) Calculated maximum power flux-density levels within each coverage area and energy dispersal bandwidths, if any, needed for compliance with §25.208, for the angles of arrival specified in the applicable paragraph(s) of §25.208, except for an NGSO FSS applicant certifying compliance with PFD limits under §25.146(a)(1);

(9) [Reserved]

(10) Estimated operational lifetime;

(11) Whether the space station is to be operated on a common carrier basis;

(12) [Reserved]

(13) And the polarization information necessary to determine compliance with §25.210(i).

(d) The following information in narrative form shall be contained in each application, except space station applications filed pursuant to §25.122 or §25.123:

(1) Overall description of system facilities, operations and services and explanation of how uplink frequency bands would be connected to downlink frequency bands;

(2)–(5) [Reserved]

(6) Public interest considerations in support of grant;

(7) Applicants for authorizations for space stations in the Fixed-Satellite Service, including applicants proposing feeder links for space stations operating in the 17/24 GHz Broadcasting-Satellite Service, must also include the information specified in §25.140(a). Applicants for authorizations for space stations in the 17/24 GHz Broadcasting-Satellite Service or applicants seeking authorization for FSS space stations transmitting in the 17.3–17.8 GHz band (space-to-Earth), must also include the information specified in §25.140(b);

(8) Applications for authorizations in the Mobile-Satellite Service in the 1545–1559/1646.5–1660.5 MHz frequency bands shall also provide all information necessary to comply with the policies and procedures set forth in Rules and Policies Pertaining to the Use of Radio Frequencies in a Land Mobile Satellite Service, 2 FCC Rcd 485 (1987) (Available at address in §0.445 of this chapter.);

(9) Applications to license multiple space station systems in the non-voice, non-geostationary mobile-satellite service under blanket operating authority shall also provide all information specified in §25.142; and

(10) An application for space station authorization in the 1.6/2.4 GHz or 2 GHz Mobile-Satellite Service must include information required by §25.143(b);

(11) Applications for space stations in the Direct Broadcast Satellite Service must include a clear and detailed statement of whether the space station is to be operated on a broadcast or non-broadcast basis;

(12) The information required by §25.146, if the application is for an NGSO FSS system authorization within the 10.7–30 GHz band.

(13) For satellite applications in the Direct Broadcast Satellite Service, if the proposed system's technical characteristics differ from those specified in the Appendix 30 BSS Plans, the Appendix 30A feeder link Plans, Annex 5 to Appendix 30 or Annex 3 to Appendix 30A of the ITU Radio Regulations, each applicant must provide:

(i) The information requested in Appendix 4 of the ITU Radio Regulations. Further, applicants must provide sufficient technical showing that the proposed system could operate satisfactorily if all assignments in the BSS and feeder link Plans were implemented.

(ii) Analyses of the proposed system with respect to the limits in Annex 1 to Appendices 30 and 30A of the ITU Radio Regulations.

(14) A description of the design and operational strategies that will be used to mitigate orbital debris, including the following information:

(i) A statement that the space station operator has assessed and limited the amount of debris released in a planned manner during normal operations. Where applicable, this statement must include an orbital debris mitigation disclosure for any separate deployment devices, distinct from the space station launch vehicle, that may become a source of orbital debris;

(ii) A statement indicating whether the space station operator has assessed and limited the probability that the space station(s) will become a source of debris by collision with small debris or meteoroids that would cause loss of control and prevent disposal. The statement must indicate whether this probability for an individual space station is 0.01 (1 in 100) or less, as calculated using the NASA Debris Assessment Software or a higher fidelity assessment tool;

(iii) A statement that the space station operator has assessed and limited the probability, during and after completion of mission operations, of accidental explosions or of release of liquids that will persist in droplet form. This statement must include a demonstration that debris generation will not result from the conversion of energy sources on board the spacecraft into energy that fragments the spacecraft. Energy sources include chemical, pressure, and kinetic energy. This demonstration should address whether stored energy will be removed at the spacecraft's end of life, by depleting residual fuel and leaving all fuel line valves open, venting any pressurized system, leaving all batteries in a permanent discharge state, and removing any remaining source of stored energy, or through other equivalent procedures specifically disclosed in the application;

(iv) A statement that the space station operator has assessed and limited the probability of the space station(s) becoming a source of debris by collisions with large debris or other operational space stations.

(A) Where the application is for an NGSO space station or system, the following information must also be included:

(*1*) A demonstration that the space station operator has assessed and limited the probability of collision between any space station of the system and other large objects (10 cm or larger in diameter) during the total orbital lifetime of the space station, including any de-orbit phases, to less than 0.001 (1 in 1,000). The probability shall be calculated using the NASA Debris Assessment Software or a higher fidelity assessment tool. The collision risk may be assumed zero for a space station during any period in which the space station will be maneuvered effectively to avoid colliding with large objects.

(*2*) The statement must identify characteristics of the space station(s)' orbits that may present a collision risk, including any planned and/or operational space stations in those orbits, and indicate what steps, if any, have been taken to coordinate with the other spacecraft or system, or what other measures the operator plans to use to avoid collision.

(*3*) If at any time during the space station(s)' mission or de-orbit phase the space station(s) will transit through the orbits used by any inhabitable spacecraft, including the International Space Station, the statement must describe the design and operational strategies, if any, that will be used to minimize the risk of collision

and avoid posing any operational constraints to the inhabitable spacecraft.

(*4*) The statement must disclose the accuracy, if any, with which orbital parameters will be maintained, including apogee, perigee, inclination, and the right ascension of the ascending node(s). In the event that a system is not able to maintain orbital tolerances, *e.g.*, its propulsion system will not be used for orbital maintenance, that fact must be included in the debris mitigation disclosure. Such systems must also indicate the anticipated evolution over time of the orbit of the proposed satellite or satellites. All systems must describe the extent of satellite maneuverability, whether or not the space station design includes a propulsion system.

(*5*) The space station operator must certify that upon receipt of a space situational awareness conjunction warning, the operator will review and take all possible steps to assess the collision risk, and will mitigate the collision risk if necessary. As appropriate, steps to assess and mitigate the collision risk should include, but are not limited to: Contacting the operator of any active spacecraft involved in such a warning; sharing ephemeris data and other appropriate operational information with any such operator; and modifying space station attitude and/or operations.

(B) Where a space station requests the assignment of a geostationary orbit location, it must assess whether there are any known satellites located at, or reasonably expected to be located at, the requested orbital location, or assigned in the vicinity of that location, such that the station keeping volumes of the respective satellites might overlap or touch. If so, the statement must include a statement as to the identities of those satellites and the measures that will be taken to prevent collisions;

(v) A statement addressing the trackability of the space station(s). Space station(s) operating in low-Earth orbit will be presumed trackable if each individual space station is 10 cm or larger in its smallest dimension, excluding deployable components. Where the application is for an NGSO space station or system, the statement shall also disclose the following:

(A) How the operator plans to identify the space station(s) following deployment and whether space station tracking will be active or passive;

(B) Whether, prior to deployment, the space station(s) will be registered with the 18th Space Control Squadron or successor entity; and

(C) The extent to which the space station operator plans to share information regarding initial deployment, ephemeris, and/or planned maneuvers with the 18th Space Control Squadron or successor entity, other entities that engage in space situational awareness or space traffic management functions, and/or other operators.

(vi) A statement disclosing planned proximity operations, if any, and addressing debris generation that will or may result from the proposed operations, including any planned release of debris, the risk of accidental explosions, the risk of accidental collision, and measures taken to mitigate those risks.

(vii) A statement detailing the disposal plans for the space station, including the quantity of fuel—if any—that will be reserved for disposal maneuvers. In addition, the following specific provisions apply:

(A) For geostationary orbit space stations, the statement must disclose the altitude selected for a disposal orbit and the calculations that are used in deriving the disposal altitude.

(B) For space stations terminating operations in an orbit in or passing through the low-Earth orbit region below 2,000 km altitude, the statement must disclose whether the spacecraft will be disposed of through atmospheric re-entry, specifying if direct retrieval of the spacecraft will be used. The statement must also disclose the expected time in orbit for the space station following the completion of the mission.

(C) For space stations not covered by either paragraph (d)(14)(vii)(A) or (B) of this section, the statement must indicate whether disposal will involve use of a storage orbit or long-term atmospheric re-entry and rationale for the selected disposal plan.

(D) For all space stations under paragraph (d)(14)(vii) (B) or (C) of this section, the following additional specific provisions apply:

(*1*) The statement must include a demonstration that the probability of success of the chosen disposal method will be 0.9 or greater for any individual space station. For space station systems consisting of multiple space stations, the demonstration should include additional information regarding efforts to achieve a higher probability of success, with a goal, for large systems, of a probability of success for any individual space station of 0.99 or better. For space stations under paragraph (d)(14)(vii)(B) of this section ending their mission in or passing through the low-Earth orbit region below 2000 km altitude, successful disposal is defined, for the purposes of this paragraph (d)(14)(vii)(D)(*1*), as atmospheric re-entry of the spacecraft as soon as practicable, but no later than five years following completion of the mission. For all other space stations under paragraphs (d)(14)(vii)(B) and (C) of this section, successful disposal will be assessed on a case-by-case basis.

(*2*) If planned disposal is by atmospheric re-entry, the statement must also include:

(*i*) A disclosure indicating whether the atmospheric re-entry will be an uncontrolled re-entry or a controlled targeted reentry.

(*ii*) An assessment as to whether portions of any individual spacecraft will survive atmospheric re-entry and impact the surface of the Earth with a kinetic energy in excess of 15 joules, and demonstration that the calculated casualty risk for an individual spacecraft using the NASA Debris Assessment Software or a higher fidelity assessment tool is less than 0.0001 (1 in 10,000).

(E) Applicants for space stations to be used only for commercial remote sensing may, in lieu of submitting detailed post-mission disposal plans to the Commission, certify that they have submitted such plans to the National Oceanic and Atmospheric Administration for review.

(viii) For non-U.S.-licensed space stations, the requirement to describe the design and operational strategies to minimize orbital debris risk can be satisfied by demonstrating that debris mitigation plans for the space station(s) for which U.S. market access is requested are subject to direct and effective regulatory oversight by the national licensing authority.

(15) Each applicant for a space station license in the 17/24 GHz Broadcasting-Satellite Service or the FSS transmitting in the 17.3–17.8 GHz band, shall include the following information as an attachment to its application:

(i) If the applicant proposes to operate in the 17.3–17.8 GHz band, a demonstration that the proposed space station will comply with the applicable power flux density limits in § 25.140(a)(3)(iii) or (b)(3) unless the applicant provides a certification under paragraph (d)(15)(ii) of this section.

(ii) In cases where the proposed space station will not comply with the applicable power flux density limits set forth in § 25.140(a)(3)(iii) or (b)(3), the applicant will be required to provide a certification that all potentially affected parties acknowledge and do not object to the use of the applicant's higher power flux densities. The affected parties with whom the applicant must coordinate are those GSO 17/24 GHz BSS satellite networks or FSS satellite networks with space stations transmitting in the 17.3–17.8 GHz band that are located up to ±6° away. Excesses of more than 3 dB above the applicable power flux density levels specified in § 25.140(a)(3)(iii) or (b)(3), must also be coordinated with 17/24 GHz BSS satellite networks located up to ±10° away.

(iii) Any information required by § 25.264(a)(6), (b)(4), or (d).

(16) In addition to the requirements of paragraph (d)(15) of this section, each applicant for a license to operate a 17/24 GHz BSS space station that will be used to provide video programming directly to consumers in the United States, that will not meet the requirements of § 25.225 of this part, must include as an attachment to its application a technical analysis demonstrating that providing video programming service to consumers in Alaska and Hawaii that is comparable

to the video programming service provided to consumers in the 48 contiguous United States (CONUS) is not feasible as a technical matter or that, while technically feasible, such service would require so many compromises in satellite design and operation as to make it economically unreasonable.

(17) [Reserved]

(18) For space stations in the Direct Broadcast Satellite service, the 17/24 GHz Broadcasting-Satellite Service, or FSS space stations transmitting in the 17.3–17.8 GHz band, maximum orbital eccentricity.

[68 FR 63997, Nov. 12, 2003, as amended at 69 FR 29901, May 26, 2004; 69 FR 47794, Aug. 6, 2004; 69 FR 54587, Sept. 9, 2004; 72 FR 50027, Aug. 29, 2007; 72 FR 60278, Oct. 24, 2007; 76 FR 50431, Aug. 15, 2011; 78 FR 8421, Feb. 6, 2013; 79 FR 8314, Feb. 12, 2014; 81 FR 55326, Aug. 18, 2016; 82 FR 59984, Dec. 18, 2017; 83 FR 34489, July 20, 2018; 85 FR 43733, July 20, 2020; 89 FR 34166, Apr. 30, 2024; 86 FR 49489, Sept. 3, 2021; 87 FR 72403, Nov. 25, 2022; 89 FR 58072, July 17, 2024; 85 FR 52450, Aug. 25, 2020; 89 FR 65217, 65223, Aug. 9, 2024]

§ 25.115 Applications for earth station authorizations.

(a)(1)(i) *Transmitting earth stations.* Commission authorization must be obtained for authority to operate a transmitting earth station. Applications must be filed electronically on FCC Form 312, Main Form and Schedule B, and include the information specified in this section, except as set forth in paragraphs (a)(1)(ii) and (a)(2) of this section.

(ii) *Certification of compliance with space station authorization.* An earth station applicant certifying that it will comply with the applicable terms and conditions of the authorization of any space station with which it communicates need not provide technical demonstrations or other information that is duplicative or unnecessary due to the certification. This provision does not apply to FSS operation in bands below 10 GHz or in bands subject to § 25.136.

(2) Applicants for licenses for transmitting earth stations in the FSS may file on FCC Form 312EZ if all of the following criteria are met:

(i) The application is for a single station that will transmit to an FSS GSO space station, or stations, in the 5925–6425 MHz band, or for single or multiple stations that will transmit to an FSS GSO space station, or stations, in the 14.0–14.5 GHz, 28.35–28.6 GHz, and/or 29.5–30.0 GHz band;

(ii) The earth station(s) will not be installed or operated on ships, aircraft, or other moving vehicles;

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

(iv) Operation of the proposed station has been successfully coordinated with terrestrial systems, if the station would transmit in the 5925–6425 MHz band;

(v) The application includes an environmental impact statement pursuant to § 1.1311 of this chapter, if required;

(vi) The applicant does not propose to communicate via non-U.S.-licensed space stations not on the Permitted Space Station List; and

(vii) If the proposed station(s) will receive in the 18.3–18.8 GHz and/or 19.7–20.2 GHz bands, the applicant proposes to communicate only via satellites for which coordination has been completed pursuant to Footnote US334 of the U.S. Table of Frequency Allocations with respect to Federal Government systems authorized on a primary basis, under an agreement previously approved by the Commission and the National Telecommunications and Information Administration, and the applicant certifies that it will operate consistently with the agreement.

(3) Unless the Commission orders otherwise, an application filed on FCC Form 312EZ in accordance with paragraph (a)(2) of this section will be deemed granted 35 days after the date of the public notice that the application has been accepted for filing, provided no objection is filed during the 30-day public notice period.

(4) [Reserved]

(5) Applicants that are not permitted to submit applications under paragraph (a)(2) of this section on Form 312EZ, must submit, as an attachment to their application, the following information to be used as an ''informative''

in the public notice issued under § 25.151:

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

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

(iii) Proposed power and power density levels.

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

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

(6)(i) Applicants for earth stations transmitting in frequency bands shared with equal rights between terrestrial and space services must provide a frequency coordination analysis in accordance with § 25.203(b) and must include any notification or demonstration required by any other relevant provision in § 25.203.

(ii) Applicants for user transceiver units associated with the NVNG MSS must provide the information required by § 25.135.

(iii) Applicants for 1.6/2.4 GHz MSS user transceivers must demonstrate that the transceivers will operate in compliance with relevant requirements in § 25.213.

(iv) Applicants for earth stations licensed in accordance with § 25.136 must demonstrate that the transmitting earth stations will meet the relevant criteria specified in that section, including any showings required under § 25.136(a)(4), (c), (d)(4), and/or (e)(4).

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

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

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

(10) With the exception of applications for blanket-licensed earth station networks filed pursuant to § 25.115(c) or § 25.218; applications for conventional Ka-band hub stations filed pursuant to § 25.115(e); applications for NGSO FSS gateway earth stations filed pursuant to § 25.115(f); applications for individually licensed earth stations filed pursuant to § 25.136; applications for ESIMs filed pursuant to § 25.115(l), § 25.115(m), or § 25.115(n); or applications for 29 GHz NGSO MSS feeder-link stations in a complex as defined in § 25.257, parties may apply, either in an initial application or an application for modification of license, for operating authority for multiple transmitting FSS earth stations that are not eligible for blanket or network licensing under another section of this part in the following circumstances:

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

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

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

(1) Receive-only earth stations in the FSS that operate with U.S.-licensed

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

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

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

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

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

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

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

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

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

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

(c)(1) *GSO FSS earth stations in 10.7–12.2 GHz or 14–14.5 GHz.* A blanket license application for operation in the 10.7–12.2 GHz or 14–14.5 GHz bands may be filed on FCC Form 312 or Form 312EZ, with a Schedule B for each large (5 meters or larger) hub station antenna and each representative type of small antenna (less than 5 meters) operating within the network; however, blanket licensing in the 10.7–11.7 GHz band is on an unprotected basis with respect to the fixed service.

(i) Applications to license networks of earth stations operating in the 11.7–12.2 GHz and 14.0–14.5 GHz bands under blanket operating authority that meet the requirements of § 25.212(c) or § 25.218(e) or (f) will be routinely processed.

(ii) Applications to license networks of earth stations operating in the 11.7–12.2 GHz and 14.0–14.5 GHz bands under blanket operating authority that do not meet the requirements of § 25.212(c) or § 25.218(e) or (f) must comply with the requirements in § 25.220 and must be filed on FCC Form 312 with a Schedule B for each large (5 meters or larger) hub station antenna and each representative type of small antenna (less than 5 meters) operating within the network.

(2) *Networks of earth stations operating in the 3700–4200 MHz and 5925–6425 MHz bands.* Applications to license networks of earth stations operating in the 3700–

4200 MHz and 5925–6425 MHz bands must be filed electronically on FCC Form 312, Main Form and Schedule B. Applications will be routinely processed provided that frequency coordination has been satisfactorily completed and that the proposed earth stations comply with the applicable provisions in § 25.211(d) or § 25.212(d). Alternatively, applicants that have satisfactorily completed frequency coordination may be routinely processed if the proposed earth stations comply with the applicable off-axis EIRP density limits in § 25.218(c) or (d).

(i) For earth station antennas operating with power levels not consistent with the applicable provisions in § 25.211(d) or § 25.212(d), or with EIRP density levels not consistent with those specified in § 25.218(c) or (d), the applicant must file an initial lead application providing a detailed overview of the complete network. Such lead applications must fully identify the scope and nature of the service to be provided, as well as the complete technical details of each representative type of antenna that will operate within the network. Such lead applications for a single system must identify:

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

(B) The amount of frequency bandwidth sought, up to a maximum of 20 MHz of spectrum in each direction at each of the satellites (The same 20 MHz of uplink and 20 MHz of downlink spectrum at each satellite would be accessible by all earth stations in the system. The 20 MHz of uplink and 20 MHz of downlink spectrum need not be the same at each satellite location);

(C) The maximum number of earth station sites;

(ii) Following the issuance of a license for the lead application, the licensee shall notify the Commission of the complete technical parameters of each individual earth station site before that site is bought into operation under the lead authorization. Full frequency coordination of each individual site (e.g., for each satellite and the spectrum associated therewith) shall be completed prior to filing Commission notification. The coordination must be conducted in accordance with § 25.203. Such notification shall be done by electronic filing and shall be consistent with the technical parameters of Schedule B of FCC Form 312.

(iii) Following successful coordination of such an earth station, if the earth station operator does not file a lead application or a Schedule B within six months after it successfully completes coordination, it will be assumed that such frequency use is no longer desired, unless a second notification has been received within ten days prior to the end of the six month period. Such renewal notifications must be sent to all parties concerned. If the lead application or Schedule B, or renewal notification, is not timely received, the coordination will lapse and the licensee must re-coordinate the relevant earth stations if it still wishes to bring them into operation.

(iv) Operation of each individual site may commence immediately after the public notice is released that identifies the notification sent to the Commission and if the requirements of paragraph (c)(2)(vi) of this section are met. Continuance of operation of each station for the duration of the lead license term shall be dependent upon successful completion of the normal public notice process. If any objections are received to the new station prior to the end of the 30 day comment period of the Public Notice, the licensee shall immediately cease operation of those particular stations until the coordination dispute is resolved and the licensee informs the Commission of the resolution. If the requirements of paragraph (c)(2)(vi) of this section are not met, operation may not commence until the Commission issues the public notice acting on the terminal authorization.

(v) Each licensee shall annually provide the Commission an updated list of all operational earth stations in its system. The annual list shall also include a list of all earth stations deactivated during the year and identification of the satellites providing service to the network as of the date of the report.

(vi) *Conditional authorization.* (A) An applicant for a new radio station or modification of an existing station authorized under paragraph (c)(2)(i) of this section in the 3700–4200; or 5925–

6425 MHz bands may operate the proposed station during the pendency of its application after the release of the public notice accepting the notification for filing that complies with paragraph (c)(2)(ii) of this section. The applicant, however, must first certify that the following conditions are satisfied:

(*1*) The frequency coordination procedures of §25.203 have been successfully completed;

(*2*) The antenna structure has been previously studied by the Federal Aviation Administration and determined to pose no hazard to aviation safety as required by subpart B of part 17 of this chapter; or the antenna or tower structure does not exceed 6.1 meters above ground level or above an existing man-made structure (other than an antenna structure), if the antenna or tower has not been previously studied by the Federal Aviation Administration and cleared by the FCC;

(*3*) The grant of the application(s) does not require a waiver of the Commission's rules (with the exception of a request for waiver pertaining to fees);

(*4*) The applicant has determined that the facility(ies) will not significantly affect the environment as defined in §1.1307 of this chapter after complying with any applicable environmental notification procedures specified in §17.4(c) of this chapter.

(*5*) The station site does not lie within 56.3 kilometers of any international border or within a radio ''Quiet Zone'' identified in §1.924 of this chapter; and

(*6*) The filed application is consistent with the proposal that was coordinated pursuant to §25.251.

(B) Conditional authority ceases immediately if the Schedule B is returned by the Commission because it is not accepted for filing.

(C) A conditional authorization pursuant to paragraphs (c)(2)(vi)(A) and (c)(2)(vi)(B) of this section is evidenced by retaining a copy of the Schedule B notification with the station records. Conditional authorization does not prejudice any action the Commission may take on the subject application(s) or the Schedule B notifications.

(D) Conditional authority is accepted with the express understanding that such authority may be modified or cancelled by the Commission at any time without hearing if, in the Commission's discretion, the need for such action arises. An applicant operating pursuant to this conditional authority assumes all risks associated with such operation, the termination or modification of the conditional authority, or the subsequent dismissal or denial of its application(s).

(E) The copy of the Schedule B notification form must be posted at each station operating pursuant to this section.

(vii) *Period of construction.* Construction of each earth station must be completed and the station must be brought into regular operation within twelve months from the date that action is taken to authorize that station to operate under the lead authorization, except as may be otherwise determined by the Commission for any particular application.

(3) Networks of earth stations operating in the 18.3–18.8 GHz, 19.7–20.2 GHz, 28.35–28.6 GHz, and 29.25–30 GHz bands with U.S.-licensed or non-U.S.-licensed satellites for domestic or international services.

(i) Applications to license networks of earth stations that will transmit digitally modulated signals to GSO space stations in the 28.35–28.6 GHz and/or 29.25–30.0 GHz bands under blanket operating authority must be filed on FCC Form 312, or Form 312EZ if available, with a Schedule B for each large (5 meters or larger) hub station antenna and each representative type of small antenna (less than 5 meters) operating within the network and may be routinely processed if the criteria in paragraphs (c)(3)(i)(A) and (B) of this section are met:

(A) The applicant certifies pursuant to §25.132(a)(1) that the off-axis gain of transmitting antennas in the network will not exceed the relevant levels specified in §25.209(a) and (b) and the power spectral density of any digitally modulated carrier into any transmitting earth station antenna in the proposed network will not exceed 3.5 dBW/MHz as specified in §25.212(e).

(B) The application includes information filed pursuant to paragraph (g)(1) of this section indicating that off-axis EIRP density from the proposed earth

stations will not exceed relevant routine levels specified in § 25.218(i).

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

(d) Mobile-Satellite Service user transceivers need not be individually licensed. Service vendors may file blanket applications for such transceivers using FCC Form 312, Main Form and Schedule B, specifying the number of units to be covered by the blanket license. A blanket license application for 1.5/1.6 GHz MSS user transceivers must include an explanation of how the applicant will comply with the priority and preemptive access requirements in § 25.287.

(e) *GSO FSS earth stations in 17.3–30 GHz.* (1) An application for a GSO FSS earth station license in the 17.3–19.4 GHz, 19.6–20.2 GHz, 27.5–29.1 GHz, or 29.25–30 GHz bands not filed on FCC Form 312EZ pursuant to paragraph (a)(2) of this section must be filed on FCC Form 312, Main Form and Schedule B, and must include any information required by paragraphs (a)(5) through (10) or paragraph (g) or (j) of this section.

(2) Individual or blanket license applications may be filed for operation in the 17.3–17.8 GHz band; however, blanket licensed earth stations shall operate on an unprotected basis with respect to DBS feeder link earth stations. All receiving FSS earth stations shall operate on an unprotected basis with respect to the Fixed Service in the 17.7–17.8 GHz band.

(f) *NGSO FSS earth stations in 10.7–30.0 GHz.* (1) An application for an NGSO FSS earth station license in the 10.7–30.0 GHz band must include the certification described in § 25.146(a)(2).

(2) Individual or blanket license applications may be filed for operation in the 10.7–12.7 GHz, 14–14.5 GHz, 17.3–17.7 GHz, 17.7–17.8 GHz, 17.8–18.6 GHz, 18.8–19.4 GHz, 19.6–20.2 GHz, 28.35–29.1 GHz, or 29.5–30.0 GHz bands; however, ESIMs cannot operate in the 28.35–28.4 GHz band and blanket licensing in the 10.7–11.7 GHz, 17.7–17.8 GHz, 17.8–18.3 GHz, 19.3–19.4 GHz, and 19.6–19.7 GHz bands is on an unprotected basis with respect to current and future systems operating in the fixed service.

(3) Individual license applications only may be filed for operation in the 12.75–13.15 GHz, 13.2125–13.25 GHz, 13.75–14 GHz, or 27.5–28.35 GHz bands.

(g) *Additional requirements for certain GSO earth stations.* Applications for earth stations that will transmit to GSO space stations in any portion of the 5850–6725 MHz, 13.75–14.5 GHz, 24.75–25.25 GHz, 27.5–29.1 GHz, or 29.25–30.0 GHz bands must include, in addition to the particulars of operation identified on FCC Form 312 and associated Schedule B, the information specified in either paragraph (g)(1) or (2) of this section for each earth station antenna type.

(1) Specification of off-axis EIRP density calculated from measurements made consistent with the requirements in § 25.132(b)(1), in accordance with the following requirements. For purposes of this rule, the ''off-axis angle'' is the angle in degrees from a line between an earth station antenna and the target satellite.

(i) A plot of maximum co-polarized EIRP density in the plane tangent to the GSO arc at off-axis angles from minus 180° to plus 180°;

(ii) A plot of maximum co-polarized EIRP density in the plane tangent to the GSO arc at off-axis angles from minus 10° to plus 10°;

(iii) A plot of maximum co-polarized EIRP density in the plane perpendicular to the GSO arc at off-axis angles from 0° to plus 30°;

(iv) A plot of maximum cross-polarized EIRP density in the plane tangent to the GSO arc at off-axis angles from minus 7° to plus 7°;

(v) A plot of maximum cross-polarized EIRP density in the plane perpendicular to the GSO arc at off-axis angles from minus 7° to plus 7°;

(vi) For antennas for which gain measurements are made pursuant to § 25.132(b)(1)(iv), the EIRP density plots specified in paragraphs (g)(1)(i) through

(v) of this section must be provided over the specified angular ranges in two orthogonal planes, one of which is tangent to the GSO arc and with the antenna operating at its maximum skew angle, which the applicant must specify.

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

(viii) The showing must include a supplemental table for each off-axis angular range in which the relevant EIRP density envelope will be exceeded, specifying angular coordinates in degrees off-axis and corresponding calculated off-axis EIRP density at 0.2° increments over the angular range in which the routine envelope will be exceeded and one degree on each side of that range.

(2) An applicant that certifies pursuant to § 25.132(a)(1) that a proposed antenna's measured gain pattern conforms to relevant standards in § 25.209(a) and (b) and that input power density to the antenna will not exceed the relevant limit in § 25.211 or § 25.212 need not provide a showing pursuant to paragraph (g)(1) of this section for operation with that antenna.

(h) [Reserved]

(i) An earth station applicant filing an application for a blanket-licensed earth station network made up of FSS earth stations and planning to use a contention protocol must include in its application a certification that its contention protocol usage will be reasonable.

(j) An application for a new fixed earth station or modification involving alteration of the overall height of one or more existing earth station antenna structures must include the FCC Antenna Structure Registration Number(s) for the antenna structure(s), if assigned. If no such number has been assigned, the application must state whether prior FAA notification is required by part 17 of this chapter and, if so, whether the applicant or owner of the structure has notified the FAA of the proposed construction or alteration and applied for an Antenna Structure Registration Number in accordance with part 17 of this chapter. Applicants who maintain that prior FAA notification is not required for construction or alteration of a structure with overall height more than 6.1 meters above ground level must explain in the application why such prior notification is not required.

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

(2) Notwithstanding paragraph (k)(1) of this section, an earth station that would receive signals in the 17.7–20.2 GHz band may not communicate with a space station on the Permitted Space Station List in that band until the space station operator has completed coordination under Footnote US334 to § 2.106 of this chapter.

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

(1) Applications where any necessary frequency coordination has been satisfactorily completed, and the proposed earth station transmissions comport with the applicable provisions in § 25.212(d) or the applicable off-axis EIRP density limits in § 25.218(d) will be routinely processed. Such applications must include the relevant information specified by paragraph (g) of

this section. Applicants for ESIMs operating in a network using variable power density control of earth stations transmitting simultaneously in shared frequencies to the same target satellite receiving beam must also provide the certification required by § 25.212(g) or § 25.218(d)(4), whichever is applicable.

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

(3) Applications must include the following information:

(i) ESIM applicants that meet the relevant off-axis EIRP density mask must certify that an ESIM system is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESIM transmitter exceeds the relevant off-axis EIRP density limits. ESIM applicants that do not meet the relevant off-axis EIRP density mask must provide a detailed showing that an ESIM system is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESIM transmitter exceeds the relevant off-axis EIRP density limits. Variable-power ESIM applicants must certify that one or more transmitters are capable of automatically ceasing or reducing emissions within 100 milliseconds of receiving a command to do so from the system's network control and monitoring center, if the aggregate off axis EIRP densities of the transmitter or transmitters exceed the relevant off-axis EIRP density limits.

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

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

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

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

(1) Applications where any necessary frequency coordination has been satisfactorily completed, and the proposed earth station transmissions comport with the applicable provisions in § 25.212(c)(2) or the applicable off-axis EIRP density limits in § 25.218(f) will be routinely processed. Such applications must include the relevant information specified by paragraph (g) of this section. Applicants for ESIMs operating in a network using variable power density control of earth stations transmitting simultaneously in shared frequencies to the same target satellite receiving beam must also provide the certification required by § 25.212(g) or § 25.218(f)(4), whichever is applicable.

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

(3) Applications must include the following information:

(i) ESIM applicants that meet the relevant off-axis EIRP density mask must certify that an ESIM system is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESIM transmitter exceeds the relevant off-axis EIRP density limits. ESIM applicants that do not meet the relevant off-axis EIRP density mask must provide a detailed showing that an ESIM system is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESIM transmitter exceeds the relevant off-axis EIRP density limits. Variable-power ESIM applicants must certify that one or more transmitters are capable of automatically ceasing or reducing emissions within 100 milliseconds of receiving a command to do so from the system's network control and monitoring center, if the aggregate off axis EIRP densities of the transmitter or transmitters exceed the relevant off-axis EIRP density limits.

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

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

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

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

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

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

(3) Applications must include the following information:

(i) ESIM applicants that meet the relevant off-axis EIRP density mask must certify that an ESIM system is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESIM transmitter exceeds the relevant off-axis EIRP density limits. ESIM applicants that do not meet the relevant off-axis EIRP density mask must provide a detailed showing that an ESIM system is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESIM transmitter exceeds the relevant off-axis EIRP density limits. Variable-power ESIM applicants must certify that one or more transmitters are capable of automatically ceasing or reducing emissions within 100 milliseconds of receiving a command to do so from the system's network control and monitoring center, if the aggregate off axis EIRP densities of the transmitter or transmitters exceed the relevant off-axis EIRP density limits.

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

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

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

(o) The requirements in this paragraph apply to applications for ESIMs operation with NGSO satellites in the Fixed-Satellite Service, in addition to the requirements in paragraphs (a)(1), (a)(5), and (i) of this section:

(1) An exhibit describing the geographic area(s) in which the ESIMs will operate and the location of hub and/or gateway stations.

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

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

(p) The licensee and grantees shall ensure compliance with the Commission's radio frequency exposure requirements in §§ 1.1307(b), 2.1091, and 2.1093 of this chapter, as appropriate. An Environmental Assessment may be required if RF radiation from the proposed facilities would, in combination with radiation from other sources, cause RF power density or field

strength in an accessible area to exceed the applicable limits specified in §1.1310 of this chapter. *See* §1.1307(b)(5)(ii).

(q) *SCS earth stations.* An applicant seeking to use SCS earth stations to provide SCS must comply with §25.125.

(1) A satellite operator licensed under §25.125 to provide SCS is permitted to communicate with all terrestrial wireless licensee(s)-associated SCS earth stations that have been approved for such use under part 2 of this chapter.

(i) Such earth stations must show compliance with this part and at least one of either part 22, 24, or 27 of this chapter to provide SCS within the technical parameters and provisions associated with the device certification.

(ii) The device certification must show compliance with the licensed parameters of the terrestrial wireless license(s) and at least one of either part 22, 24, or 27 of this chapter, as applicable.

(2) An earth station may be used for the provision of SCS when:

(i) The satellite operator licensed under §25.125 is a party to a valid and approved spectrum leasing arrangement or agreement pursuant to §1.9047 of this chapter with at least one terrestrial wireless licensee(s) licensed under one of either part 22, 24, or 27 of this chapter; and

(ii) That terrestrial wireless licensee(s) has met and operates within all conditions associated with the relevant terrestrial wireless license(s).

(3) A satellite operator authorized to provide SCS under §25.125 is authorized under paragraph (q)(1) of this section to communicate with SCS earth stations for any period during which each of the following apply:

(i) The service is provided during the valid duration of any spectrum leasing arrangement or agreement pursuant to §1.9047 of this chapter between the terrestrial wireless licensee(s) and satellite operator;

(ii) The devices to which service is provided are certified under part 2 of this chapter; and

(iii) The terrestrial wireless licensee(s) is a valid licensee(s) under part 22, 24, or 27 of this chapter.

(4) A satellite operator with SCS authorization via a market access grant can avail itself of the provisions of this paragraph (q) but, in addition to the parameters established in paragraphs (q)(1) and (2) of this section, must also comply with any additional parameters included in the satellite operator's space station market access grant.

(5) A satellite operator operating in conformance with the parameters established in this part does not need a separate earth station authorization for the provision of SCS under this part.

[62 FR 5928, Feb. 10, 1997]

EDITORIAL NOTES: 1. For FEDERAL REGISTER citations affecting §25.115, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.govinfo.gov*.

2. At 84 FR 53651, Oct. 8, 2019, §25.115 was amended in part by revising paragraph (c)(1); however, the amendment could not be incorporated because no new text was set out for paragraph (c)(1).

§25.116 Amendments to applications.

(a) Unless otherwise specified, any pending application may be amended until designated for hearing, a public notice is issued stating that a substantive disposition of the application is to be considered at a forthcoming Commission meeting, or a final order disposing of the matter is adopted by the Commission.

(b) Major amendments submitted pursuant to paragraph (a) of this section are subject to the public notice requirements of §25.151. An amendment will be deemed to be a major amendment under the following circumstances:

(1) If the amendment increases the potential for interference, or changes the proposed frequencies or orbital locations to be used.

(2) If the amendment would convert the proposal into an action that may have a significant environmental effect under §1.1307 of this chapter.

(3) [Reserved]

(4) If the amendment, or the cumulative effect of the amendment, is determined by the Commission otherwise to be substantial pursuant to section 309 of the Communications Act.

(5) Amendments to ''defective'' space station applications, within the meaning of § 25.112 will not be considered.

(c) Any application for an NGSO-like satellite license within the meaning of § 25.157 will be considered to be a newly filed application if it is amended by a major amendment (as defined by paragraph (b) of this section) after a ''cut-off'' date applicable to the application, except under the following circumstances:

(1) The amendment resolves frequency conflicts with authorized stations or other pending applications but does not create new or increased frequency conflicts;

(2) The amendment reflects only a change in ownership or control found by the Commission to be in the public interest and, for which a requested exemption from a ''cut-off'' date is granted;

(3) The amendment corrects typographical, transcription, or similar clerical errors which are clearly demonstrated to be mistakes by reference to other parts of the application, and whose discovery does not create new or increased frequency conflicts; or

(4) The amendment does not create new or increased frequency conflicts, and is demonstrably necessitated by events which the applicant could not have reasonably foreseen at the time of filing.

(d) Any application for a GSO-like satellite license within the meaning of § 25.158 will be considered to be a newly filed application if it is amended by a major amendment (as defined by paragraph (b) of this section), and will cause the application to lose its status relative to later-filed applications in the ''queue'' as described in § 25.158.

(e) Any amendment to an application shall be filed electronically through the International Communications Filing System (ICFS) in accordance with the applicable provisions of part 1, subpart Y of this chapter. Amendments to space station applications must be filed on Form 312 and Schedule S. Amendments to earth station applications must be filed on Form 312 and Schedule B.

[56 FR 24016, May 28, 1991, as amended at 68 FR 51503, Aug. 27, 2003; 69 FR 47794, Aug. 6, 2004; 78 FR 8421, Feb. 6, 2013; 88 FR 21440, Apr. 10, 2023]

§ 25.117 Modification of station license.

(a) Except as provided for in § 25.118 (Modifications not requiring prior authorization), no modification of a radio station governed by this part which affects the parameters or terms and conditions of the station authorization shall be made except upon application to and grant of such application by the Commission.

(b) Both earth station and space station modification applications must be filed electronically through the International Communications Filing System (ICFS) 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.

(d)(1) Except as set forth in § 25.118(e), applications for modifications of space station authorizations shall be filed in accordance with § 25.114 and/or § 25.122 or § 25.123, as applicable, but only those items of information listed in § 25.114 and/or § 25.122 or § 25.123 that change need to be submitted, provided the applicant certifies that the remaining information has not changed.

(2) Applications for modifications of space station authorizations will be granted except under the following circumstances:

(i) Granting the modification would make the applicant unqualified to operate a space station under the Commission's rules.

(ii) Granting the modification request would not serve the public interest, convenience, and necessity.

(iii) Except as set forth in paragraph (d)(2)(iv) of this section, applications for modifications of GSO-like space

station authorizations granted pursuant to the procedure set forth in § 25.158, which seek to relocate a GSO satellite or add a frequency band to the authorization, will be placed in a queue pursuant to § 25.158 and considered only after previously filed space station license applications or space station modification applications have been considered.

(iv) Applications for modifications of space station authorizations to increase the authorized bandwidth will not be considered in cases in which the original space station authorization was granted pursuant to the procedures set forth in § 25.157(e) or § 25.158(c)(4).

(v) Any operator of a space station transmitting in the 17.3–17.8 GHz band, whose license is conditioned to operate at less than the power level otherwise permitted by § 25.140(a)(3)(iii) and/or (b)(3), and is conditioned to accept interference from a neighboring 17/24 GHz BSS space station, may file a modification application to remove those two conditions in the event that the license for that neighboring space station is cancelled or surrendered. In the event that two or more such modification applications are filed, and those applications are mutually exclusive, the modification applications will be considered on a first-come, first-served basis pursuant to the procedure set forth in § 25.158.

(3) In the event that a space station licensee provides notification of a planned license modification pursuant to § 25.118(e), and the Commission finds that the proposed modification does not meet the requirements of § 25.118(e), the Commission will issue a public notice announcing that the proposed license modification will be considered pursuant to the procedure specified in paragraphs (d)(1) and (d)(2) of this section.

(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.

(f) An application for modification of a space station license to add an ancillary terrestrial component to an eligible satellite network will be treated as a request for a minor modification if the particulars of operations provided by the applicant comply with the criteria specified in § 25.149. Notwithstanding the treatment of such an application as a minor modification, the Commission shall place any initial application for the modification of a space station license to add an ancillary terrestrial component on notice for public comment. Except as provided for in § 25.149(f), no application for authority to add an ancillary terrestrial component to an eligible satellite network shall be granted until the applicant has demonstrated actual compliance with the criteria specified in § 25.149(b).

(g) The licensee and grantees shall ensure compliance with the Commission's radio frequency exposure requirements in §§ 1.1307(b), 2.1091, and 2.1093 of this chapter, as appropriate. An Environmental Assessment may be required if RF radiation from the proposed facilities would, in combination with radiation from other sources, cause RF power density or field strength in an accessible area to exceed the applicable limits specified in § 1.1310 of this chapter. *See* § 1.1307(b)(5)(iii).

(h) Unless otherwise ordered by the Commission, an application for any of the following kinds of modification of the operation of a GSO space station will be deemed granted 35 days after the date of the public notice that the application has been accepted for filing, provided no objection is filed during the 30-day notice period and the application does not propose a change that would be inconsistent with a Commission rule or require modification of the BSS plan in Appendix 30 or the associated feeder-link Plan in Appendix

30A of the ITU Radio Regulations (both incorporated by reference, *see* § 25.108).

(1) Relocation of a DBS or GSO FSS space station by no more than 0.15° from the initially authorized orbital location, provided the application includes a signed certification that:

(i) The space station operator has assessed and limited the probability of the satellite becoming a source of debris as a result of collisions with large debris or other operational satellites at the new orbital location; and

(ii) The proposed station-keeping volume of the satellite following relocation will not overlap a station-keeping volume reasonably expected to be occupied by any other satellite, including those authorized by the Commission, applied for and pending before the Commission, or otherwise the subject of an ITU filing and either in orbit or progressing towards launch.

(2) Repositioning one or more antenna beams by no more than 0.3 angular degrees from a line between the space station and the initially authorized boresight location(s).

(i) Unless otherwise ordered by the Commission, an application to add a space station point of communication to an earth station authorization will be deemed granted 35 days after the date of the public notice that the application has been accepted for filing, provided:

(1) The license modification is only to add one or more points of communication;

(2) The modification will not cause the earth station transmissions to exceed the highest EIRP, EIRP density, and bandwidth prescribed for any already authorized emission; and

(3) The new space station point of communication will operate with the earth station only in frequency bands that are not shared with Federal or terrestrial wireless users and are not subject to coordination requirements with other non-Federal satellite services.

(j) An application for modification of a space station authorization to provide SCS must comply with § 25.125.

[56 FR 24016, May 28, 1991, as amended at 61 FR 9952, Mar. 12, 1996; 62 FR 5928, Feb. 10, 1997; 68 FR 33649, June 5, 2003; 68 FR 47858, Aug. 12, 2003; 68 FR 51503, Aug. 27, 2003; 68 FR 62248, Nov. 3, 2003; 68 FR 63998, Nov. 12, 2003; 69 FR 47794, Aug. 6, 2004; 70 FR 32253, June 2, 2005; 72 FR 60279, Oct. 24, 2007; 78 FR 8421, Feb. 6, 2013; 81 FR 55328, Aug. 18, 2016; 85 FR 18150, Apr. 1, 2020; 85 FR 43733, July 20, 2020; 88 FR 21440, Apr. 10, 2023; 88 FR 84754, Dec. 6, 2023; 89 FR 34166, Apr. 30, 2024; 87 FR 72404, Nov. 25, 2022; 89 FR 58072, July 17, 2024]

EFFECTIVE DATE NOTE: At 90 FR 41800, Aug. 27, 2025, § 25.117 was amended, delayed indefinitely.

§ 25.118 Modifications not requiring prior authorization.

(a) *Earth station modifications, notification required.* Earth station licensees may make the following modifications without prior Commission authorization, provided they notify the Commission, using FCC Form 312 and Schedule B, within 30 days of the modification. The notification must be filed electronically through the International Communications Filing System (ICFS) in accordance with the applicable provisions of part 1, subpart Y of this chapter.

(1) Blanket-licensed earth station operators may add remote terminals operating on a primary basis without prior authorization, provided they have complied with all applicable frequency coordination procedures in accordance with § 25.251.

(2) A licensee providing service on a private carrier basis may change its operations to common carrier status without obtaining prior Commission authorization. The licensee must notify the Commission using FCC Form 312 within 30 days after the completed change to common carrier status.

(3) An earth station operator may change a point of communication without prior authorization, provided the operator does not repoint the earth station's antenna beyond any coordinated range; and

(i) The change results from a space station relocation described in paragraph (e) of this section, or

(ii) The new point of communication is a replacement GSO space station

within ±0.15° of orbital longitude of the same location, with authority to serve the U.S., and the change does not entail any increase in the earth station's EIRP or EIRP density.

(4) An earth station licensee may additionally:

(i) Decrease antenna height; or

(ii) Increase or decrease the earth station's PFD contour, provided the modification does not involve a change listed in paragraph (b)(2) of this section.

(b) *Earth station modifications, notification not required.* Notwithstanding paragraph (a) of this section:

(1) Equipment in an authorized earth station may be replaced without prior authorization and without notifying the Commission if the new equipment is electrically identical to the existing equipment.

(2) Licensees may make other changes to their authorized earth stations, including the addition of new transceiver/antenna combinations, without notifying the Commission, provided the modification does not involve:

(i) An increase in EIRP or EIRP density (either main lobe or off-axis);

(ii) Additional operating frequencies;

(iii) A change in polarization;

(iv) An increase in antenna height;

(v) Antenna repointing beyond any coordinated range; or

(vi) A change from the originally authorized coordinates of more than 1 second of latitude or longitude for stations operating in frequency bands shared with terrestrial systems or more than 10 seconds of latitude or longitude for stations operating in frequency bands not shared with terrestrial systems.

(c)–(d) [Reserved]

(e) *Relocation of GSO space stations.* A space station licensee may relocate a GSO space station without prior authorization, but upon 30 days prior notice to the Commission and any potentially affected licensed spectrum user, provided that the operator meets the following requirements. The notification must be filed electronically on FCC Form 312 through the International Communications Filing System (ICFS) in accordance with the applicable provisions of part 1, subpart Y of this chapter:

(1) The space station will be relocated to a position within ±0.15° of an orbital location assigned to the same licensee.

(2) The licensee certifies that the space station will operate after the relocation within the technical parameters authorized and coordinated for the space station previously assigned to that location.

(3) The licensee certifies that it will comply with all the conditions of its license for operation at the changed location.

(4) The licensee certifies that it will limit operations of the space station to tracking, telemetry, and command functions during the relocation and satellite drift transition period.

(5) The licensee certifies that:

(i) It has assessed and limited the probability of the satellite becoming a source of debris as a result of collisions with large debris or other operational satellites at the new orbital location; and

(ii) The proposed station-keeping volume of the satellite following relocation will not overlap a station-keeping volume reasonably expected to be occupied by any other satellite, including those authorized by the Commission, applied for and pending before the Commission, or otherwise the subject of an ITU filing and either in orbit or progressing towards launch.

(6) The licensee certifies that the relocation will not result in a lapse of service for any current customer.

(7) If the space station to be relocated is a DBS space station, the licensee certifies that there will be no increase in interference due to the operations of the relocated space station that would require the Commission to submit a proposed modification to the ITU Appendix 30 Broadcasting-Satellite Service Plan and/or the Appendix 30A feeder-link Plan (both incorporated by reference, *see* §25.108) to the ITU Radiocommunication Bureau. A DBS licensee that meets this certification requirement is not subject to the requirements in paragraph (e)(2) of this section.

(8) If the space station to be relocated is a DBS space station, the licensee certifies that it will meet the geographic service requirements in §25.148(c) after the relocation.

(f) *Repositioning of NGSO space stations.* A licensee may reposition NGSO space stations within an authorized orbital plane without prior Commission approval, provided the licensee notifies the Commission of the repositioning 10 days in advance by electronic filing on Form 312 in the International Communications Filing System. The notification must specify all changes in previously authorized parameters and must certify the following:

(1) The licensee will continue to comply with the conditions of the space station license and all applicable Commission rules, including geographic coverage requirements, after the repositioning;

(2) The repositioning will not increase risk of harmful interference to other systems not permitted by coordination agreements;

(3) The licensee will not request increased interference protection because of the repositioning;

(4) The licensee will monitor collision risk during the maneuver and take any necessary evasive measures.

(5) Any change of orbital altitude entailed by the repositioning will not exceed 10 kilometers in extent or 30 days in duration and the licensee has notified, or will notify, the operator(s) of any satellite within 20 kilometers of the interim orbit at least 10 days before commencing the repositioning maneuver.

(g) *Adding satellite points of communication.* An earth station operator may add a point of communication without prior authorization, provided:

(1) The operator has permission from the satellite operator to communicate with the satellite system;

(2) The earth station operator does not repoint the earth station's antenna beyond any coordinated range;

(3) Adding a point of communication does not result in an increased risk of harmful interference;

(4) Adding the point of communication does not involve any change to authorized frequencies; and

(5) The added point of communication is not a satellite that does not have U.S. market access. An earth station applicant may begin operating with the added point of communication under this rule part after both electronically filing Form 312 and Schedule B in the International Communications Filing System (ICFS) in accordance with the applicable provisions of part 1, subpart Y of this chapter and paying the applicable filing fee. This filing shall constitute a conditional authorization. The conditional authorization will automatically expire and the operator must terminate operations immediately using the new point of communication if, within 15 days of paying the filing fee, the Commission notifies the earth station operator that the added point of communication does not comply with requirements of this paragraph. If the Commission does not provide the foregoing notice within the prescribed period, the conditional authorization will automatically expire and the license will be modified in ICFS to add the point of communication as of the date of payment of the filing fee. Nothing in this rule part prohibits the Commission from pursuing enforcement action after the lapse of the 15-day period for noncompliant operation, including noncompliant operation occurring during the period of conditional authorization.

[62 FR 5928, Feb. 10, 1997, as amended at 68 FR 62248, Nov. 3, 2003; 68 FR 63999, Nov. 12, 2003; 69 FR 47794, Aug. 6, 2004; 70 FR 32253, June 2, 2005; 79 FR 8317, Feb. 12, 2014; 81 FR 55329, Aug. 18, 2016; 86 FR 11887, Mar. 1, 2021; 88 FR 21440, Apr. 10, 2023; 90 FR 41800, Aug. 27. 2025]

EFFECTIVE DATE NOTE: At 90 FR 41801, Aug. 27, 2025, §25.118 was amended, delayed indefinitely.

§25.119 Assignment or transfer of control of station authorization.

(a) You must file an application for Commission authorization before you can transfer, assign, dispose of (voluntarily or involuntarily, directly or indirectly, or by transfer of control of any corporation or any other entity) your construction permit or station license, or accompanying rights, except as provided in paragraph (h) of this section. The Commission will grant your

application only if it finds that doing so will serve the public interest, convenience, and necessity.

(b) For purposes of this section, transfers of control requiring Commission approval shall include any and all transactions that:

(1) Change the party controlling the affairs of the licensee, or

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

(c) *Assignment of license.* You must submit an FCC Form 312, Main Form and Schedule A to voluntarily assign (*e.g.*, as by contract or other agreement) or involuntarily assign (*e.g.*, as by death, bankruptcy, or legal disability) your station authorization. You must file these forms electronically through ICFS.

(d) *Transfer of control of corporation holding license.* If you want to transfer control of a corporation, which holds one or more licenses voluntarily or involuntarily (*de jure* or *de facto*), you must submit an FCC Form 312, Main Form and Schedule A. You must file these forms electronically through ICFS. For involuntary transfers, you must file your application within 10 days of the event causing the transfer of control. You can also use FCC Form 312, Main Form and Schedule A for non-substantial (*pro forma*) transfers of control.

(e) Whenever a group of station licenses in the same radio service for the same class of facility licensed to the same entity is to be assigned or transferred to a single assignee or transferee, a single application may be filed to cover the entire group, if the application identifies in an exhibit each station by call sign, station location and expiration date of license.

(f) Assignments and transfers of control shall be completed within 180 days from the date of authorization. Within 30 days of consummation, the Commission shall be notified by letter of the date of consummation and the file numbers of the applications involved in the transaction.

(g) The Commission retains discretion in reviewing assignments and transfers of control of space station licenses to determine whether the initial license was obtained in good faith with the intent to construct a satellite system.

(h) *Pro forma transactions involving a telecommunications carrier.* You do not need prior Commission approval for a non-substantial (*pro forma*) transfer of control or assignment of license involving a telecommunications carrier, as defined in 47 U.S.C. 153(51). However, the *pro forma* transferee or assignee must file a notification with the Commission no later than 30 days after the transfer or assignment is completed. The notification must be filed on FCC Form 312, Main Form and Schedule A and must contain a certification that the transfer of control or assignment was *pro forma* and that, together with all previous *pro forma* transactions, it did not result in a change in the actual controlling party.

(i) *Pro forma transactions not involving a telecommunications carrier.* A complete application for Commission approval of a non-substantial (*pro forma*) transfer of control or assignment of license not involving a telecommunications carrier, as defined in 47 U.S.C. 153(51), will be deemed granted one business day after filing, provided that:

(1) Approval does not require a waiver of, or a declaratory ruling pertaining to, any applicable Commission rule; and

(2) The application includes a certification that the proposed transfer of control or assignment is *pro forma* and that, together with all previous *pro forma* transactions, it would not result in a change in the actual controlling party.

(j) *Receive-only earth station registrations.* You do not need prior Commission approval for a transfer of control or assignment of a receive-only earth station registration. For all such transactions other than non-substantial (*pro forma*) transfers of control, the transferee or assignee must file a notification with the Commission on FCC Form 312, Main Form and Schedule A no later than 30 days after the transfer

or assignment is completed. No notification is required for a *pro forma* transfer of control of a receive-only earth station registrant.

[56 FR 24016, May 20, 1991; 56 FR 29757, June 20, 1991. Redesignated and amended at 62 FR 5928, 5929, Feb. 10, 1997; 68 FR 51503, Aug. 27, 2003; 69 FR 29901, May 26, 2004; 78 FR 8421, Feb. 6, 2013; 79 FR 51264, Aug. 28, 2014; 81 FR 55329, Aug. 18, 2016; 88 FR 21440, Apr. 10, 2023]

§ 25.120 Application for special temporary authorization.

(a) In circumstances requiring immediate or temporary use of facilities, request may be made for special temporary authority to install and/or operate new or modified equipment. The request must contain the full particulars of the proposed operation including all facts sufficient to justify the temporary authority sought and the public interest therein. No request for temporary authority will be considered unless it is received by the Commission at least 3 working days prior to the date of proposed construction or operation or, where an extension is sought, the expiration date of the existing temporary authorization. A request received within less than 3 working days may be accepted only upon due showing of extraordinary reasons for the delay in submitting the request which could not have been earlier foreseen by the applicant. A copy of the request for special temporary authority also shall be forwarded to the Commission's Columbia Operations Center, 9200 Farm House Lane, Columbia, MD 21046–1609.

(b)(1) The Commission may grant a temporary authorization only upon a finding that there are extraordinary circumstances requiring temporary operations in the public interest and that delay in the institution of these temporary operations would seriously prejudice the public interest. Convenience to the applicant, such as marketing considerations or meeting scheduled customer in-service dates, will not be deemed sufficient for this purpose.

(2) The Commission may grant a temporary authorization for a period not to exceed 180 days, with additional periods not exceeding 180 days, if the Commission has placed the special temporary authority (STA) request on public notice.

(3) The Commission may grant a temporary authorization for a period not to exceed 60 days, if the STA request has not been placed on public notice, and the applicant plans to file a request for regular authority for the service.

(4) The Commission may grant a temporary authorization for a period not to exceed 30 days, if the STA request has not been placed on public notice, and an application for regular authority is not contemplated.

(c) Each application proposing construction of one or more earth station antennas or alteration of the overall height of one or more existing earth station antenna structures, where FAA notification prior to such construction or alteration is required by part 17 of this chapter, must include the FCC Antenna Structure Registration Number(s) for the affected satellite earth station antenna(s). If no such number has been assigned at the time the application(s) is filed, the applicant must state in the application whether the satellite earth station antenna owner has notified the FAA of the proposed construction or alteration and applied to the FCC for an Antenna Structure Registration Number in accordance with part 17 of this chapter. Applications proposing construction of one or more earth station antennas or alteration of the overall height of one or more existing earth station antennas, where FAA notification prior to such construction or alteration is *not* required by part 17 of this chapter, must indicate such and, unless the satellite earth station antenna is 6.10 meters or less above ground level (AGL), must contain a statement explaining why FAA notification is not required.

[56 FR 24016, May 28, 1991, as amended at 61 FR 4367, Feb. 6, 1996. Redesignated and amended at 62 FR 5928, 5929, Feb. 10, 1997; 66 FR 9973, Feb. 13, 2001; 68 FR 51503, Aug. 27, 2003]

§ 25.121 License term and renewals.

(a) *License Term.* (1) Except for licenses for SDARS space stations and terrestrial repeaters, DBS and 17/24 GHz BSS space stations licensed as broadcast facilities, and licenses for which the application was filed pursuant to §§ 25.122 and 25.123, licenses for

facilities governed by this part will be issued for a period of 15 years.

(2) Licenses for DBS space stations and 17/24 GHz BSS space stations licensed as broadcast facilities, and for SDARS space stations and terrestrial repeaters, will be issued for a period of 8 years. Licenses for DBS space stations not licensed as broadcast facilities will be issued for a period of 10 years.

(3) Licenses for which the application was filed pursuant to § 25.122 or § 25.123 will be issued for a period of 6 years, without the possibility of extension or replacement authorization.

(b) The Commission reserves the right to grant or renew station licenses for less than 15 years if, in its judgment, the public interest, convenience and necessity will be served by such action.

(c) For earth stations, the license term will be specified in the instrument of authorization.

(d) *Space stations.* (1) For geostationary-orbit space stations, the license term will begin at 3 a.m. Eastern Time on the date when the licensee notifies the Commission pursuant to § 25.173(b) that the space station has been successfully placed into orbit at its assigned orbital location and that its operations conform to the terms and conditions of the space station authorization.

(2) For non-geostationary orbit space stations, except for those granted under § 25.122 or § 25.123, the license period will begin at 3 a.m. Eastern Time on the date when the licensee notifies the Commission pursuant to § 25.173(b) that operation of an initial space station is compliant with the license terms and conditions and that the space station has been placed in its authorized orbit. Operating authority for all space stations subsequently brought into service pursuant to the license will terminate upon its expiration.

(3) For non-geostationary orbit space stations granted under § 25.122 or § 25.123, the license period will begin at 3 a.m. Eastern Time on the date when the licensee notifies the Commission pursuant to § 25.173(b) that operation of an initial space station is compliant with the license terms and conditions and that the space station has been placed in its authorized orbit and has begun operating. Operating authority for all space stations subsequently brought into service pursuant to the license will terminate upon its expiration.

(e) *Renewal of licenses.* Applications for renewals of earth station licenses must be submitted on FCC Form 312R no earlier than 12 months, and no later than 30 days, before the expiration date of the license. Applications for space station system replacement authorization for non-geostationary orbit satellites shall be filed no earlier than 12 months, and no later than 30 days, before the expiration date of the license.

(f) *Geostationary Satellite License Term Extensions.* (1) For geostationary space stations issued an initial license term for a period of 15 years, licensees may apply for a modification to extend the license term in increments of five years or less.

(2) Geostationary space station licensees seeking a license term extension through a license modification application must provide a statement that includes the following:

(i) The requested duration of the license extension;

(ii) The estimated total remaining space station lifetime;

(iii) A description of any single points of failure or other malfunctions, defects, or anomalies during the space station operation that could affect its ability to conduct end-of-life procedures as planned, and an assessment of the associated risk;

(iv) A certification that remaining fuel reserves are adequate to complete de-orbit as planned; and

(v) A certification that telemetry, tracking, and command links are fully functional.

(g) *Autogrant procedures for certain earth station renewals.* An application for renewal of an earth station license will be deemed granted without any further action by the Commission 30 days after filing and paying any associated regulatory fees if the application meets all of the following criteria:

(1) The renewal application does not make any modifications to the license;

(2) The renewal application does not make any changes to the currently authorized operating parameters;

(3) The renewal application is not for operations in a frequency band that is subject to a freeze on new or renewed licenses or is restricted in how a license may be renewed; and

(4) The Commission does not choose to place the application on public notice pursuant to § 25.151.

[56 FR 24016, May 28, 1991, as amended at 58 FR 68059, Dec. 23, 1993; 59 FR 53327, Oct. 21, 1994. Redesignated and amended at 62 FR 5928, 5929, Feb. 10, 1997; 65 FR 59142, Oct. 4, 2000; 67 FR 12485, Mar. 19, 2002; 67 FR 51113, Aug. 7, 2002; 68 FR 51503, Aug. 27, 2003; 68 FR 63999, Nov. 12, 2003; 72 FR 50027, Aug. 29, 2007; 75 FR 45067, Aug. 2, 2010; 79 FR 8317, Feb. 12, 2014; 85 FR 43733, July 20, 2020; 86 FR 49489, Sept. 3, 2021; 85 FR 52451, Aug. 25, 2020; 89 FR 65217, Aug. 9, 2024; 90 FR 41801, Aug. 27, 2025]

§ 25.122 Applications for streamlined small space station authorization.

(a) This section shall only apply to applicants for NGSO systems that are able to certify compliance with the certifications set forth in paragraph (c) of this section. For applicants seeking to be authorized under this section, a comprehensive proposal for Commission evaluation must be submitted for each space station in the proposed system on FCC Form 312, Main Form and Schedule S, as described in § 25.114(a) through (c), together with the certifications described in paragraph (c) of this section and the narrative requirements described in paragraph (d) of this section.

(b) Applications for NGSO systems may be filed under this section, provided that the total number of space stations requested in the application is ten or fewer.

(1) To the extent that space stations in the satellite system will be technically identical, the applicant may submit an application for blanket-licensed space stations.

(2) Where the space stations in the satellite system are not technically identical, the applicant must certify that each space station satisfies the criteria in paragraph (c) of this section, and submit technical information for each type of space station.

(c) Applicants filing for authorization under the streamlined procedure described in this section must include with their applications certifications that the following criteria will be met for all space stations to be operated under the license:

(1) The space station(s) will operate only in non-geostationary orbit;

(2) The total in-orbit lifetime for any individual space station will be six years or less;

(3) The space station(s):

(i) Will be deployed at an orbital altitude of 600 km or below; or

(ii) Will maintain a propulsion system and have the ability to make collision avoidance and deorbit maneuvers using propulsion;

(4) Each space station will be identifiable by a unique signal-based telemetry marker distinguishing it from other space stations or space objects;

(5) The space station(s) will release no operational debris;

(6) The space station operator has assessed and limited the probability of accidental explosions, including those resulting from the conversion of energy sources on board the space station(s) into energy that fragments the spacecraft;

(7) The probability of a collision between each space station and any other large object (10 centimeters or larger) during the orbital lifetime of the space station is 0.001 or less as calculated using current National Aeronautics and Space Administration (NASA) software or other higher fidelity model;

(8) The space station(s) will be disposed of post-mission through atmospheric re-entry. The probability of human casualty from portions of the spacecraft surviving re-entry and reaching the surface of the Earth is zero as calculated using current NASA software or higher fidelity models;

(9) Operation of the space station(s) will be compatible with existing operations in the authorized frequency band(s). Operations will not materially constrain future space station entrants from using the authorized frequency band(s);

(10) The space station(s) can be commanded by command originating from the ground to immediately cease transmissions and the licensee will have the capability to eliminate harmful interference when required under the terms of the license or other applicable regulations;

(11) Each space station is 10 cm or larger in its smallest dimension;

(12) Each space station will have a mass of 180 kg or less, including any propellant;

(13) The probability that any individual space station will become a source of debris by collision with small debris or meteoroids that would cause loss of control and prevent disposal is 0.01 (1 in 100) or less; and

(14) Upon receipt of a space situational awareness conjunction warning, the licensee or operator will review and take all possible steps to assess the collision risk, and will mitigate the collision risk if necessary. As appropriate, steps to assess and mitigate the collision risk should include, but are not limited to: Contacting the operator of any active spacecraft involved in such a warning; sharing ephemeris data and other appropriate operational information with any such operator; and modifying space station attitude and/or operations.

(d) The following information in narrative form shall be contained in each application:

(1) An overall description of system facilities, operations, and services and an explanation of how uplink frequency bands would be connected to downlink frequency bands;

(2) Public interest considerations in support of grant;

(3) A description of means by which requested spectrum could be shared with both current and future operators, (*e.g.*, how ephemeris data will be shared, antenna design, earth station geographic locations) thereby not materially constraining other operations in the requested frequency band(s);

(4) If at any time during the space station(s)' mission or de-orbit phase the space station(s) will transit through the orbits used by any inhabitable spacecraft, including the International Space Station, a description of the design and operational strategies, if any, that will be used to minimize the risk of collision and avoid posing any operational constraints to the inhabitable spacecraft shall be furnished at the time of application;

(5) A statement identifying characteristics of the space station(s)' orbits that may present a collision risk, including any planned and/or operational space stations in those orbits, and indicating what steps, if any, have been taken to coordinate with the other spacecraft or system, or what other measures the licensee plans to use to avoid collision;

(6) A statement disclosing how the licensee or operator plans to identify the space station(s) following deployment and whether space station tracking will be active or passive; whether the space station(s) will be registered with the 18th Space Control Squadron or successor entity prior to deployment; and the extent to which the space station licensee or operator plans to share information regarding initial deployment, ephemeris, and/or planned maneuvers with the 18th Space Control Squadron or successor entity, other entities that engage in space situational awareness or space traffic management functions, and/or other operators;

(7) A description of the design and operation of maneuverability and deorbit systems, if any, and a description of the anticipated evolution over time of the orbit of the proposed satellite or satellites;

(8) If there are planned proximity operations, a statement disclosing those planned operations, and addressing debris generation that will or may result from the proposed operations, including any planned release of debris, the risk of accidental explosions, the risk of accidental collision, and measures taken to mitigate those risks;

(9) A demonstration that the probability of success of disposal is 0.9 or greater for any individual space station. Space stations deployed to orbits in which atmospheric drag will, in the event of a space station failure, limit the lifetime of the space station to less than 25 years do not need to provide this additional demonstration; and

(10) A list of the FCC file numbers or call signs for any known applications or Commission grants related to the proposed operations (*e.g.*, experimental license grants, other space station or earth station applications or grants).

[85 FR 43734, July 20, 2020, as amended at 85 FR 52452, Aug. 25, 2020; 89 FR 65217, Aug. 9, 2024]

§ 25.123 Applications for streamlined small spacecraft authorization.

(a) This section shall only apply to applicants for space stations that will operate beyond Earth's orbit and that are able to certify compliance with the certifications set forth in paragraph (b) of this section. For applicants seeking to be authorized under this section, a comprehensive proposal for Commission evaluation must be submitted for each space station in the proposed system on FCC Form 312, Main Form and Schedule S, as described in §25.114(a) through (c), together with the certifications described in paragraph (b) of this section and the requirements described in paragraph (c) of this section.

(b) Applicants filing for authorization under the streamlined procedure described in this section must include with their applications certifications that the following criteria will be met for all space stations to be operated under the license:

(1) The space station(s) will operate and be disposed of beyond Earth's orbit;

(2) The total lifetime from deployment to spacecraft end-of-life for any individual space station will be six years or less;

(3) Each space station will be identifiable by a unique signal-based telemetry marker distinguishing it from other space stations or space objects;

(4) The space station(s) will release no operational debris;

(5) No debris will be generated in an accidental explosion resulting from the conversion of energy sources on board the space station(s) into energy that fragments the spacecraft;

(6) The probability of a collision between each space station and any other large object (10 centimeters or larger) during the lifetime of the space station is 0.001 or less as calculated using current NASA software or higher fidelity models;

(7) Operation of the space station(s) will be compatible with existing operations in the authorized frequency band(s). Operations will not materially constrain future space station entrants from using the authorized frequency band(s);

(8) The space station(s) can be commanded by command originating from the ground to immediately cease transmissions and the licensee will have the capability to eliminate harmful interference when required under the terms of the license or other applicable regulations;

(9) Each space station is 10 cm or larger in its smallest dimension; and

(10) Each space station will have a mass of 500 kg or less, including any propellant.

(11) Upon receipt of a space situational awareness conjunction warning, the operator will review and take all possible steps to assess the collision risk, and will mitigate the collision risk if necessary. As appropriate, steps to assess and mitigate the collision risk should include, but are not limited to: Contacting the operator of any active spacecraft involved in such a warning; sharing ephemeris data and other appropriate operational information with any such operator; and modifying space station attitude and/or operations.

(c) Applicants must also provide the information specified in §25.122(d) in narrative form.

[85 FR 43734, July 20, 2020, as amended at 85 FR 52452, Aug. 25, 2020; 89 FR 65217, Aug. 9, 2024]

§ 25.124 Unified space station and earth station authorization.

(a) A single authorization may be issued for the operations of a GSO space station or NGSO space station(s) and the blanket-licensed earth stations that will operate within that satellite system, excluding GSO FSS and NGSO FSS satellite systems operating in bands below 10 GHz and bands subject to §25.136. The available frequency bands are:

(1) Non-Voice, Non-Geostationary MSS: 137–138 MHz, 148–150.05 MHz, 399.9–400.05 MHz, and 400.15–401 MHz;

(2) 1.5/1.6 GHz MSS: 1525–1559 MHz and 1626.5–1660.5 MHz;

(3) 1.6/2.4 GHz MSS: 1610–1626.5 MHz and 2483.5–2500 MHz;

(4) 2 GHz MSS: 2000–2020 MHz and 2180–2200 MHz;

(5) GSO FSS: 10.7–12.2 GHz, 14–14.5 GHz, 18.3–18.8 GHz, 19.7–20.2 GHz, 28.35–28.6 GHz, 29.25–30 GHz, 40–42 GHz, and 48.2–50.2 GHz;

(6) NGSO FSS: 10.7–12.7 GHz, 14.4–14.5 GHz, 17.3–17.8 GHz, 17.8–18.6 GHz, 18.8–19.4 GHz, 19.6–20.2 GHz, 28.35–29.1 GHz, 29.5–30.0 GHz, 40–42 GHz, and 48.2–50.2 GHz;

(7) GSO and NGSO MSS: 19.7–20.2 GHz and 29.5–30 GHz.

(b) An application for a satellite system license described in paragraph (a) must contain:

(1) The information required by §25.114 or, for a non-U.S.-licensed space station, §25.137;

(2) A certification that earth station operations under the satellite system license will comply with part 1, subpart I and part 17 of this chapter; and

(3) Any additional information required under this part, including under §25.115, for operation of the blanket-licensed earth stations that is not duplicative or unnecessary due to the information provided for the space station operation.

[86 FR 11887, Mar. 1, 2021, as amended by 89 FR 96601, Dec. 5, 2024]

§ 25.125 Applications for supplemental coverage from space (SCS).

(a) *SCS entry criteria.* This section applies only to applicants seeking to provide SCS. An applicant for SCS space station authorization must hold either an existing NGSO or GSO license or grant of U.S. market access under this part, or must be seeking a NGSO or GSO license or grant of U.S. market access under this part, and must have a lease arrangement(s) or agreement pursuant to §1.9047 of this chapter with one or more terrestrial wireless licensee(s) that hold, collectively or individually, all co-channel licenses throughout a GIA in a band identified in §2.106(d)(33)(i) of this chapter. Applicants for SCS space stations must comply with the requirements set forth in paragraph (b) of this section.

(b) *SCS space station application requirements.* An applicant seeking a space station authorization to provide SCS must either submit an application requesting modification of a current NGSO or GSO license or grant of U.S. market access under this part, or an application seeking a new NGSO or GSO license or grant of U.S. market access under this part.

(1) The application must include a certification that:

(i) A lease notification(s) or application(s), pursuant to §1.9047 of this chapter, where a single terrestrial wireless licensee holds or multiple co-channel licensees collectively hold all co-channel licenses within the relevant GIA in the bands identified in §2.106(d)(33)(i) of this chapter, or as it pertains to FirstNet, an agreement, is on file with the Commission;

(ii) The current space station licensee under this part or grantee of market access for NGSO or GSO satellite operation under this part seeks modification of authority to provide SCS in the same geographic areas covered in the relevant GIA, or the applicant for a space station license under this part or grant of market access for NGSO or GSO satellite operation under this part seeks to provide SCS in the same geographic areas covered in the relevant GIA; and

(iii) SCS earth stations will qualify as ''licensed by rule'' earth stations under §25.115(q).

(2) The application must include a comprehensive proposal for the prospective SCS system on FCC Form 312, Main Form and Schedule S, as described in §25.114, together with the certification described in paragraph (b)(1) of this section and include a list of the file and identification numbers associated with the relevant leasing notification(s) under part 1 of this chapter, application(s), and FCC Form 601(s), with a brief description of the coverage areas that will be served, domestically and internationally.

(3) Applications to modify an authorization under this part to provide SCS and applications seeking to provide SCS in the bands identified in §2.106(d)(33)(i) of this chapter will not be subject to the processing round procedures or first-come, first-served procedures in §§25.137, 25.157, and 25.158.

(c) *Equipment authorization for SCS earth stations.* Each SCS earth station used to provide SCS under this section must meet the equipment authorization requirements under paragraph (e) of this section and all equipment authorization requirements for all intended uses of the device pursuant to the procedures specified in part 2 of

this chapter and the requirements of at least one of part 22, 24, or 27 of this chapter.

(d) *Effective date and continued operation of SCS authorization.* SCS authorization will be deemed effective in the Commission's records and for purposes of the application of the rules set forth in this section after each of the following requirements is satisfied:

(1) Grant of:

(i) A modification application under this part or request for modification of a grant of market access; or

(ii) An application to launch and operate or market access;

(2) Approval of a leasing arrangement(s) or agreement(s) under part 1 of this chapter (*see* §1.9047 of this chapter); and

(3) Grant of a valid SCS earth station equipment certification under part 2 of this chapter.

(e) *SCS earth station equipment certification requirements.* Applicants for certification for SCS earth stations for use with a satellite system must meet all requirements for equipment certification and equipment test data necessary to demonstrate compliance with pertinent standards under part 22, 24, or 27 of this chapter as applicable.

[89 FR 34166, Apr. 30, 2024, as amended at 89 FR 34167, Apr. 30, 2024]

§ 25.129 Equipment authorization for portable earth-station transceivers.

(a) Except as expressly permitted by §2.803 or §2.1204 of this chapter, prior authorization must be obtained pursuant to the equipment certification procedure in part 2, subpart J of this chapter for importation, sale or lease in the United States, or offer, shipment, or distribution for sale or lease in the United States of portable earth-station transceivers subject to regulation under part 25. This requirement does not apply, however, to devices imported, sold, leased, or offered, shipped, or distributed for sale or lease before November 20, 2004.

(b) For purposes of this section, an earth-station transceiver is portable if it is a ''portable device'' as defined in §2.1093(b) of this chapter, *i.e.*, if its radiating structure(s) would be within 20 centimeters of the operator's body when the transceiver is in operation.

(c) In addition to the information required by §2.1033(c) of this chapter, applicants for certification required by this section shall submit any additional equipment test data necessary to demonstrate compliance with pertinent standards for transmitter performance prescribed in §§25.138, 25.202(f), 25.204, 25.209, and 25.216, must demonstrate compliance with the labeling requirement in §25.285(b), and shall ensure compliance with the Commission's radio frequency exposure requirements in §§1.1307(b), 2.1091, and 2.1093 of this chapter, as appropriate. An Environmental Assessment may be required if RF radiation from the proposed facilities would, in combination with radiation from other sources, cause RF power density or field strength in an accessible area to exceed the applicable limits specified in §1.1310 of this chapter. Applications for equipment authorization of mobile or portable devices operating under this section must contain a statement confirming compliance with these requirements. Technical information showing the basis for this statement must be submitted to the Commission upon request.

(d) Applicants for certification required by this section must submit evidence that the devices in question are designed for use with a satellite system that may lawfully provide service to users in the United States pursuant to an FCC license or order reserving spectrum.

[69 FR 5709, Feb. 6, 2004, as amended at 79 FR 8317, Feb. 12, 2014; 81 FR 55330, Aug. 18, 2016; 84 FR 53654, Oct. 8, 2019; 85 FR 18150, Apr. 1, 2020]

EARTH STATIONS

§§ 25.130–25.131 [Reserved]

§ 25.132 Verification of earth station antenna performance.

(a)(1) Except as provided in paragraph (a)(2) of this section, applications for transmitting earth stations in the FSS, including feeder-link stations, must include a certification that the applicant has reviewed the results of a series of radiation pattern tests performed by the antenna manufacturer on representative equipment in representative configurations, and the

test results demonstrate that the equipment meets relevant off-axis gain standards in § 25.209, measured in accordance with paragraph (b)(1) of this section. Applicants and licensees must be prepared to submit the radiation pattern measurements to the Commission on request.

(2) Applicants that specify off-axis EIRP density pursuant to § 25.115(g)(1) are exempt from the certification requirement in paragraph (a)(1) of this section.

(b)(1) For purposes of paragraph (a)(1) of this section and § 25.115(g)(1), the following measurements on a production antenna performed on calibrated antenna range must be made at the top and bottom of each frequency band assigned for uplink transmission:

(i)(A) Co-polarized gain in the azimuth plane must be measured across a range extending to 180° on each side of the main-lobe axis, and the measurements must be represented in two plots: one across the entire angular range of ±180° from the main-lobe axis and the other across ±10° from the main-lobe axis.

(B) Co-polarized gain must be measured from 0° to 30° from beam peak in the elevation plane.

(ii) Cross-polarization gain must be measured across a range of plus and minus 7° from beam peak in the azimuth and elevation planes.

(iii) Main beam gain.

(iv) For antennas with asymmetric apertures or beams, where the minor axis of the antenna beam (major axis of the antenna aperture) will not always be aligned parallel to the plane tangent to the GSO arc, the measurements in paragraphs (b)(1)(i) through (iii) of this section must be made over the angular ranges specified in paragraphs (b)(1)(i)(A) and (B) of this section in two orthogonal planes, with the antenna oriented at the maximum skew angle at which it will operate.

(2) The relevant envelope specified in § 25.209 must be superimposed on each measured pattern.

(c) The tests specified in paragraph (b) of this section are normally performed at the manufacturer's facility; but for those antennas that are very large and only assembled on-site, on-site measurements may be used for product qualification data. If on-site data is to be used for qualification, the test frequencies and number of patterns should follow, where possible, the recommendations in paragraph (b) of this section, and the test data is to be submitted in the same manner as described in paragraph (a) of this section.

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

(1) Co-polarized patterns in the elevation plane, plus and minus 7 degrees, in the transmit band.

(2) Co-polarized patterns in the azimuth and elevation planes, plus and minus 7 degrees, in the receive band.

(3) *System cross-polarization discrimination on-axis.* The FCC envelope specified in § 25.209 shall be superimposed on each pattern. The transmit patterns are to be measured with the aid of a cooperating earth station in coordination with the satellite system control center under the provisions of § 25.272.

(e) Certification that the tests required by paragraph (c) of this section have been satisfactorily performed shall be provided to the Commission in notification that construction of the facilities has been completed as required by § 25.133.

(f) Antennas less than 3 meters in diameter and antennas on simple (manual) drive mounts that are operated at a fixed site are exempt from the requirements of paragraphs (c) and (d) of this section provided that a detailed technical showing is made that confirms proper installation, pointing procedures, and polarization alignment and manufacturing quality control. These showing must also include a plan for periodic testing and field installation procedures and precautions.

(g) Records of the results of the tests required by this section must be maintained at the antenna site or the earth

station operator's control center and be available for inspection.

[58 FR 13419, Mar. 11, 1993, as amended at 69 FR 5710, Feb. 6, 2004; 70 FR 32253, June 2, 2005; 72 FR 50028, Aug. 29, 2007; 74 FR 47102, Sept. 15, 2009; 74 FR 57098, Nov. 4, 2009; 78 FR 14926, Mar. 8, 2013; 79 FR 8318, Feb. 12, 2014; 81 FR 55330, Aug. 18, 2016; 84 FR 53654, Oct. 8, 2019]

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

(a) An earth station, or network of blanket-licensed earth stations, must be brought into operation within the longest of the time periods below, unless the Commission determines otherwise:

(1) For an earth station authorized to communicate with a GSO FSS space station in the 3600–4200 MHz band (space-to-Earth) operating outside of CONUS, or in the 5850–6725 MHz band (Earth-to-space), within one year from the date of the license grant;

(2) For any other earth station or network of earth stations, within one year from the date of the license grant or six months after the bringing into operation of a GSO space station, or NGSO system under §25.164(b)(1), with which the earth station or earth station network was authorized to communicate when it was licensed, as notified under §25.173(b).

(b)(1) Each initial license for a transmitting earth station or modified license authorizing operation of an additional transmitting antenna, except for blanket licenses, will also specify as a condition therein that upon completion of construction, the licensee must file with the Commission a certification containing the following information:

(i) The name of the licensee;

(ii) File number of the application;

(iii) Call sign of the antenna;

(iv) Date of the license;

(v) A certification that the facility as authorized has been completed and that each antenna has been tested and found to perform within authorized gain patterns or off-axis EIRP density levels; and

(vi) The date when the earth station became operational.

(vii) A statement that the station will remain operational during the license period unless the license is submitted for cancellation.

(2) For FSS earth stations authorized under a blanket license, the licensee must notify the Commission when the earth station network commences operation. The notification should include the information described in paragraphs (b)(1)(i) through (iv) of this section and a certification that each hub antenna, and a type of antenna used in remote stations in the network, has been tested and found to perform within authorized gain patterns or off-axis EIRP density levels. For any type of antenna whose performance was not certified when the network commenced operation, the licensee must submit the information and certification stated above for the antenna type when it is first deployed.

(c) [Reserved]

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

[56 FR 24016, May 28, 1991, as amended at 58 FR 68059, Dec. 23, 1993; 59 FR 53327, Oct. 21, 1994; 65 FR 59142, Oct. 4, 2000; 70 FR 32254, June 2, 2005; 78 FR 8421, Feb. 6, 2013; 79 FR 8318, Feb. 12, 2014; 81 FR 55330, Aug. 18, 2016; 84 FR 53654, Oct. 8, 2019; 86 FR 11887, Mar. 1, 2021]

§ 25.134 [Reserved]

§ 25.135 Licensing provisions for earth station networks in the non-voice, non-geostationary Mobile-Satellite Service.

(a) Each applicant for a blanket earth station license in the non-voice, non-geostationary mobile-satellite service shall demonstrate that transceiver operations will not cause unacceptable interference to other authorized users of the spectrum, based on existing system information publicly available at the Commission at the time of filing, and will comply with operational conditions placed upon the systems with which they are to operate in accordance with §25.142(b). This demonstration shall include a showing

as to all the technical parameters, including duty cycle and power limits, under which the individual user transceivers will operate.

(b) [Reserved]

(c) Transceiver units in this service are authorized to communicate with and through U.S.-authorized space stations only.

[58 FR 68059, Dec. 23, 1993, as amended at 69 FR 5710, Feb. 6, 2004; 79 FR 8319, Feb. 12, 2014]

§ 25.136 Earth Stations in the 24.75–25.25 GHz, 27.5–28.35 GHz, 37.5–40 GHz, 47.2–48.2, GHz and 50.4–51.4 GHz bands.

(a) FSS is secondary to the Upper Microwave Flexible Use Service in the 27.5–28.35 GHz band. Notwithstanding that secondary status, an applicant for a license for a transmitting earth station in the 27.5–28.35 GHz band that meets one of the following criteria may be authorized to operate without providing interference protection to stations in the Upper Microwave Flexible Use Service:

(1) The FSS licensee also holds the relevant Upper Microwave Flexible Use Service license(s) for the area in which the earth station generates a power flux density (PFD), at 10 meters above ground level, of greater than or equal to −77.6 dBm/m^2/MHz;

(2) The FSS earth station was authorized prior to July 14, 2016; or

(3) The application for the FSS earth station was filed prior to July 14, 2016 and has been subsequently granted; or

(4) The applicant demonstrates compliance with all of the following criteria in its application:

(i) There are no more than two other authorized earth stations operating in the 27.5–28.35 GHz band within the county where the proposed earth station is located that meet the criteria contained in either paragraph (a)(1), (2), (3), or (4) of this section. For purposes of this requirement, multiple earth stations that are collocated with or at a location contiguous to each other shall be considered as one earth station;

(ii) The area in which the earth station generates a PFD, at 10 meters above ground level, of greater than or equal to −77.6 dBm/m2/MHz, together with the similar area of any other earth station authorized pursuant to paragraph (a) of this section, does not cover, in the aggregate, more than the amount of population of the UMFUS license area within which the earth station is located as noted in table 1 to this paragraph (a)(4)(ii):

TABLE 1 TO PARAGRAPH (a)(4)(ii)

Population within UMFUS license area	Maximum permitted aggregate population within −77.6 dBm/m^2/MHz PFD contour of earth stations
Greater than 450,000	0.1 percent of population in UMFUS license area.
Between 6,000 and 450,000	450 people.
Fewer than 6,000	7.5 percent of population in UMFUS license area.

(iii) The area in which the earth station generates a PFD, at 10 meters above ground level, of greater than or equal to −77.6 dBm/m^2/MHz does not contain any major event venue, urban mass transit route, passenger railroad, or cruise ship port. In addition, the area mentioned in paragraph (a)(4)(ii) of this section shall not cross any of the following types of roads, as defined in functional classification guidelines issued by the Federal Highway Administration pursuant to 23 CFR 470.105(b): Interstate, Other Freeways and Expressways, or Other Principal Arterial. The Federal Highway Administration Office of Planning, Environment, and Realty Executive Geographic Information System (HEPGIS) map contains information on the classification of roads. For purposes of this rule, an urban area shall be an Adjusted Urban Area as defined in section 101(a)(37) of Title 21 of the United States Code.

(iv) The applicant has successfully completed frequency coordination with the UMFUS licensees within the area in which the earth station generates a PFD, at 10 meters above ground level, of greater than or equal to −77.6 dBm/m^2/MHz with respect to existing facilities constructed and in operation by the UMFUS licensee. In coordinating with UMFUS licensees, the applicant shall use the applicable processes contained in § 101.103(d) of this chapter.

(b) Applications for earth stations in the 37.5–40 GHz band shall provide an exhibit describing the zone within which the earth station will require protection from transmissions of Upper

Microwave Flexible Use Service licensees. For purposes of this rule, the protection zone shall consist of the area where UMFUS licensees may not locate facilities without the consent of the earth station licensee. The earth station applicant shall demonstrate in its application, using reasonable engineering methods, that the requested protection zone is necessary in order to protect its proposed earth station.

(c) The protection zone (as defined in paragraph (b) of this section) shall comply with the following criteria. The applicant must demonstrate compliance with all of the following criteria in its application:

(1) There are no more than two other authorized earth stations operating in the 37.5–40 GHz band within the county within which the proposed earth station is located that meet the criteria contained in paragraph (c) of this section, and there are no more than 14 other authorized earth stations operating in the 37.5–40 GHz band within the PEA within which the proposed earth station is located that meet the criteria contained in paragraph (c) of this section. For purposes of this requirement, multiple earth stations that are collocated with or at a location contiguous to each other shall be considered as one earth station;

(2) The protection zone, together with the protection zone of other earth stations in the same PEA authorized pursuant to this, does not cover, in the aggregate, more than the amount of population of the PEA within which the earth station is located as noted in table 2 to this paragraph (c)(2):

TABLE 2 TO PARAGRAPH (c)(2)

Population within Partial Economic Area (PEA) where earth station is located	Maximum permitted aggregate population within protection zone of earth stations
Greater than 2,250,000	0.1 percent of population in PEA.
Between 60,000 and 2,250,000.	2,250 people.
Fewer than 60,000	3.75 percent of population in PEA.

(3) The protection zone does not contain any major event venue, urban mass transit route, passenger railroad, or cruise ship port. In addition, the area mentioned in the preceding sentence shall not cross any of the following types of roads, as defined in functional classification guidelines issued by the Federal Highway Administration pursuant to 23 CFR 470.105(b): Interstate, Other Freeways and Expressways, or Other Principal Arterial. The Federal Highway Administration Office of Planning, Environment, and Realty Executive Geographic Information System (HEPGIS) map contains information on the classification of roads. For purposes of this rule, an urban area shall be an Adjusted Urban Area as defined in section 101(a)(37) of Title 21 of the United States Code.

(4) The applicant has successfully completed frequency coordination with the UMFUS licensees within the protection zone with respect to existing facilities constructed and in operation by the UMFUS licensee. In coordinating with UMFUS licensees, the applicant shall use the applicable processes contained in §101.103(d) of this chapter.

(d) Notwithstanding that FSS is coprimary with the Upper Microwave Flexible Use Service in the 47.2–48.2 GHz band, earth stations in the 47.2–48.2 GHz band shall be limited to individually licensed earth stations. An applicant for a license for a transmitting earth station in the 47.2–48.2 GHz band must meet one of the following criteria to be authorized to operate without providing any additional interference protection to stations in the Upper Microwave Flexible Use Service:

(1) The FSS licensee also holds the relevant Upper Microwave Flexible Use Service license(s) for the area in which the earth station generates a PFD, at 10 meters above ground level, of greater than or equal to -77.6 dBm/m^2/MHz; or

(2) The earth station in the 47.2–48.2 GHz band was authorized prior to February 1, 2018; or

(3) The application for the earth station in the 47.2–48.2 GHz band was filed prior to February 1, 2018; or

(4) The applicant demonstrates compliance with all of the following criteria in its application:

(i) There are no more than two other authorized earth stations operating in the 47.2–48.2 GHz band within the county where the proposed earth station is

located that meet the criteria contained in paragraph (d)(1), (2), (3), or (4) of this section, and there are no more than 14 other authorized earth stations operating in the 47.2–48.2 GHz band within the PEA where the proposed earth station is located that meet the criteria contained in paragraph (d)(1), (2), (3), or (4) of this section. For purposes of this requirement, multiple earth stations that are collocated with or at a location contiguous to each other shall be considered as one earth station;

(ii) The area in which the earth station generates a PFD, at 10 meters above ground level, of greater than or equal to −77.6 dBm/m^2/MHz, together with the similar area of any other earth station authorized pursuant to paragraph (d) of this section, does not cover, in the aggregate, more than the amount of population of the PEA within which the earth station is located as noted in table 3 to this paragraph (d)(4)(ii):

TABLE 3 TO PARAGRAPH (d)(4)(ii)

Population within Partial Economic Area (PEA) where earth station is located	Maximum permitted aggregate population within −77.6 dBm/m^2/MHz PFD contour of earth stations
Greater than 2,250,000	0.1 percent of population in PEA.
Between 60,000 and 2,250,000.	2,250 people.
Fewer than 60,000	3.75 percent of population in PEA.

(iii) The area in which the earth station generates a PFD, at 10 meters above ground level, of greater than or equal to −77.6 dBm/m^2/MHz does not contain any major event venue, any highway classified by the U.S. Department of Transportation under the categories Interstate, Other Freeways and Expressways, or Other Principal Arterial, or an urban mass transit route, passenger railroad, or cruise ship port; and

(iv) The applicant has successfully completed frequency coordination with the UMFUS licensees within the area in which the earth station generates a PFD, at 10 meters above ground level, of greater than or equal to −77.6 dBm/m^2/MHz with respect to existing facilities constructed and in operation by the UMFUS licensee. In coordinating with UMFUS licensees, the applicant shall use the applicable processes contained in § 101.103(d) of this chapter.

(e) Notwithstanding that FSS is coprimary with the Upper Microwave Flexible Use Service in the 24.75–25.25 GHz and 50.4–51.4 GHz bands, earth stations in these bands shall be limited to individually licensed earth stations. An applicant for a license for a transmitting earth station in the 24.75–25.25 GHz or 50.4–51.4 GHz band must meet one of the following criteria to be authorized to operate without providing any additional interference protection to stations in the Upper Microwave Flexible Use Service:

(1) The FSS licensee also holds the relevant Upper Microwave Flexible Use Service license(s) for the area in which the earth station generates a power flux density (PFD), at 10 meters above ground level, of greater than or equal to −77.6dBm/m^2/MHz;

(2) The earth station in the 24.75–25.25 GHz band was authorized prior to August 20, 2018; or the earth station in the 50.4–51.4 GHz band was authorized prior to June 12, 2019; or

(3) The application for the earth station in the 24.75–25.25 GHz band was filed prior to August 20, 2018; or the application for the earth station in the 50.4–51.4 GHz band was filed prior to June 12, 2019; or

(4) The applicant demonstrates compliance with all of the following criteria in its application:

(i) There are no more than two other authorized earth stations operating in the same frequency band within the county where the proposed earth station is located that meet the criteria contained in either paragraph (e)(1), (2), (3), or (4) of this section, and there are no more than 14 other authorized earth stations operating in the same frequency band within the Partial Economic Area where the proposed earth station is located that meet the criteria contained in paragraph (e)(1), (2), (3), or (4) of this section. For purposes of the requirement in this paragraph (e)(4), multiple earth stations that are collocated with or at a location contiguous to each other shall be considered as one earth station;

(ii) The area in which the earth station generates a power flux density

(PFD), at 10 meters above ground level, of greater than or equal to −77.6 dBm/m^2/MHz, together with the similar area of any other earth station operating in the same frequency band authorized pursuant to paragraph (e) of this section, does not cover, in the aggregate, more than the amount of population of the county within which the earth station is located as noted in table 4 to this paragraph (e)(4)(ii):

TABLE 4 TO PARAGRAPH (e)(4)(ii)

Population within the County where earth station is located	Maximum permitted aggregate population within −77.6 dBm/m^2/MHz PFD contour of earth stations
Greater than 450,000	0.1 percent of population in county.
Between 6,000 and 450,000	450 people.
Fewer than 6,000	7.5 percent of population in county.

(iii) The area in which the earth station generates a PFD, at 10 meters above ground level, of greater than or equal to −77.6 dBm/m2/MHz does not contain any major event venue, urban mass transit route, passenger railroad, or cruise ship port. In addition, the area mentioned in paragraph (e)(4)(ii) of this section shall not cross any of the following types of roads, as defined in functional classification guidelines issued by the Federal Highway Administration pursuant to 23 CFR 470.105(b): Interstate, Other Freeways and Expressways, or Other Principal Arterial. The Federal Highway Administration Office of Planning, Environment, and Realty Executive Geographic Information System (HEPGIS) map contains information on the classification of roads. For purposes of this paragraph (e)(4), an urban area shall be an Adjusted Urban Area as defined in section 101(a)(37) of Title 21 of the United States Code; and

(iv) The applicant has successfully completed frequency coordination with the UMFUS licensees within the area in which the earth station generates a PFD, at 10 meters above ground level, of greater than or equal to −77.6 dBm/m2/MHz with respect to existing facilities constructed and in operation by the UMFUS licensee. In coordinating with UMFUS licensees, the applicant shall use the applicable processes contained in §101.103(d) of this chapter.

(f) If an earth station applicant or licensee in the 24.75–25.25 GHz, 27.5–28.35 GHz, 37.5–40 GHz, 47.2–48.2 GHz and/or 50.4–51.4 GHz bands enters into an agreement with an UMFUS licensee, their operations shall be governed by that agreement, except to the extent that the agreement is inconsistent with the Commission's rules or the Communications Act.

(g) Any earth station authorizations issued pursuant to paragraph (a)(4), (c), (d)(4), or (e)(4) of this section shall be conditioned upon operation being in compliance with the criteria contained in the applicable paragraph.

(h) *Re-coordination.* An earth station licensed under this section that is brought into operation later than one year after the date of the license grant must be re-coordinated with UMFUS stations using the applicable processes in §101.103(d) of this chapter. The earth station licensee must complete re-coordination within one year before its commencement of operation. The re-coordination should account for any demographic or geographic changes as well as changes to the earth station equipment or configuration. A re-coordination notice must be filed in ICFS before commencement of earth station operations.

[81 FR 79937, Nov. 14, 2016, as amended at 83 FR 63, Jan. 2, 2018; 83 FR 34489, July 20, 2018; 84 FR 20819, May 13, 2019; 84 FR 47147, Sept. 9, 2019; 86 FR 11887, Mar. 1, 2021; 88 FR 21440, Apr. 10, 2023]

§ 25.137 Requests for U.S. market access through non-U.S.-licensed space stations.

(a) Earth station applicants requesting authority to communicate with a non-U.S.-licensed space station and entities filing a petition for declaratory ruling to access the United States market using a non-U.S.-licensed space station must attach an exhibit with their FCC Form 312 demonstrating that U.S.-licensed satellite systems have effective competitive opportunities to provide analogous services in:

(1) The country in which the non-U.S. licensed space station is licensed; and

(2) All countries in which communications with the U.S. earth station will originate or terminate. The applicant bears the burden of showing that

there are no practical or legal constraints that limit or prevent access of the U.S. satellite system in the relevant foreign markets. The exhibit required by this paragraph must also include a statement of why grant of the application is in the public interest. This paragraph shall not apply with respect to requests for authority to operate using a non-U.S. licensed satellite that is licensed by or seeking a license from a country that is a member of the World Trade Organization for services covered under the World Trade Organization Basic Telecommunications Agreement.

(b) Any request pursuant to paragraph (a) of this section must be filed electronically through the International Communications 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, §25.122, §25.123, or §25.125 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 the requirement in this paragraph (b) 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;

(2) Has a license from another administration; or

(3) Has been submitted for coordination to the International Telecommunication Union.

(d) Earth station applicants requesting authority to communicate with a non-U.S.-licensed space station and entities filing a petition for declaratory ruling to access the United States market must demonstrate that the non-U.S.-licensed space station has complied with all applicable Commission requirements for non-U.S.-licensed systems to operate in the United States, including but not limited to the following:

(1) Milestones;

(2) Reporting requirements;

(3) Any other applicable service rules;

(4) The surety bond requirement in §25.165, for non-U.S.-licensed space stations that are not in orbit and operating.

(5) Entities that have one market access request on file with the Commission for NGSO-like satellite operations in a particular frequency band will not be permitted to request access to the U.S. market for another NGSO-like satellite system in that frequency band in the same processing round subject to the procedures of §§25.157 and 25.261.

(e) An entity requesting access to the United States market through a non-U.S.-licensed space station pursuant to a petition for declaratory ruling may amend its request by submitting an additional petition for declaratory ruling. Such additional petitions 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 petitions will be considered relative to pending applications and petitions.

(f) A non-U.S.-licensed space station operator that has been granted access to the United States market pursuant to a declaratory ruling may modify its U.S. operations under the procedures set forth in §§25.117(d), (h), and (j) and 25.118(e).

(g) A non-U.S.-licensed satellite operator that acquires control of a non-U.S.-licensed space station that has been permitted to serve the United States must notify the Commission within 30 days after consummation of the transaction so that the Commission can afford interested parties an opportunity to comment on whether the transaction affected any of the considerations we made when we allowed the satellite operator to enter the U.S. market. A non-U.S.-licensed satellite

that has been transferred to new owners may continue to provide service in the United States unless and until the Commission determines otherwise. If the transferee or assignee is not licensed by, or seeking a license from, a country that is a member of the World Trade Organization for services covered under the World Trade Organization Basic Telecommunications Agreement, the non-U.S.-licensed satellite operator will be required to make the showing described in paragraph (a) of this section.

[62 FR 64172, Dec. 4, 1997, as amended at 64 FR 61792, Nov. 15, 1999; 65 FR 16327, Mar. 28, 2000; 65 FR 59143, Oct. 4, 2000; 68 FR 51503, Aug. 27, 2003; 68 FR 62249, Nov. 3, 2003; 69 FR 51587, Aug. 20, 2004; 78 FR 8422, Feb. 6, 2013; 81 FR 55331, Aug. 18, 2016; 81 FR 75344, Oct. 31, 2016; 85 FR 43735, July 20, 2020; 88 FR 21440, Apr. 10, 2023; 88 FR 84754, Dec. 6, 2023; 89 FR 34167, Apr. 30, 2024]

EFFECTIVE DATE NOTE: At 90 FR 41801, Aug. 27, 2025, §25.137 was amended, delayed indefinitely.

§ 25.138 Earth Stations in the 3.7–4.2 GHz band.

(a) Applications for new, modified, or renewed earth station licenses and registrations in the 3.7–4.0 GHz portion of the band in CONUS are no longer accepted.

(b) Applications for new earth station licenses or registrations within CONUS in the 4.0–4.2 GHz portion of the band will not be accepted until the transition is completed and upon announcement by the Space Bureau via Public Notice that applications may be filed.

(c) Fixed and temporary fixed earth stations operating in the 3.7–4.0 GHz portion of the band within CONUS will be protected from interference by licensees in the 3.7 GHz Service subject to the deadlines set forth in §27.1412 of this chapter and are eligible for transition into the 4.0–4.2 GHz band so long as they:

(1) Were operational as of April 19, 2018 and continue to be operational;

(2) Were licensed or registered (or had a pending application for license or registration) in the ICFS database on November 7, 2018; and

(3) Timely certified the accuracy of the information on file with the Commission by May 28, 2019.

(d) Fixed and temporary earth station licenses and registrations that meet the criteria in paragraph (c) of this section may be renewed or modified to maintain operations in the 4.0–4.2 GHz band.

(e) Applications for new, modified, or renewed licenses and registrations for earth stations outside CONUS operating in the 3.7–4.2 GHz band will continue to be accepted.

[85 FR 22864, Apr. 23, 2020, as amended at 88 FR 21440, Apr. 10, 2023]

§ 25.139 NGSO FSS coordination and information sharing between MVDDS licensees in the 12.2 GHz to 12.7 GHz band.

(a) NGSO FSS licensees shall maintain a subscriber database in a format that can be readily shared with MVDDS licensees for the purpose of determining compliance with the MVDDS transmitting antenna spacing requirement relating to qualifying existing NGSO FSS subscriber receivers set forth in §101.129 of this chapter. This information shall not be used for purposes other than set forth in §101.129 of this chapter. Only sufficient information to determine compliance with §101.129 of this chapter is required.

(b) Within ten business days of receiving notification of the location of a proposed MVDDS transmitting antenna, the NGSO FSS licensee shall provide sufficient information from the database to enable the MVDDS licensee to determine whether the proposed MVDDS transmitting site meets the minimum spacing requirement.

(c) If the location of the proposed MVDDS transmitting antenna site does not meet the separation requirements of §101.129 of this chapter, then the NGSO FSS licensee shall also indicate to the MVDDS licensee within the same ten day period specified in paragraph (b) of this section whether the proposed MVDDS transmitting site is acceptable at the proposed location.

(d) Nothing in this section shall preclude NGSO FSS and MVDDS licensees from entering into an agreement to accept MVDDS transmitting antenna locations that are shorter-spaced from

existing NGSO FSS subscriber receivers than the distance set forth in § 101.129 of this chapter.

[67 FR 43037, June 26, 2002, as amended at 68 FR 43945, July 25, 2003]

SPACE STATIONS

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

(a)(1) In addition to the information required by § 25.114, an applicant for GSO FSS space station operation involving transmission of analog video signals must certify that the proposed analog video operation has been coordinated with operators of authorized co-frequency space stations within six degrees of the requested orbital location.

(2) In addition to the information required by § 25.114, an applicant for GSO FSS space station operation, including applicants proposing feeder links for space stations operating in the 17/24 GHz BSS, that will be located at an orbital location less than two degrees from the assigned location of an authorized co-frequency GSO space station, must either certify that the proposed operation has been coordinated with the operator of the co-frequency space station or submit an interference analysis demonstrating the compatibility of the proposed system with the co-frequency space station. Such an analysis must include, for each type of radio frequency carrier, the link noise budget, modulation parameters, and overall link performance analysis. (See Appendices B and C to Licensing of Space Stations in the Domestic Fixed-Satellite Service, FCC 83–184, and the following public notices, copies of which are available in the Commission's EDOCS database, available at *https://www.fcc.gov/edocs:* DA 03–3863 and DA 04–1708.) The provisions in this paragraph (a)(2) do not apply to proposed analog video operation, which is subject to the requirement in paragraph (a)(1) of this section. Proposed GSO FSS space-to-Earth transmissions in the 17.3–17.8 GHz band are subject to the requirements of paragraphs (b)(4) through (6) of this section with respect to possible interference into 17/24 GHz BSS networks. Proposed GSO FSS space-to-Earth transmissions in the 17.3–17.8 GHz band are subject to the requirements of § 25.264 with respect to possible interference to the reception of DBS feeder link transmissions (Earth-to-space) in this band.

(3) In addition to the information required by § 25.114, an applicant for a GSO FSS space station, including applicants proposing feeder links for space stations operating in the 17/24 GHz BSS, must provide the following for operation other than analog video operation:

(i) With respect to proposed operation in the conventional or extended C-bands, a certification that downlink EIRP density will not exceed 3 dBW/4kHz for digital transmissions or 8 dBW/4kHz for analog transmissions and that associated uplink operation will not exceed applicable EIRP density envelopes in § 25.218 unless the non-routine uplink and/or downlink operation is coordinated with operators of authorized co-frequency space stations at assigned locations within six degrees of the orbital location of the proposed space station and except as provided in paragraph (d) of this section.

(ii) With respect to proposed operation in the conventional or extended Ku-bands, a certification that downlink EIRP density will not exceed 14 dBW/4kHz for digital transmissions or 17 dBW/4kHz for analog transmissions and that associated uplink operation will not exceed applicable EIRP density envelopes in § 25.218 unless the non-routine uplink and/or downlink operation is coordinated with operators of authorized co-frequency space stations at assigned locations within six degrees of the orbital location of the proposed space station and except as provided in paragraph (d) of this section.

(iii) With respect to proposed FSS operation in the conventional or extended Ka-bands, a certification that the proposed space station will not generate power flux density at the Earth's surface in excess of the limits in paragraphs (a)(3)(iii)(A) and (B) of this section, and that associated uplink operation will not exceed applicable EIRP density envelopes in § 25.218(i) unless the non-routine uplink and/or downlink operation is coordinated with operators

of authorized co-frequency space stations at assigned locations within six degrees of the orbital location and except as provided in paragraph (d) of this section.

(A) −118 dBW/m²/MHz, except as provided in paragraph (a)(3)(iii)(B) of this section.

(B) For space-to-Earth FSS transmissions in the 17.3–17.8 GHz band in the region of the contiguous United States, located west of 100 West Longitude: −121 dBW/m²/MHz.

(iv) With respect to proposed operation in the 24.75–25.25 GHz band (Earth-to-space), a certification that the proposed uplink operation will not exceed the applicable EIRP density envelopes in § 25.138(a) and that the associated space station will not generate a power flux density at the Earth's surface in excess of the applicable limits in this part, unless the non-routine uplink and/or downlink FSS operation is coordinated with operators of authorized co-frequency space stations at assigned locations within six degrees of the orbital location and except as provided in paragraph (d) of this section.

(v) With respect to proposed operation in the 4500–4800 MHz (space-to-Earth), 6725–7025 MHz (Earth-to-space), 10.70–10.95 GHz (space-to-Earth), 11.20–11.45 GHz (space-to-Earth), and/or 12.75–13.25 GHz (Earth-to-space) bands, a statement that the proposed operation will take into account the applicable requirements of Appendix 30B of the ITU Radio Regulations (incorporated by reference, *see* § 25.108) and a demonstration that it is compatible with other U.S. ITU filings under Appendix 30B.

(vi) With respect to proposed operation in other FSS bands, an interference analysis demonstrating compatibility with any previously authorized co-frequency space station at a location two degrees away or a certification that the proposed operation has been coordinated with the operator(s) of the previously authorized space station(s). If there is no previously authorized space station at a location two degrees away, the applicant must submit an interference analysis demonstrating compatibility with a hypothetical co-frequency space station two degrees away with the same receiving and transmitting characteristics as the proposed space station.

(b) Each applicant for a license to operate a space station transmitting in the 17.3–17.8 GHz band must provide the following information, in addition to that required by § 25.114:

(1)–(2) [Reserved]

(3) An applicant for a license to operate a 17/24 GHz BSS space station transmitting in the 17.3–17.8 GHz band must certify that the downlink power flux density on the Earth's surface will not exceed the regional power flux density limits given in paragraphs (b)(3)(i) through (iv) of this section, or must provide the certification specified in § 25.114(d)(15)(ii):

(i) In the region of the contiguous United States, located south of 38° North Latitude and east of 100° West Longitude: −115 dBW/m²/MHz.

(ii) In the region of the contiguous United States, located north of 38° North Latitude and east of 100° West Longitude: −118 dBW/m²/MHz.

(iii) In the region of the contiguous United States, located west of 100° West Longitude: −121 dBW/m²/MHz.

(iv) For all regions outside of the contiguous United States including Alaska and Hawaii: −115 dBW/m²/MHz.

(4) Except as described in paragraph (b)(5) of this section, the following applicants must either certify that their proposed operations have been coordinated with the adjacent operator of a previously authorized or proposed co-frequency space station, or must provide an interference analysis of the kind described in paragraph (a) of this section, except that the applicant must demonstrate that its proposed network will not cause more interference to the adjacent space station transmitting in the 17.3–17.8 GHz band operating in compliance with the technical requirements of this part, than if the applicant were located at an orbital separation of four degrees from the previously licensed or proposed space station.

(i) Applicants for a 17/24 GHz BSS space station transmitting in the 17.3–17.8 GHz band to be located less than four degrees from a previously authorized or proposed co-frequency 17/24 GHz BSS space station;

(ii) Applicants for a FSS space station transmitting in the 17.3–17.8 GHz band to be located less than four degrees from a previously authorized or proposed co-frequency 17/24 GHz BSS space station; and

(iii) Applicants for a 17/24 GHz BSS space station transmitting in the 17.3–17.8 GHz band to be located less than four degrees from a previously authorized or proposed co-frequency FSS space station transmitting in the 17.3–17.8 GHz band.

(5) Where an authorized or proposed 17/24 GHz BSS or FSS space station is located within four degrees of a previously authorized or proposed 17/24 GHz BSS space station, no new third proposed 17/24 GHz BSS or FSS space station may be located within eight degrees of the first authorized or proposed space station in the same direction as the second authorized or proposed space station, unless the applicant for the third space station certifies that its proposed operation has been coordinated with the operator of the first previously authorized or proposed 17/24 GHz BSS space station, or the applicant for the third proposed space station provides an interference analysis of the kind described in paragraph (a) of this section, or the applicant for the third proposed space station demonstrates that its proposed network will not cause more interference to the first previously authorized or proposed space station than if the applicant for the third proposed space station were located at an orbital separation of eight degrees from the first previously authorized or proposed 17/24 GHz BSS space station.

(6) In addition to the requirements of paragraphs (b)(3), (4), and (5) of this section, the link budget for any satellite transmitting in the 17.3–17.8 GHz band (space-to-Earth) must take into account longitudinal station-keeping tolerances. Any applicant for a space station transmitting in the 17.3–17.8 GHz band that has reached a coordination agreement with an operator of another space station to allow that operator to exceed the pfd levels specified in paragraph (a)(3)(iii) or (b)(3) of this section, must use those higher pfd levels for the purpose of this showing.

(c) [Reserved]

(d) An operator of a GSO FSS space station in the conventional or extended C-bands, conventional or extended Ku-bands, 24.75–25.25 GHz band (Earth-to-space), or conventional or extended Ka-bands may notify the Commission of its non-routine transmission levels and be relieved of the obligation to coordinate such levels with later applicants and petitioners.

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

(2) The notification will be placed on public notice pursuant to § 25.151(a)(11).

(3) Non-routine transmissions notified pursuant to this paragraph (d) need not be coordinated with operators of authorized co-frequency space stations that filed their complete applications or petitions after the date of filing of the notification with the Commission. Such later applicants and petitioners must accept any additional interference caused by the notified non-routine transmissions.

(4) An operator of a replacement space station, as defined in § 25.165(e), may operate with non-routine transmission levels to the extent permitted under paragraph (d)(3) of this section for the replaced space station.

(e)–(g) [Reserved]

[62 FR 5929, Feb. 10, 1997, as amended at 68 FR 51504, Aug. 27, 2003; 72 FR 50028, Aug. 29, 2007; 72 FR 60279, Oct. 24, 2007; 78 FR 8422, Feb. 6, 2013; 79 FR 8319, Feb. 12, 2014; 79 FR 44312, July 31, 2014; 81 FR 55332, Aug. 18, 2016; 83 FR 34490, July 20, 2018; 84 FR 53654, Oct. 8, 2019; 86 FR 49489, Sept. 3, 2021; 87 FR 72404, Nov. 25, 2022; 89 FR 58072, 58074, July 17, 2024; 89 FR 66615, Aug. 16, 2024]

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

(a) *Space station application requirements.* (1) Each application for a space station system authorization in the non-voice, non-geostationary mobile-satellite service shall describe in detail the proposed non-voice, non-geostationary mobile-satellite system, setting forth all pertinent technical

and operational aspects of the system, and the technical and legal qualifications of the applicant. In particular, each application shall include the information specified in § 25.114. Applicants must also file information demonstrating compliance with all requirements of this section, and showing, based on existing system information publicly available at the Commission at the time of filing, that they will not cause unacceptable interference to any non-voice, non-geostationary mobile-satellite service system authorized to construct or operate.

(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.

(3) Emission limitations. (i) Applicants in the non-voice, non-geostationary mobile-satellite service shall show that their space stations will not exceed the emission limitations of § 25.202(f) (1), (2) and (3), as calculated for a fixed point on the Earth's surface in the plane of the space station's orbit, considering the worst-case frequency tolerance of all frequency determining components, and maximum positive and negative Doppler shift of both the uplink and downlink signals, taking into account the system design.

(ii) Applicants in the non-voice, non-geostationary mobile-satellite service shall show that no signal received by their satellites from sources outside of their system shall be retransmitted with a power flux density level, in the worst 4 kHz, higher than the level described by the applicants in paragraph (a)(2) of this section.

(4) [Reserved]

(b) *Operating conditions.* In order to ensure compatible operations with authorized users in the frequency bands to be utilized for operations in the non-voice, non-geostationary mobile-satellite service, non-voice, non-geostationary mobile-satellite service systems must operate in accordance with the conditions specified in this section.

(1) Service limitation. Voice services may not be provided.

(2) Coordination requirements with Federal government users.

(i) The frequency bands allocated for use by the non-voice, non-geostationary mobile-satellite service are also authorized for use by agencies of the Federal government. The Federal use of frequencies in the non-voice, non-geostationary mobile-satellite service frequency bands is under the regulatory jurisdiction of the National Telecommunications and Information Administration (NTIA).

(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). In order to facilitate such frequency assignment and coordination, applicants shall provide the Commission with sufficient information to evaluate electromagnetic compatibility with the Federal government use of the spectrum, and any additional information requested by the Commission. As part of the coordination process, applicants shall show that they will not cause unacceptable interference to authorized Federal government users, based upon existing system information provided by the Government. The frequency assignment and coordination of the satellite system with Federal Government users shall be completed prior to grant of authorization.

(iii) The Commission shall also coordinate with NTIA/IRAC with regard to the frequencies to be shared by those earth stations of non-voice, non-geostationary mobile-satellite service

systems that are not subject to blanket licensing under § 25.115(d), and authorized Federal government stations in the fixed and mobile services, through the exchange of appropriate systems information.

(3) Coordination among non-voice, non-geostationary mobile-satellite service systems. Applicants for authority to establish non-voice, non-geostationary mobile-satellite service systems are encouraged to coordinate their proposed frequency usage with existing permittees and licensees in the non-voice, non-geostationary mobile-satellite service whose facilities could be affected by the new proposal in terms of frequency interference or restricted system capacity. All affected applicants, permittees, and licensees shall, at the direction of the Commission, cooperate fully and make every reasonable effort to resolve technical problems and conflicts that may inhibit effective and efficient use of the radio spectrum; however, the permittee or licensee being coordinated with is not obligated to suggest changes or re-engineer an applicant's proposal in cases involving conflicts.

(4) Safety and distress communications. Stations operating in the non-voice, non-geostationary mobile-satellite service that are used to comply with any statutory or regulatory equipment carriage requirements may also be subject to the provisions of sections 321(b) and 359 of the Communications Act of 1934, as amended. Licensees are advised that these provisions give priority to radio communications or signals relating to ships in distress and prohibit a charge for the transmission of maritime distress calls and related traffic.

(c) [Reserved]

[58 FR 68060, Dec. 23, 1993, as amended at 62 FR 5930, Feb. 10, 1997; 62 FR 59295, Nov. 3, 1997; 68 FR 51504, Aug. 27, 2003; 78 FR 8422, Feb. 6, 2013; 79 FR 8320, Feb. 12, 2014; 81 FR 55333, Aug. 18, 2016; 82 FR 59985, Dec. 18, 2017]

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

(a) Authority to launch and operate a constellation of NGSO satellites will be granted in a single blanket license for operation of a specified number of space stations in specified orbital planes. An individual license will be issued for each GSO satellite, whether it is to be operated in a GSO-only system or in a GSO/NGSO hybrid system.

(b) *Qualification Requirements*—(1) *General Requirements.* Each application for a space station system authorization in the 1.6/2.4 GHz Mobile-Satellite Service or 2 GHz Mobile-Satellite Service must include the information specified in § 25.114. Applications for non-U.S.-licensed systems must comply with the provisions of § 25.137.

(2) *Technical qualifications.* In addition to providing the information specified in paragraph (b)(1) of this section, each applicant and petitioner must demonstrate the following:

(i) That a proposed system in the 1.6/2.4 GHz MSS frequency bands employs a non-geostationary constellation or constellations of satellites;

(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.

(v) That operations will not cause unacceptable interference to other authorized users of the spectrum. In particular, each application in the 1.6/2.4 GHz frequency bands shall demonstrate that the space station(s) comply with the requirements specified in § 25.213.

(c) *Safety and distress communications.* (1) Stations operating in the 1.6/2.4 GHz Mobile-Satellite Service and 2 GHz Mobile-Satellite Service that are voluntarily installed on a U.S. ship or are used to comply with any statute or regulatory equipment carriage requirements may also be subject to the requirements of sections 321(b) and 359 of the Communications Act of 1934. Licensees are advised that these provisions give priority to radio communications or signals relating to ships in distress and prohibits a charge for the transmission of maritime distress calls and related traffic.

(2) Licensees offering distress and safety services should coordinate with the appropriate search and rescue organizations responsible for the licensees service area.

[59 FR 53328, Oct. 21, 1994, as amended at 61 FR 9945, Mar. 12, 1996; 62 FR 5930, Feb. 10, 1997; 65 FR 59143, Oct. 4, 2000; 68 FR 33649, June 5, 2003; 68 FR 47858, Aug. 12, 2003; 68 FR 51504, Aug. 27, 2003; 70 FR 59277, Oct. 12, 2005; 78 FR 8267, Feb. 5, 2013; 78 FR 8422, Feb. 6, 2013; 79 FR 8320, Feb. 12, 2014; 81 FR 55333, Aug. 18, 2016; 82 FR 59985, Dec. 18, 2017]

§ 25.144 Licensing provisions for the 2.3 GHz satellite digital audio radio service.

(a) Qualification Requirements:

(1) [Reserved]

(2) General Requirements: Each application for a system authorization in the satellite digital audio radio service in the 2310–2360 MHz band shall describe in detail the proposed satellite digital audio radio system, setting forth all pertinent technical and operational aspects of the system, and the technical, legal, and financial qualifications of the applicant. In particular, applicants must file information demonstrating compliance with §25.114 and all of the requirements of this section.

(3) Technical Qualifications: In addition to the information specified in paragraph (a)(1) of this section, each applicant shall:

(i) Demonstrate that its system will, at a minimum, service the 48 contiguous states of the United States (full CONUS);

(ii) Certify that its satellite DARS system includes a receiver that will permit end users to access all licensed satellite DARS systems that are operational or under construction; and

(b) Milestone requirements. Each applicant for system authorization in the satellite digital audio radio service must demonstrate within 10 days after a required implementation milestone as specified in the system authorization, and on the basis of the documentation contained in its application, 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. The satellite DARS milestones are as follows, based on the date of authorization:

(1) One year: Complete contracting for construction of first space station or begin space station construction;

(2) Two years: If applied for, complete contracting for construction of second space station or begin second space station construction;

(3) Four years: In orbit operation of at least one space station; and

(4) Six years: Full operation of the satellite system.

(c) [Reserved]

(d) The license term for each digital audio radio service satellite and any associated terrestrial repeaters is specified in §25.121.

(e) *SDARS Terrestrial Repeaters.* (1) Only entities holding or controlling SDARS space station licenses may construct and operate SDARS terrestrial repeaters and such construction and operation is permitted only in conjunction with at least one SDARS space station that is concurrently authorized and transmitting directly to subscribers.

(2) SDARS terrestrial repeaters will be eligible for blanket licensing only under the following circumstances:

(i) The SDARS terrestrial repeaters will comply with all applicable power limits set forth in §25.214(d)(1) of this chapter and all applicable out-of-band emission limits set forth in §25.202(h)(1) and (h)(2).

(ii) The SDARS terrestrial repeaters will meet all applicable requirements

in part 1, subpart I, and part 17 of this chapter. Operators of SDARS terrestrial repeaters must maintain demonstrations of compliance with part 1, subpart I, of this chapter and make such demonstrations available to the Commission upon request within three business days.

(iii) The SDARS terrestrial repeaters will comply with all requirements of all applicable international agreements.

(3) After May 20, 2010, SDARS licensees shall, before deploying any new, or modifying any existing, terrestrial repeater, notify potentially affected WCS licensees pursuant to the procedure set forth in § 25.263.

(4) SDARS terrestrial repeaters are restricted to the simultaneous retransmission of the complete programming, and only that programming, transmitted by the SDARS licensee's satellite(s) directly to the SDARS licensee's subscribers' receivers, and may not be used to distribute any information not also transmitted to all subscribers' receivers.

(5) Operators of SDARS terrestrial repeaters are prohibited from using those repeaters to retransmit different transmissions from a satellite to different regions within that satellite's coverage area.

(6) Operators of SDARS terrestrial repeaters are required to comply with all applicable provisions of part 1, subpart I, and part 17 of this chapter.

(7)(i) Each SDARS terrestrial repeater transmitter utilized for operation under this paragraph must be of a type that has been authorized by the Commission under its certification procedure.

(ii) In addition to the procedures set forth in subpart J of part 2 of this chapter, power measurements for SDARS repeater transmitters may be made in accordance with a Commission-approved average power technique. Peak-to-average power ratio (PAPR) measurements for SDARS repeater transmitters should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that the PAPR will not exceed 13 dB for more than 0.1 percent of the time or another Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

(iii) Any manufacturer of radio transmitting equipment to be used in these services may request equipment authorization following the procedures set forth in subpart J of part 2 of this chapter. Equipment authorization for an individual transmitter may be requested by an applicant for a station authorization by following the procedures set forth in part 2 of this chapter.

(8) Applications for blanket authority to operate terrestrial repeaters must be filed using Form 312, except that Schedule B to Form 312 need not be filed. Such applications must also include the following information as an attachment:

(i) The space station(s) with which the terrestrial repeaters will communicate, the frequencies and emission designators of such communications, and the frequencies and emission designators used by the repeaters to retransmit the received signals.

(ii) The maximum number of terrestrial repeaters that will be deployed under the authorization at 1) power levels equal to or less than 2-watt average EIRP, and 2) power levels greater than 2-watt average EIRP (up to 12-kW average EIRP).

(iii) A certification of compliance with the requirements of § 25.144(e)(1) through (7).

(9) SDARS terrestrial repeaters that are ineligible for blanket licensing must be authorized on a site-by-site basis. Applications for site-by-site authorization must be filed using Form 312, except that Schedule B need not be provided. Such applications must also include the following information, as an attachment:

(i) The technical information for each repeater required to be shared with potentially affected WCS licensees as part of the notification requirement set forth in § 25.263(c)(2).

(ii) The space station(s) with which the terrestrial repeaters will communicate, the frequencies and emission designators of such communications,

and the frequencies and emission designators used by the repeaters to retransmit the received signals.

[62 FR 11105, Mar. 11, 1997, as amended at 68 FR 51504, Aug. 27, 2003; 70 FR 32254, June 2, 2005; 75 FR 45067, Aug. 2, 2010; 79 FR 8320, Feb. 12, 2014]

§ 25.146 Licensing and operating provisions for NGSO FSS space stations.

(a) An NGSO FSS applicant proposing to operate in the 10.7–30 GHz frequency range must certify that it will comply with:

(1) Any applicable power flux-density levels in Article 21, Section V, Table 21–4 of the ITU Radio Regulations (incorporated by reference, § 25.108), except:

(i) in the 19.3–19.4 GHz and 19.6–19.7 GHz bands, applicants must certify that they will comply with the ITU power flux-density limits governing NGSO FSS systems in the 17.7–19.3 GHz band; and

(ii) in the 17.3–17.7 GHz band, applicants must certify that they will comply with the ITU power flux-density limits governing NGSO FSS systems in the 17.7–17.8 GHz band; and

(2) Any applicable equivalent power flux-density levels in Article 22, Section II, and Resolution 76 of the ITU Radio Regulations (both incorporated by reference, § 25.108), except that for operations in the 17.3–17.8 GHz band, applicants must certify that they will comply with the ITU equivalent power flux-density limits applicable to NGSO FSS system operations in the 17.8–18.4 GHz band.

(b) [Reserved]

(c) Prior to the initiation of service, an NGSO FSS operator licensed or holding a market access authorization to operate in the 10.7–30 GHz frequency range must receive a ''favorable'' or ''qualified favorable'' finding by the ITU Radiocommunication Bureau, in accordance with Resolution 85 of the ITU Radio Regulations (incorporated by reference, § 25.108), regarding its compliance with applicable ITU EPFD limits. In addition, a market access holder in these bands must:

(1) Communicate the ITU finding to the Commission; and

(2) Submit the input data files used for the ITU validation software.

(d) Coordination will be required between NGSO FSS systems and GSO FSS earth stations in the 10.7–12.75 GHz band when:

(1) The GSO satellite network has receive earth stations with earth station antenna maximum isotropic gain greater than or equal to 64 dBi; G/T of 44 dB/K or higher; and emission bandwidth of 250 MHz; and

(2)The $EPFD_{down}$ radiated by the NGSO satellite system into the GSO specific receive earth station, either within the U.S. for domestic service or any points outside the U.S. for international service, as calculated using the ITU software for examining compliance with EPFD limits exceeds—174.5 dB(W/(m^2/40kHz)) for any percentage of time for NGSO systems with all satellites only operating at or below 2500 km altitude, or—202 dB(W/(m^2/40kHz)) for any percentage of time for NGSO systems with any satellites operating above 2500 km altitude.

(e) An NGSO FSS licensee or market access recipient must ensure that ephemeris data for its constellation is available to all operators of authorized, in-orbit, co-frequency satellite systems in a manner that is mutually acceptable.

[82 FR 59985, Dec. 18, 2017, as amended at 86 FR 11644, Feb. 26, 2021; 89 FR 96602, Dec. 5, 2024]

§ 25.147 Space Stations in the 3.7–4.2 GHz band.

The 3.7–4.0 GHz portion of the band is being transitioned in CONUS from FSS GSO (space-to-Earth) to the 3.7 GHz Service.

(a) New applications for space station licenses and petitions for market access concerning space-to-Earth operations in the 3.7–4.0 GHz portion of the band within CONUS will no longer be accepted.

(b) Applications for new or modified space station licenses or petitions for market access in the 4.0–4.2 GHz portion of the band within CONUS will not be accepted during the transition except by existing operators in the band to implement an efficient transition.

(c) Applications for new or modified space station licenses or petitions for

market access for space-to-Earth operations in the 3.7–4.2 GHz band outside CONUS will continue to be accepted.

[85 FR 22864, Apr. 23, 2020]

§ 25.148 Licensing provisions for the Direct Broadcast Satellite Service.

(a) *License terms.* License terms for DBS facilities are specified in § 25.121(a).

(b) [Reserved]

(c) *Geographic service requirements.* Those entities acquiring DBS authorizations after January 19, 1996, or who after January 19, 1996 modify a previous DBS authorization to launch a replacement satellite, must provide DBS service to Alaska and Hawaii where such service is technically feasible from the authorized orbital location. This requirement does not apply to DBS satellites authorized to operate at the 61.5° W.L. orbital location. DBS applicants seeking to operate from locations other than 61.5° W.L. who do not provide service to Alaska and Hawaii, must provide technical analyses to the Commission demonstrating that such service is not feasible as a technical matter, or that while technically feasible such services would require so many compromises in satellite design and operation as to make it economically unreasonable.

(d)–(e) [Reserved]

(f) *Technical qualifications.* DBS operations must be in accordance with the sharing criteria and technical characteristics contained in Appendices 30 and 30A of the ITU's Radio Regulations. Operation of systems using differing technical characteristics may be permitted, with adequate technical showing, and if a request has been made to the ITU to modify the appropriate Plans to include the system's technical parameters.

[67 FR 51113, Aug. 7, 2002, as amended at 86 FR 49489, Sept. 3, 2021]

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

(a) Applicants for ancillary terrestrial component authority shall demonstrate that the applicant does or will comply with the following through certification or explanatory technical exhibit, as appropriate:

(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 1626.5–1660.5 MHz/1525–1559 MHz bands (L-band) and the 1610–1626.5 MHz/2483.5–2500 MHz bands.

NOTE TO PARAGRAPH (a)(1): An L-band MSS licensee is permitted to apply for ATC authorization based on a non-forward-band mode of operation provided it is able to demonstrate that the use of a non-forward-band mode of operation would produce no greater potential interference than that produced as a result of implementing the rules of this section. A 1.6/2.4 GHz band licensee is permitted to apply for ATC authorization on a non-forward-band mode of operation where the equipment deployed will meet the requirements of paragraph (c)(4) of this section.

(2) ATC operations shall be limited to certain frequencies:

(i) [Reserved]

(ii) In the 1626.5–1660.5 MHz/1525–1559 MHz bands (L-band), ATC operations are limited to the frequency assignments authorized and internationally coordinated for the MSS system of the MSS licensee that seeks ATC authority.

(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.

(4) ATC base stations shall comply with all applicable antenna and structural clearance requirements established in part 17 of this chapter.

(5) ATC base stations and mobile terminals shall comply with part 1 of this chapter, Subpart I—Procedures Implementing the National Environmental Policy Act of 1969, including the guidelines for human exposure to radio frequency electromagnetic fields as defined in §§ 1.1307(b) and 1.1310 of this chapter for PCS networks.

(6) ATC base station operations shall use less than all available MSS frequencies when using all available frequencies for ATC base station operations would exclude otherwise available signals from MSS space-stations.

(b) Applicants for an ancillary terrestrial component shall demonstrate that the applicant does or will comply with the following criteria through certification:

(1) *Geographic and temporal coverage.* (i) [Reserved]

(ii) For the L-band, an applicant must demonstrate that it can provide space-segment service covering all 50 states, Puerto Rico, and the U.S. Virgin Islands one-hundred percent of the time, unless it is not technically possible for the MSS operator to meet the coverage criteria from its orbital position.

(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.

(2) *Replacement satellites.* (i) Operational NGSO MSS ATC systems shall maintain an in-orbit spare satellite.

(ii) Operational GSO MSS ATC systems shall maintain a spare satellite on the ground within one year of commencing operations and launch it into orbit during the next commercially reasonable launch window following a satellite failure.

(iii) All MSS ATC licensees must report any satellite failures, malfunctions or outages that may require satellite replacement within ten days of their occurrence.

(3) *Commercial availability.* Mobile-satellite service must be commercially available (*viz.*, offering services for a fee) in accordance with the coverage requirements that pertain to each band as a prerequisite to an MSS licensee's offering ATC service.

(4) *Integrated services.* MSS ATC licensees shall offer an integrated service of MSS and MSS ATC. Applicants for MSS ATC may establish an integrated service offering by affirmatively demonstrating that:

(i) The MSS ATC operator will use a dual-mode handset that can communicate with both the MSS network and the MSS ATC component to provide the proposed ATC service; or

(ii) Other evidence establishing that the MSS ATC operator will provide an integrated service offering to the public.

(5) *In-band operation.* (i) [Reserved]

(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.

(iii) In the L-band, MSS ATC is limited to those frequency assignments available for MSS use in accordance with the Mexico City Memorandum of Understanding, its successor agreements or the result of other organized efforts of international coordination.

(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.

(2) Any manufacturer of radio transmitting equipment to be used in these services may request equipment authorization following the procedures set forth in subpart J of part 2 of this chapter. Equipment authorization for an individual transmitter may be requested by an applicant for a station authorization by following the procedures set forth in part 2 of this chapter.

(3) Licensees and manufacturers shall ensure compliance with the Commission's radio frequency exposure requirements in §§1.1307(b), 2.1091, and 2.1093 of this chapter, as appropriate. An Environmental Assessment may be

required if RF radiation from the proposed facilities would, in combination with radiation from other sources, cause RF power density or field strength in an accessible area to exceed the applicable limits specified in §1.1310 of this chapter. Applications for equipment authorization of mobile or portable devices operating under this section must contain a statement confirming compliance with these requirements. Technical information showing the basis for this statement must be submitted to the Commission upon request.

(4) Applications for equipment authorization of terrestrial low-power system equipment that will operate in the 2483.5–2495 MHz band shall demonstrate the following:

(i) The transmitted signal is digitally modulated;

(ii) The 6 dB bandwidth is at least 500 kHz;

(iii) The maximum transmit power is no more than 1 W with a peak EIRP of no more than 6 dBW;

(iv) The maximum power spectral density conducted to the antenna is not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission;

(v) Emissions below 2483.5 MHz are attenuated below the transmitter power (P) measured in watts by a factor of at least 40 + 10 log (P) dB at the channel edge at 2483.5 MHz, 43 + 10 log (P) dB at 5 MHz from the channel edge, and 55 + 10 log (P) dB at X MHz from the channel edge where X is the greater of 6 MHz or the actual emission bandwidth.

(vi) Emissions above 2495 MHz are attenuated below the transmitter power (P) measured in watts by a factor of at least 43 + 10 log (P) dB on all frequencies between the channel edge at 2495 MHz and X MHz from this channel edge and 55 + 10 log (P) dB on all frequencies more than X MHz from this channel edge, where X is the greater of 6 MHz or the actual emission bandwidth;

(vii) Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately above and adjacent to the 2495 MHz a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. If 1 percent of the emission bandwidth of the fundamental emission is less than 1 MHz, the power measured must be integrated over the required measurement bandwidth of 1 MHz. A resolution bandwidth narrower than 1 MHz is permitted to improve measurement accuracy, provided the measured power is integrated over the full required measurement bandwidth (*i.e.*, 1 MHz). The emission bandwidth of the fundamental emission of a transmitter is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section; and

NOTE TO PARAGRAPH (c)(4): Systems meeting the requirements set forth in this section are deemed to have also met the requirements of §25.254(a) through (d). No further demonstration is needed for these systems with respect to §25.254(a)–(d).

(d) Applicants for an ancillary terrestrial component authority shall demonstrate that the applicant does or will comply with the provisions of §1.924 of this chapter and §§25.203(e) through 25.203(g) and with §25.253 or §25.254, as appropriate, through certification or explanatory technical exhibit.

(e) Except as provided for in paragraphs (f) and (g) of this section, no application for an ancillary terrestrial component shall be granted until the applicant has demonstrated actual compliance with the provisions of paragraph (b) of this section. Upon receipt of ATC authority, all ATC licensees shall ensure continued compliance with this section and §25.253 or §25.254, as appropriate.

(f) Special provision for operational MSS systems. Applicants for MSS ATC authority with operational MSS systems that are in actual compliance with the requirements prescribed in paragraphs (b)(1), (b)(2), and (b)(3) of this section at the time of application

may elect to satisfy the requirements of paragraphs (b)(4) and (b)(5) of this section prospectively by providing a substantial showing in its certification regarding how the applicant will comply with the requirements of paragraphs (b)(4) and (b)(5) of this section. Notwithstanding §25.117(f) and paragraph (e) of this section, the Commission may grant an application for ATC authority based on such a prospective substantial showing if the Commission finds that operations consistent with the substantial showing will result in actual compliance with the requirements prescribed in paragraphs (b)(4) and (b)(5) of this section. An MSS ATC applicant that receives a grant of ATC authority pursuant to this paragraph (f) shall notify the Commission within 30 days once it begins providing ATC service. This notification must take the form of a letter formally filed with the Commission in the appropriate MSS license docket and shall contain a certification that the MSS ATC service is consistent with its ATC authority.

(g) *Special provisions for terrestrial low-power systems in the 2483.5–2495 MHz band.* (1) An operational MSS system that applies for authority to deploy ATC in the 2483.5–2495 MHz band for terrestrial low-power operations satisfying the equipment certification requirements of paragraph (c)(4) of this section is not required to demonstrate compliance with paragraph (b) of this section, except to demonstrate the commercial availability of MSS, without regard to coverage requirements.

(2) An ATC licensee seeking to modify its license to add authority to operate a terrestrial low-power network shall certify in its modification application that its operations will utilize a Network Operating System (NOS), consisting of a network management system located at an operations center or centers. The NOS shall have the technical capability to address and resolve interference issues related to the licensee's network operations by reducing operational power; adjusting operational frequencies; shutting off operations; or any other appropriate means. The NOS shall also have the ability to resolve interference from the terrestrial low-power network to the licensee's MSS operations and to authorize access points to the network, which in turn may authorize access to the network by end-user devices. The NOS operations center shall have a point of contact in the United States available 24 hours a day, seven days a week, with a phone number and address made publicly-available by the licensee.

(3) All access points operating in the 2483.5–2495 MHz band shall only operate when authorized by the ATC licensee's NOS, and all client devices operating in the 2483.5–2495 MHz band shall only operate when under the control of such access points.

(h) *Spectrum leasing.* Leasing of spectrum rights by MSS licensees or system operators to spectrum lessees for ATC use is subject to the rules for spectrum manager leasing arrangements (*see* §1.9020) as set forth in part 1, subpart X of the rules (*see* §1.9001 *et seq.*). In addition, at the time of the filing of the requisite notification of a spectrum manager leasing arrangement using Form 608 (*see* §§1.9020(e) and 1.913(a)(5)), both parties to the proposed arrangement must have a complete and accurate Form 602 (*see* §1.913(a)(2)) on file with the Commission.

[68 FR 47859, Aug. 12, 2003, as amended at 69 FR 48162, Aug. 9, 2004; 70 FR 19318, Apr. 13, 2005, 73 FR 25592, May 7, 2008; 76 FR 31260, May 31, 2011; 78 FR 8267, Feb. 5, 2013; 78 FR 8424, Feb. 6, 2013; 79 FR 27502, May 14, 2014; 82 FR 8818, Jan. 31, 2017; 85 FR 18150, Apr. 1, 2020]

PROCESSING OF APPLICATIONS

§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.

[78 FR 8425, Feb. 6, 2013]

§25.151 Public notice.

(a) At regular intervals, the Commission will issue public notices listing:

(1) The receipt of applications for new station authorizations, except applications for space station licenses filed pursuant to §25.110(b)(3)(i) or (ii) of this part;

(2) The receipt of applications for license or registration of receive-only earth stations;

(3) The receipt of applications for major modifications to station authorizations;

(4) The receipt of major amendments to pending applications;

(5) The receipt of applications to assign or transfer control of space station facilities, transmitting earth station facilities, or international receive-only earth station facilities;

(6) Significant Commission actions regarding applications;

(7) Information that the Commission in its discretion believes to be of public significance;

(8) Special environmental considerations as required by part 1 of this chapter;

(9) Submission of Coordination Requests and Appendix 30B filings to the ITU in response to requests filed pursuant to §25.110(b)(3)(i) and (b)(3)(ii);

(10) The receipt of space station application information filed pursuant to §25.110(b)(3)(iii);

(11) The receipt of notifications of non-routine transmission filed pursuant to §25.140(d);

(12) The receipt of EPFD input data files from an NGSO FSS licensee or market access recipient, submitted pursuant to §25.111(b) or §25.146(c)(2); and

(13) The receipt of NGSO FSS compatibility showings filed pursuant to §25.261(d).

(b) Special public notices may also be issued at other times under special circumstances involving non-routine matters where speed is of the essence and efficiency of Commission process will be served thereby.

(c) A public notice will not normally be issued for receipt of any of the following applications:

(1) For authorization of a minor technical change in the facilities of an authorized station;

(2) For temporary authorization pursuant to §25.120.

(3) For an authorization under any of the proviso clauses of section 308(a) of the Communications Act of 1934, as amended [47 U.S.C. 308(a)];

(4) For consent to an involuntary assignment or transfer of control of a transmitting earth station authorization; or

(5) For consent to an assignment or transfer of control of a space station authorization or a transmitting earth station authorization, where the assignment or transfer does not involve a substantial change in ownership or control; or

(6) For change in location of an earth station operating in the 4/6 GHz and 10.95–11.7 GHz bands by no more than 1″ in latitude and/or longitude and for change in location of an earth station operating in the 12/14 GHz bands by no more than 10″ in latitude and/or longitude.

(d) Except as specified in paragraph (e) of this section, no application that has appeared on public notice will be granted until the expiration of a period of thirty days following the issuance of the public notice listing the application, or any major amendment thereto. Any comments or petitions must be delivered to the Commission by that date in accordance with §25.154.

(e)(1) Applicants seeking authority to operate a temporary fixed earth station pursuant to §25.277 may consider their applications ''provisionally granted,'' and may initiate operations upon the placement of the complete FCC Form 312 application on public notice, provided that

(i) The temporary fixed earth station will operate only in the conventional Ku-band (14.0–14.5 GHz and 11.7–12.2 GHz bands);

(ii) The temporary fixed earth station's operations will be consistent with all routine-licensing requirements for the conventional Ku-band; and

(iii) The temporary fixed earth station's operations will be limited to satellites on the Permitted Space Station List.

(2) Applications for authority granted pursuant to paragraph (e)(1) of this section shall be placed on public notice pursuant to paragraph (a)(1) of this section. If no comments or petitions are filed within 30 days of the public notice

date, the authority granted will be considered a regular temporary fixed earth station authorization as of 30 days after the public notice date. If a comment or petition is filed within 30 days of the public notice date, the applicant must suspend operations immediately pending resolution of the issues raised in that comment or petition.

[56 FR 24016, May 28, 1991, as amended at 58 FR 68061, Dec. 23, 1993; 70 FR 32254, June 2, 2005; 81 FR 55333, Aug. 18, 2016; 82 FR 59985, Dec. 18, 2017; 88 FR 39792, June 20, 2023]

EDITORIAL NOTE: At 82 FR 59985, Dec. 18, 2017, § 25.151 was amended by removing ''and'' from the end of paragraph (b)(10) and by removing the period at the end of paragraph (b)(11) and adding ''; and'' in its place; however, these amendments could not be incorporated because paragraphs (b)(10) and (b)(11) did not exist.

§ 25.152 [Reserved]

§ 25.153 Repetitious applications.

(a) Where an application has been denied or dismissed with prejudice, the Commission will not consider a like application involving service of the same kind to the same area by the same applicant, or by its successor or assignee, or on behalf of or for the benefit of any of the original parties in interest, until after the lapse of 12 months from the effective date of the Commission's action.

(b) Where an appeal has been taken from the action of the Commission denying a particular application, another application for the same class of station and for the same area, in whole or in part, filed by the same applicant or by his successor or assignee, or on behalf or for the benefit of the original parties in interest, will not be considered until the final disposition of the appeal.

[56 FR 24016, May 28, 1991, as amended at 79 FR 8320, Feb. 12, 2014]

§ 25.154 Opposition to applications and other pleadings.

(a) Petitions to deny, petitions for other forms of relief, and other objections or comments must:

(1) Identify the application or applications (including applicant's name, station location, Commission file numbers, and radio service involved) with which it is concerned;

(2) Be filed within thirty (30) days after the date of public notice announcing the acceptance for filing of the application or major amendment thereto (unless the Commission otherwise extends the filing deadline);

(3) Filed in accordance with the pleading limitations, periods and other applicable provisions of §§ 1.41 through 1.52 of this chapter, except that such petitions must be filed electronically through the International Communications Filing System (ICFS) in accordance with the applicable provisions of part 1, subpart Y, of this chapter;

(4) Contain specific allegations of fact (except for those of which official notice may be taken) to support the specific relief requested, which shall be supported by affidavit of a person or persons with personal knowledge thereof, and which shall be sufficient to demonstrate that the petitioner (or respondent) is a party of interest and that a grant of, or other Commission action regarding, the application would be prima facie inconsistent with the public interest; and

(5) Contain a certificate of service showing that it has been mailed to the applicant no later than the date the pleading is filed with the Commission.

(b) The Commission will classify as informal objections:

(1) Any pleading not filed in accordance with paragraph (a) of this section;

(2) Any pleading to which the thirty (30) day public notice period of § 25.151 does not apply; or

(3) Any objections to the grant of an application when the objections do not conform to either paragraph (a) of this section or to other Commission rules and requirements.

(c) Except for opposition to petitions to deny an application filed pursuant to § 25.220, oppositions to petitions to deny an application or responses to comments and informal objections regarding an application may be filed within 10 days after the petition, comment, or objection is filed and must be in accordance with other applicable provisions of §§ 1.41 through 1.52 of this chapter, except that such oppositions must be filed electronically through

the International Communications Filing System (ICFS) in accordance with the applicable provisions of part 1, subpart Y, of this chapter.

(d) Reply comments by a party that filed a petition to deny may be filed in response to pleadings filed pursuant to paragraph (c) or (e) of this section within 5 days after expiration of the time for filing oppositions unless the Commission extends the filing deadline and must be in accordance with other applicable provisions of §§1.41 through 1.52 of this chapter, except that such reply comments must be filed electronically through the International Communications Filing System (ICFS) in accordance with the applicable provisions of part 1, subpart Y, of this chapter.

(e) Within 30 days after a petition to deny an application filed pursuant to §25.220 is filed, the applicant may file an opposition to the petition and must file a statement with the Commission, either in conjunction with, or in lieu of, such opposition, explaining whether the applicant has resolved all outstanding issues raised by the petitioner. This statement and any conjoined opposition must be in accordance with the provisions of §§1.41 through 1.52 of this chapter applicable to oppositions to petitions to deny, except that such reply comments must be filed electronically through the International Communications Filing System (ICFS) in accordance with the applicable provisions of part 1, subpart Y, of this chapter.

[56 FR 24016, May 28, 1991, as amended at 69 FR 47795, Aug. 6, 2004; 70 FR 32254, June 2, 2005; 79 FR 8320, Feb. 12, 2014; 88 FR 21440, Apr. 10, 2023]

§25.155 Mutually exclusive applications.

(a) The Commission will consider applications to be mutually exclusive if their conflicts are such that the grant of one application would effectively preclude by reason of harmful interference, or other practical reason, the grant of one or more other applications.

(b) A license application for NGSO-like satellite operation, as defined in §25.157(a), will be entitled to comparative consideration with one or more mutually exclusive applications only if the application is received by the Commission in a condition acceptable for filing by the ''cut-off'' date specified in a public notice.

(c) A license application for GSO-like satellite operation, as defined in §25.158(a)(1), will be entitled to comparative consideration with another application only if:

(1) The application is mutually exclusive with another application for GSO-like operation; and

(2) The application is received by the Commission in a condition acceptable for filing at the same millisecond as the other application.

[68 FR 51505, Aug. 27, 2003, as amended at 81 FR 55333, Aug. 18, 2016]

§25.156 Consideration of applications.

(a) Applications for a radio station authorization, or for modification or renewal of an authorization, will be granted if, upon examination of the application, any pleadings or objections filed, and upon consideration of such other matters as it may officially notice, the Commission finds that the applicant is legally, technically, and otherwise qualified, that the proposed facilities and operations comply with all applicable rules, regulations, and policies, and that grant of the application will serve the public interest, convenience and necessity.

(b) [Reserved]

(c) Reconsideration or review of any final action taken by the Commission will be in accordance with subpart A of part 1 of this chapter.

(d)(1) Applications for NGSO-like satellite operation will be considered pursuant to the procedures set forth in §25.157, except as provided in §25.157(b) or (i), as appropriate.

(2) Applications for GSO-like satellite operation will be considered pursuant to the procedures set forth in §25.158, except as provided in §25.158(a)(2).

(3) Applications for both NGSO-like satellite operation and GSO-like satellite operation in two or more service bands will be treated as separate applications for each service band, and each service band request will be considered pursuant to §25.157 or §25.158, as appropriate.

(4) Applications for feeder-link authority or inter-satellite link authority will be treated like an application separate from its associated service band. Each feeder-link request or inter-satellite link request will be considered pursuant to the procedure for applications for GSO-like operation or NGSO-like operation, as applicable.

(5) [Reserved]

(6) An application for DBS or DARS services will be entitled to comparative consideration with one or more conflicting applications only if:

(i) The application is mutually exclusive with another application; and

(ii) The application is received by the Commission in a condition acceptable for filing by the ''cut-off'' date specified in a public notice.

[56 FR 24016, May 28, 1991, as amended at 68 FR 51505, Aug. 27, 2003; 81 FR 55333, Aug. 18, 2016; 82 FR 59985, Dec. 18, 2017; 85 FR 43735, July 20, 2020]

§ 25.157 Consideration of applications for NGSO-like satellite operation.

(a) This section specifies the procedures for considering license applications for ''NGSO-like'' satellite operation, except as provided in paragraphs (b) and (i) of this section. For purposes of this section, the term ''NGSO-like satellite operation'' means:

(1) Operation of any NGSO satellite system; and

(2) Operation of a GSO MSS satellite to communicate with earth stations with non-directional antennas.

(b)(1) The procedures in this section do not apply to an application for authority to operate a replacement space station(s) that meets the relevant criteria in § 25.165(e)(1) and (2) and that will be launched before the space station(s) to be replaced is retired from service or within a reasonable time after loss of a space station during launch or due to premature failure in orbit.

(2) Paragraphs (e), (f), and (g) of this section do not apply to an NGSO FSS application granted with a condition to share spectrum pursuant to § 25.261.

(c) Each application for NGSO-like satellite operation that is acceptable for filing under § 25.112, except replacement applications described in paragraph (b) of this section, will be reviewed to determine whether it is a ''competing application,'' *i.e.*, filed in response to a public notice initiating a processing round, or a ''lead application,'' *i.e.*, all other applications for NGSO-like satellite operation.

(1) Competing applications that are acceptable for filing will be placed on public notice to provide interested parties an opportunity to file pleadings in response to the application pursuant to § 25.154.

(2) Lead applications that are acceptable for filing will be placed on public notice. This public notice will initiate a processing round, establish a cut-off date for competing NGSO-like satellite system applications, and provide interested parties an opportunity to file pleadings in response to the application pursuant to § 25.154.

(d) After review of each of the applications in the processing round, and all the pleadings filed in response to each application, the Commission will grant all the applications that meet the standards of § 25.156(a), and deny the other applications.

(e)(1) In the event that there is insufficient spectrum in the frequency band available to accommodate all the qualified applicants in a processing round, the available spectrum will be divided equally among the licensees whose applications are granted pursuant to paragraph (d) of this section, except as set forth in paragraph (e)(2) of this section.

(2) In cases where one or more applicants apply for less spectrum than they would be warranted under paragraph (e)(1) of this section, those applicants will be assigned the bandwidth amount they requested in their applications. In those cases, the remaining qualified applicants will be assigned the lesser of the amount of spectrum they requested in their applications, or the amount of spectrum that they would be assigned if the available spectrum were divided equally among the remaining qualified applicants.

(f)(1) Each licensee will be allowed to select the particular band segment it wishes to use no earlier than 60 days before they plan to launch the first satellite in its system, and no later than 30 days before that date, by submitting

a letter to the Secretary of the Commission. The licensee shall serve copies of this letter to the other participants in the processing round pursuant to §1.47 of this chapter.

(2) The licensee shall request contiguous bandwidth in both the uplink and downlink band. Each licensee's bandwidth selection in both the uplink and downlink band shall not preclude other licensees from selecting contiguous bandwidth.

(3) If two or more licensees in a processing round request the same band segment, all licensees other than the first one to request that particular band segment will be required to make another selection.

(g)(1) In the event that a license granted in a processing round pursuant to this section is cancelled for any reason, the Commission will redistribute the bandwidth allocated to that applicant equally among the remaining applicants whose licenses were granted concurrently with the cancelled license, unless the Commission determines that such a redistribution would not result in a sufficient number of licensees remaining to make reasonably efficient use of the frequency band.

(2) In the event that the redistribution of bandwidth set forth in paragraph (g)(1) of this section would not result in a sufficient number of licensees remaining to make reasonably efficient use of the frequency band, the Commission will issue a public notice initiating a processing round, as set forth in paragraph (c) of this section, to invite parties to apply for an NGSO-like satellite system license to operate in a portion of the bandwidth made available as a result of the cancellation of the initial applicant's license. Parties already holding licenses for NGSO-like satellite operation in that frequency band will not be permitted to participate in that processing round.

(h) Services offered pursuant to an NGSO-like license in a frequency band granted before the Commission has adopted frequency-band-specific service rules for that band will be subject to the default service rules in §25.217.

(i) For consideration of license applications filed pursuant to the procedures described in §25.122 or §25.123, the application will be processed and granted in accordance with §§25.150 through 25.156, taking into consideration the information provided by the applicant under §25.122(d) or §25.123(c), but without a processing round as described in this section and without a queue as described in §25.158.

[68 FR 51505, Aug. 27, 2003, as amended at 81 FR 55334, Aug. 18, 2016; 81 FR 75344, Oct. 31, 2016; 82 FR 59985, Dec. 18, 2017; 85 FR 43735, July 20, 2020]

§25.158 Consideration of applications for GSO-like satellite operation.

(a)(1) This section specifies the procedures for considering license applications for ''GSO-like'' satellite operation, except as provided in paragraph (a)(2) of this section. For purposes of this section, the term ''GSO-like satellite operation'' means operation of a GSO satellite to communicate with earth stations with directional antennas, including operation of GSO satellites to provide MSS feeder links.

(2) The procedures prescribed in this section do not apply to an application for authority to launch and operate a replacement space station that meets the relevant criteria in §25.165(e)(1) and (e)(2) and that will be launched before the space station to be replaced is retired from service or within a reasonable time after loss of a space station during launch or due to premature failure in orbit.

(b) Except as provided in paragraph (a)(2) of this section, license applications for GSO-like satellite operation, including first-step filings pursuant to §25.110(b)(3)(i) or (ii), will be placed in a queue and considered in the order that they are filed, pursuant to the following procedure:

(1) The application will be reviewed to determine whether it is acceptable for filing within the meaning of §25.112. If not, the application will be returned to the applicant.

(2) If the application is acceptable for filing under §25.112, the application will be placed on public notice pursuant to §25.151.

(i) For applications filed pursuant to §25.110(b)(3)(i) or (b)(3)(ii), the public notice will announce that the Coordination Request or Appendix 30B filing has been submitted to the ITU. When further information is filed pursuant to

§ 25.110(b)(3)(iii), it will be reviewed to determine whether it is substantially complete within the meaning of § 25.112. If so, a second public notice will be issued pursuant to § 25.151 to give interested parties an opportunity to file pleadings pursuant to § 25.154.

(ii) For any other license application for GSO-like satellite operation, the public notice will announce that the application has been found acceptable for filing and will give interested parties an opportunity to file pleadings pursuant to § 25.154.

(3) The application will be granted only if it meets each of the following criteria:

(i) After review of the application and any pleadings filed in response to that application, the Commission finds that the application meets the standards of § 25.156(a); and

(ii) The proposed satellite will not cause harmful interference to any previously licensed operations.

(c) A license applicant for GSO-like satellite operation must not transfer, assign, or otherwise permit any other entity to assume its place in any queue.

(d) In the event that two or more applications for GSO-like satellite operation are mutually exclusive within the meaning of § 25.155(c), the Commission will consider those applications pursuant to the following procedure:

(1) Each application will be reviewed to determine whether it is acceptable for filing within the meaning of § 25.112. Any application not found acceptable for filing will be returned to the applicant.

(2) All applications that are acceptable for filing will be placed on public notice pursuant to § 25.151, and interested parties will be given an opportunity to file pleadings pursuant to § 25.154.

(3) Each application will be granted if it meets the criteria of paragraph (b)(3) of this section, and otherwise will be denied.

(4) In the event that two or more applications are granted pursuant to paragraph (d)(3) of this section, the available bandwidth at the orbital location or locations in question will be divided equally among those licensees.

(5) Licensees whose licenses are granted pursuant to paragraph (d)(4) of this section will be allowed to select the particular band segment it wishes to use no earlier than 60 days before they plan to launch the first satellite in its system, and no later than 30 days before that date, by submitting a letter to the Secretary of the Commission. The licensee shall serve copies of this letter to the other participants in the processing round pursuant to § 1.47 of this chapter.

(6) Licensees whose licenses are granted pursuant to paragraph (d)(4) of this section shall request contiguous bandwidth in both the uplink and downlink band. Each licensee's bandwidth selection shall not preclude other licensees from selecting contiguous bandwidth.

(7) If two or more licensees whose licenses are granted pursuant to paragraph (d)(4) of this section request the same band segment, all licensees other than the first one to request that particular band segment will be required to make another selection.

(e) Services offered pursuant to a GSO-like license in a frequency band granted before the Commission has adopted frequency-band-specific service rules for that band will be subject to the default service rules in § 25.217.

[68 FR 51506, Aug. 27, 2003, as amended at 81 FR 55334, Aug. 18, 2016]

§ 25.159 Limits on pending applications and unbuilt satellite systems.

(a) [Reserved]

(b) Applicants with an application for one NGSO-like satellite system license on file with the Commission in a particular frequency band will not be permitted to apply for another NGSO-like satellite system license in that frequency band in the same processing round subject to the procedures of §§ 25.157 and 25.261.

(c) If an applicant has an attributable interest in one or more other entities seeking one or more space station licenses or grants of U.S. market access, the pending applications and licensed-but-unbuilt satellite systems filed by those other entities will be counted as filed by the applicant for purposes of the limits on the number of pending space station applications or requests

for U.S. market access and licensed-but-unbuilt satellite systems in this section and in §25.137(d)(5). For purposes of this section, an applicant has an ''attributable interest'' in another entity if:

(1) It holds equity (including all stockholdings, whether voting or nonvoting, common or preferred) and debt interest or interests, in the aggregate, exceed thirty-three (33) percent of the total asset value (defined as the aggregate of all equity plus all debt) of that entity, or

(2) It holds a controlling interest in that entity, or is the subsidiary of a party holding a controlling interest in that entity, within the meaning of 47 CFR 1.2110(b)(2).

(3) For purposes of paragraphs (c)(1) and (c)(2) of this section, ownership interests shall be calculated on a fully diluted basis, *i.e.*, all agreements, such as warrants, stock options, and convertible debentures, will generally be treated as if the rights thereunder already have been fully exercised.

(d) In the event that a licensee misses three or more milestones within any three-year period, the Commission will presume that the licensee obtained one or more of those licenses for speculative purposes. Unless the licensee rebuts this presumption, it will not be permitted to apply for a GSO-like satellite or an NGSO-like satellite system in any frequency band if it has two or more satellite applications pending, or two licensed-but-unbuilt satellite systems of any kind. This limit will remain in effect until the licensee provides adequate information to demonstrate that it is very likely to construct its licensed facilities if it were allowed to file more applications.

(e) For purposes of this section, ''frequency band'' means one of the paired frequency bands available for satellite service listed in §25.202.

[68 FR 51506, Aug. 27, 2003, as amended at 81 FR 55334, Aug. 18, 2016; 85 FR 43735, July 20, 2020; 88 FR 84754, Dec. 6, 2023]

FORFEITURE, TERMINATION, AND REINSTATEMENT OF STATION AUTHORIZATION

§25.160 Administrative sanctions.

(a) A forfeiture may be imposed for failure to operate in conformance with the Communications Act, license specifications, any conditions imposed on an authorization, or any of the Commission's rules and regulations; or for failure to comply with Commission requests for information needed to complete international coordination or for failure to cooperate in Commission investigations with respect to international coordination.

(b) A forfeiture will be imposed and the station license may be terminated for the malicious transmissions of any signal that causes harmful interference with any other radio communications or signals.

(c) A station license may be revoked for any repeated and willful violation of the kind set forth in paragraphs (a) and (b) of this section.

(d) The sanctions specified in paragraphs (a), (b), and (c) of this section will be imposed only after the licensee has been provided an opportunity to be heard pursuant to titles III and V of the Communications Act of 1934, as amended.

(e) For purposes of this section, the term ''repeated'' and ''willful'' are defined as set out in section 312(f) of the Communications Act, 47 U.S.C. 312(f).

§25.161 Automatic termination of station authorization.

A station authorization shall be automatically terminated in whole or in part without further notice to the licensee upon:

(a)(1) The failure to meet an applicable milestone specified in §25.164(a) or (b), if no authorized space station is functional in orbit;

(2) The failure to meet an applicable milestone specified in §25.164(b)(1) or (2), if at least one authorized space station is functional in an authorized orbit, which failure will result in the termination of authority for the space stations not in orbit as of the milestone date, but allow for technically identical replacements; or

(3) The failure to meet any other milestone or construction requirement imposed as a condition of authorization. In the case of a space station authorization when at least one authorized space station is functional in orbit, however, such termination will be with respect to only the authorization for any space stations not in orbit as of the milestone date.

(b) The expiration of the license term, unless, in the case of an earth station license, an application for renewal of the license has been filed with the Commission pursuant to § 25.121(e) or, in the case of a space station license, an application for extension of the license term has been filed with the Commission; or

(c) The removal or modification of the facilities which renders the station not operational for more than 90 days, unless specific authority is requested.

(d) The failure to maintain 50 percent of the maximum number of NGSO space stations authorized for service following the 9-year milestone period as functional space stations in authorized orbits, which failure will result in the termination of authority for the space stations not in orbit as of the date of noncompliance, but allow for technically identical replacements.

(e) The failure to provide any SCS on all or some of the SCS authorized frequencies for more than 90 days. In this instance, the authorization will be terminated in whole or in part with respect to the relevant frequencies on which SCS has not been operational for more than 90 days in the United States, unless specific authority is requested.

[56 FR 24016, May 28, 1991, as amended at 68 FR 51507, Aug. 27, 2003; 78 FR 8425, Feb. 6, 2013; 79 FR 8320, Feb. 12, 2014; 82 FR 59985, Dec. 18, 2017; 89 FR 34167, Apr. 30, 2024]

§ 25.162 Cause for termination of interference protection.

The protection from interference afforded by the registration of a receiving earth station shall be automatically terminated if:

(a) The request for registration is not submitted to the Commission within 3 months of the completion of the frequency coordination process, except as provided for in § 25.203;

(b) The receiving earth station is not constructed and placed into service within 6 months after completion of coordination;

(c) The Commission finds that the station has been used less than 50% of the time during any 12 month period;

(d) The Commission finds that the station has been used for an unlawful purpose or otherwise in violation of the Commission's rules, regulations or policies;

(e) The Commission finds that the actual use of the facility is inconsistent with what was set forth in the registrant's application; or

(f) The Commission finds that the frequency coordination exhibit, upon which the granted registration is based, is incomplete or does not conform with established coordination procedures.

§ 25.163 Reinstatement.

(a) A station authorization terminated in whole or in part under the provisions of § 25.161 may be reinstated if the Commission, in its discretion, determines that reinstatement would best serve the public interest, convenience and necessity. Petitions for reinstatement will be considered only if:

(1) The petition is filed within 30 days after the expiration date set forth in § 25.161(a) or § 25.161(b), whichever is applicable;

(2) The petition explains the failure to file a timely notification or renewal application; and

(3) The petition sets forth with specificity the procedures that have been established to ensure timely filings in the future.

(b) A special temporary authorization shall automatically terminate upon the expiration date specified therein, or upon failure of the grantee to comply with any special terms or conditions set forth in the authorization. Temporary operation may be extended beyond the termination date only upon application to the Commission.

[56 FR 24016, May 28, 1991, as amended at 81 FR 55334, Aug. 18, 2016]

§ 25.164 Milestones.

(a) The recipient of an initial license for a GSO space station, other than a

SDARS space station, granted on or after August 27, 2003, must launch the space station, position it in its assigned orbital location, and operate it in accordance with the station authorization no later than five years after the grant of the license, unless a different schedule is established by this chapter or the Commission.

(b)(1) The recipient of an initial authorization for an NGSO satellite system, other than an SDARS system, must launch 50 percent of the maximum number of space stations authorized for service, place them in their assigned orbits, and operate them in accordance with the station authorization no later than 6 years after the grant of the authorization, unless a different schedule is established by Title 47, Chapter I. This paragraph does not apply to replacement NGSO space stations as defined in §25.165(e).

(2) A licensee that satisfies the requirement in paragraph (b)(1) of this section must launch the remaining space stations necessary to complete its authorized service constellation, place them in their assigned orbits, and operate each of them in accordance with the authorization no later than nine years after the grant of the authorization.

(c)–(e) [Reserved]

(f) A licensee subject to the requirements in paragraph (a) or (b) of this section must either demonstrate compliance with the applicable requirement or notify the Commission in writing that the requirement was not met, within 15 days after the specified deadline. Compliance with a milestone requirement in paragraph (a) or (b) of this section may be demonstrated by certifying pursuant to §25.121(d) that the space station(s) in question, has, or have, been launched and placed in the authorized orbital location or non-geostationary orbit(s) and that in-orbit operation of the space station or stations has been tested and found to be consistent with the terms of the authorization.

(g) Licensees of satellite systems that include both NGSO satellites and GSO satellites must meet the requirement in paragraph (a) of this section with respect to the GSO satellite(s) and the applicable requirements in paragraph (b) of this section with respect to the NGSO satellites.

(h) In cases where the Commission grants a satellite authorization in different stages, such as a license for a satellite system using feeder links or inter-satellite links, the earliest of the milestone schedules will be applied to the entire satellite system.

[68 FR 51507, Aug. 27, 2003, as amended at 69 FR 51587, Aug. 20, 2004; 79 FR 8320, Feb. 12, 2014; 81 FR 55334, Aug. 18, 2016; 82 FR 59985, Dec. 18, 2017; 86 FR 49489, Sept. 3, 2021]

§25.165 Surety bonds.

(a) For all space station licenses issued after September 20, 2004, other than licenses for SDARS space stations, space stations licensed in accordance with §25.122 or §25.123, and replacement space stations as defined in paragraph (e) of this section, the licensee must post a bond within 30 days of the grant of its license. Space station licensed in accordance with §25.122 or §25.123 must post a bond within one year plus 30 days of the grant of the license. Failure to post a bond will render the license null and void automatically.

(1) An NGSO licensee must have on file a surety bond requiring payment in the event of default as defined in paragraph (c) of this section, in an amount, at a minimum, determined according to the following formula, with the resulting dollar amount rounded to the nearest $10,000: A = $1,000,000 + $4,000,000 * D/2192, where A is the amount to be paid and D is the lesser of 2192 or the number of days that elapsed from the date of license grant until the date when the license was surrendered.

(2) A GSO licensee must have on file a surety bond requiring payment in the event of default as defined in paragraph (c) of this section, in an amount, at a minimum, determined according to the following formula, with the resulting dollar amount rounded to the nearest $10,000: A = $1,000,000 + $2,000,000 * D/1827, where A is the amount to be paid and D is the lesser of 1827 or the number of days that elapsed from the date of license grant until the date when the license was surrendered.

(3) Licensees of satellite systems including both NGSO space stations and GSO space stations that will operate in

the same frequency bands must file a surety bond requiring payment in the event of default as defined in paragraph (c) of this section, in an amount, at a minimum, to be determined according to the formula in paragraph (a)(1) of this section.

(b) The licensee must use a surety company deemed acceptable within the meaning of 31 U.S.C. 9304 *et seq.* (*See, e.g.*, Department of Treasury Fiscal Service, Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and As Acceptable Reinsurance Companies, 57 FR 29356, July 1, 1992.) The bond must name the U.S. Treasury as beneficiary in the event of the licensee's default. The licensee must provide the Commission with a copy of the performance bond, including all details and conditions.

(c) A licensee will be considered to be in default with respect to a bond filed pursuant to paragraph (a) of this section if it surrenders the license before meeting an applicable milestone requirement in §25.164(a) or (b)(1) or if it fails to satisfy any such milestone.

(d) A licensee will be relieved of its bond obligation under paragraph (a) of this section upon a Commission finding that the licensee has satisfied the applicable milestone requirement(s) in §25.164(a) and (b)(1) for the authorization.

(e) A replacement space station is one that:

(1) Is authorized to operate at an orbital location within ±0.15° of the assigned location of a GSO space station to be replaced or is authorized for NGSO operation and will replace an existing NGSO space station in its authorized orbit, except for space stations authorized under §25.122 or §25.123;

(2) Is authorized to operate in the same frequency bands, and with the same coverage area as the space station to be replaced; and

(3) Is scheduled to be launched so that it will be brought into use at approximately the same time as, but no later than, the existing space station is retired.

(f) An applicant that has submitted a Coordination Request pursuant to §25.110(b)(3)(i) or an Appendix 30B filing pursuant to §25.110(b)(3)(ii) must obtain a surety bond in the amount of $500,000 in accordance with the requirements in paragraph (b) of this section for licensees. The application will be returned as defective pursuant to §25.112 if a copy of the required bond is not filed with the Commission within 30 days after release of a public notice announcing that the Commission has submitted the Coordination Request or Appendix 30B filing to the ITU.

(g) An applicant will be considered to be in default with respect to a bond filed pursuant to paragraph (f) of this section if the applicant fails to submit a complete, acceptable license application pursuant to §25.110(b)(3)(iii) for the operation proposed in the initial application materials filed pursuant to §25.110(b)(3)(i) or (b)(3)(ii) within two years of the date of submission of the initial application materials.

[68 FR 51507, Aug. 27, 2003, as amended at 69 FR 51587, Aug. 20, 2004; 81 FR 55335, Aug. 18, 2016; 82 FR 59986, Dec. 18, 2017; 85 FR 43735, July 20, 2020; 86 FR 49489, Sept. 3, 2021]

Reporting Requirements For Space Station Operators

§ 25.171 Space station point of contact reporting requirements.

(a) *Annual report.* On June 30 of each year, a space station licensee or market access recipient must provide a current listing of the names, titles, addresses, email addresses, and telephone numbers of the points of contact for resolution of interference problems and for emergency response. Contact personnel should include those responsible for resolution of short-term, immediate interference problems at the system control center, and those responsible for long-term engineering and technical design issues.

(b) *Updated information.* If a space station licensee or market access recipient point of contact information changes, the space station licensee or market access recipient must file the updated information within 10 days of the change.

(c) *Electronic filing.* Filings under paragraph (a) or (b) of this section must be made electronically in the Commission's International Communications Filing System (ICFS) in the

''Other Filings'' tab of the station's current authorization file.

[86 FR 11888, Mar. 1, 2021, as amended at 88 FR 21441, Apr. 10, 2023]

§ 25.172 Requirements for reporting space station control arrangements.

(a) The operator of any space station licensed by the Commission or granted U.S. market access must file the following information with the Commission prior to commencing operation with the space station, or, in the case of a non-U.S.-licensed space station, prior to commencing operation with U.S. earth stations.

(1) The information required by § 25.171(a).

(2) The call signs of any telemetry, tracking, and command earth station(s) communicating with the space station from any site in the United States.

(3) The location, by city and country, of any telemetry, tracking, and command earth station that communicates with the space station from any point outside the United States.

(4) Alternatively, instead of listing the call signs and/or locations of earth stations currently used for telemetry, tracking, and command, the space station operator may provide 24/7 contact information for a satellite control center and a list of the call signs of any U.S. earth stations, and the locations of any non-U.S. earth stations, that are used or may be used for telemetry, tracking, and command communication with the space station(s) in question.

(b) The information required by paragraph (a) of this section must be filed electronically in the Commission's International Communications Filing System (ICFS), in the ''Other Filings'' tab of the space station's current authorization file. If call sign or location information provided pursuant to paragraph (a) of this section becomes invalid due to a change of circumstances, the space station operator must file updated information in the same manner within 30 days, except with respect to changes less than 30 days in duration, for which no update is necessary.

[79 FR 8321, Feb. 12, 2014, as amended at 86 FR 11888, Mar. 1, 2021; 88 FR 21441, Apr. 10, 2023]

§ 25.173 Results of in-orbit testing.

(a) Space station operators must measure the co-polarized and cross-polarized performance of space station antennas through in-orbit testing and submit the measurement data to the Commission upon request.

(b) Within 15 days after completing in-orbit testing of a space station licensed under this part, the operator must notify the Commission that such testing has been completed and certify that the space station's measured performance is consistent with the station authorization and that the space station is capable of using its assigned frequencies or inform the Commission of any discrepancy. The licensee must also indicate in the filing whether the space station has been placed in the assigned geostationary orbital location or non-geostationary orbit. If the licensee files a certification pursuant to this paragraph before the space station has been placed in its assigned orbit or orbital location, the licensee must separately notify the Commission that the space station has been placed in such orbit or orbital location within 3 days after such placement and that the station's measured performance is consistent with the station authorization.

[79 FR 8321, Feb. 12, 2014]

Subpart C—Technical Standards

SOURCE: 30 FR 7176, May 28, 1965; 36 FR 2562, Feb. 6, 1971, unless otherwise noted.

§ 25.201 [Reserved]

§ 25.202 Frequencies, frequency tolerance, and emission limits.

(a)(1) In addition to the frequency-use restrictions set forth in § 2.106 of this chapter, the following restrictions apply:

(i) In the 27.5–28.35 GHz band, the FSS (Earth-to-space) is secondary to the Upper Microwave Flexible Use Service authorized pursuant to part 30 of this chapter, except for FSS operations associated with earth stations authorized pursuant to § 25.136.

(ii) Use of the 37.5–40 GHz band by the FSS (space-to-Earth) is limited to individually licensed earth stations. Earth

stations in this band must not be ubiquitously deployed and must not be used to serve individual consumers.

(iii) The U.S. non-Federal Table of Frequency Allocations, in § 2.106 of this chapter, is applicable between Commission space station licensees relying on a U.S. ITU filing and transmitting to or receiving from anywhere on Earth, including airborne earth stations, in the 17.3–20.2 GHz or 27.5–30.0 GHz bands.

(2) [Reserved]

(3) The following frequencies are available for use by the non-voice, non-geostationary mobile-satellite service:

137–138 MHz: Space-to-Earth
148–150.05 MHz: Earth-to-space
399.9–400.05 MHz: Earth-to-space
400.15–401 MHz: Space-to-Earth

(4)(i) The following frequencies are available for use by the 1.6/2.4 GHz Mobile-Satellite Service:

1610–1626.5 MHz: User-to-Satellite Link
1613.8–1626.5 MHz: Satellite-to-User Link (secondary)
2483.5–2500 MHz: Satellite-to-User Link

(ii) The following frequencies are available for use by the 2 GHz Mobile-Satellite Service: 2000–2020 MHz: User-to-Satellite Link; 2180–2200 MHz: Satellite-to-User Link.

(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

(B) The use of the frequencies 1544–1545 MHz and 1645.5–1646.5 MHz is limited to distress and safety communications.

(5) The following frequencies are available for use by the inter-satellite service:

22.55–23.00 GHz
23.00–23.55 GHz
24.45–24.65 GHz
24.65–24.75 GHz
54.25–56.90 GHz
57.00–58.20 GHz
65.00–71.00 GHz

(6) The following frequencies are available for use by the Satellite Digital Audio Radio Service (SDARS), and for any associated terrestrial repeaters: 2320–2345 MHz (space-to-Earth)

(7) The following frequencies are available for use by the Direct Broadcast Satellite service:

12.2–12.7 GHz: Space-to-Earth.
12.2–12.7 GHz: Space-to-Earth.

(8) The following frequencies are available for use by Earth Stations on Vessels (ESVs) communicating with GSO FSS space stations, subject to the provisions in § 2.106 of this chapter:

3700–4200 MHz (space-to-Earth)
5925–6425 MHz (Earth-to-space)

(9) The following frequencies are available for use by the Broadcasting-Satellite Service after 1 April 2007:

17.3–17.7 GHz (space-to-Earth)
17.7–17.8 GHz (space-to-Earth)

NOTE 1 TO PARAGRAPH (a)(9): Use of the 17.3–17.7 GHz band by the broadcasting-satellite service is limited to geostationary satellite orbit systems.

NOTE 2 TO PARAGRAPH (a)(9): Use of the 17.7–17.8 GHz band (space-to-Earth) by the broadcasting-satellite service is limited to transmissions from geostationary satellite orbit systems to receiving earth stations located outside of the United States and its Possessions. In the United States and its Possessions, the 17.7–17.8 GHz band is allocated on a primary basis to the Fixed Service.

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

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

(ii) The following frequencies are available for use by Earth Stations in Motion (ESIMs) communicating with GSO FSS space stations, subject to the provisions in § 2.106 of this chapter:

(A) 10.7–11.7 GHz (space-to-Earth).
(B) 11.7–12.2 GHz (space-to-Earth).
(C) 14.0–14.5 GHz (Earth-to-space).
(D) 17.3–17.7 GHz (space-to-Earth).
(E) 17.7–17.8 GHz (space-to-Earth).
(F) 17.8–18.3 GHz (space-to-Earth).
(G) 18.3–18.8 GHz (space-to-Earth).
(H) 18.8–19.3 GHz (space-to-Earth)
(I) 19.3–19.4 GHz (space-to-Earth).
(J) 19.6–19.7 GHz (space-to-Earth).
(K) 19.7–20.2 GHz (space-to-Earth).
(L) 28.35–28.6 GHz (Earth-to-space).
(M) 28.6–29.1 GHz (Earth-to-space).
(N) 29.25–30.0 GHz (Earth-to-space).

(iii) The following frequencies are available for use by Earth Stations in

Motion (ESIMs) communicating with NGSO FSS space stations, subject to the provisions in § 2.106 of this chapter:

10.7–11.7 GHz (space-to-Earth)
11.7–12.2 GHz (space-to-Earth)
14.0–14.5 GHz (Earth-to-space)
17.3–17.7 GHz (space-to-Earth)
17.7–17.8 GHz (space-to-Earth)
17.8–18.3 GHz (space-to-Earth)
18.3–18.6 GHz (space-to-Earth)
18.8–19.3 GHz (space-to-Earth)
19.3–19.4 GHz (space-to-Earth)
19.6–19.7 GHz (space-to-Earth)
19.7–20.2 GHz (space-to-Earth)
28.4–28.6 GHz (Earth-to-space)
28.6–29.1 GHz (Earth-to-space)
29.5–30.0 GHz (Earth-to-space)

(11) [Reserved]

(12) The following frequencies are available for use by the mobile-satellite service (Earth-to-space) for the reception of Automatic Identification Systems (AIS) broadcast messages from ships:

156.7625–156.7875 MHz
156.8125–156.8375 MHz
161.9625–161.9875 MHz
162.0125–162.0375 MHz

(b) Other frequencies and associated bandwidths of emission may be assigned on a case-by-case basis to space systems under this part in conformance with § 2.106 of this chapter and the Commission's rules and policies.

(c) [Reserved]

(d) *Frequency tolerance, Earth stations.* The carrier frequency of each earth station transmitter authorized in these services shall be maintained within 0.001 percent of the reference frequency.

(e) *Frequency tolerance, space stations.* The carrier frequency of each space station transmitter authorized in these services shall be maintained within 0.002 percent of the reference frequency.

(f) *Emission limitations.* Except for SDARS terrestrial repeaters and as provided for in paragraph (i), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the schedule set forth in paragraphs (f)(1) through (f)(4) of this section. The out-of-band emissions of SDARS terrestrial repeaters shall be attenuated in accordance with the schedule set forth in paragraph (h) of this section.

(1) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: 25 dB;

(2) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: 35 dB;

(3) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth: An amount equal to 43 dB plus 10 times the logarithm (to the base 10) of the transmitter power in watts;

(4) In any event, when an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in paragraphs (f) (1), (2) and (3) of this section.

(g)(1) Telemetry, tracking, and command signals may be transmitted in frequencies within the assigned bands that are not at a band edge only if the transmissions cause no greater interference and require no greater protection from harmful interference than the communications traffic on the satellite network or have been coordinated with operators of authorized co-frequency space stations at orbital locations within six degrees of the assigned orbital location.

(2) Frequencies, polarization, and coding of telemetry, tracking, and command transmissions must be selected to minimize interference into other satellite networks.

(h) *Out-of-band emission limitations for SDARS terrestrial repeaters.* (1) Any SDARS terrestrial repeater operating at a power level greater than 2-watt average EIRP is required to attenuate its out-of-band emissions below the transmitter power P by a factor of not less than 90 + 10 log (P) dB in a 1-megahertz bandwidth outside the 2320–2345 MHz band, where P is average transmitter output power in watts.

(2) Any SDARS terrestrial repeater operating at a power level equal to or less than 2-watt average EIRP is required to attenuate its out-of-band emissions below the transmitter power P by a factor of not less than 75 + 10 log

(P) dB in a 1-megahertz bandwidth outside the 2320–2345 MHz band, where P is average transmitter output power in watts.

(3) SDARS repeaters are permitted to attenuate out-of-band emissions less than the levels specified in paragraphs (h)(1) and (h)(2), of this section unless a potentially affected WCS licensee provides written notice that it intends to commence commercial service within the following 365 days. Starting 180 days after receipt of such written notice, SDARS repeaters within the area notified by the potentially affected WCS licensee must attenuate out-of-band emissions to the levels specified in paragraphs (h)(1) and (h)(2) of this section.

(4) For the purpose of this section, a WCS licensee is potentially affected if it is authorized to operate a base station in the 2305–2315 MHz or 2350–2360 MHz bands within 25 kilometers of a repeater seeking to operate with an out of band emission attenuation factor less than those prescribed in paragraphs (h)(1) or (2) of this section.

(i) The WCS licensee is authorized to operate a base station in the 2305–2315 MHz or 2350–2360 MHz bands in the same Major Economic Area (MEA) as that in which a SDARS terrestrial repeater is located.

(ii) The WCS licensee is authorized to operate a base station in the 2315–2320 MHz or 2345–2350 MHz bands in the same Regional Economic Area Grouping (REAG) as that in which a SDARS terrestrial repeater is located.

(iii) A SDARS terrestrial repeater is located within 5 kilometers of the boundary of an MEA or REAG in which the WCS licensee is authorized to operate a WCS base station.

(i) The following unwanted emissions power limits for non-geostationary satellites operating in the inter-satellite service that transmit in the 22.55–23.55 GHz band shall apply in any 200 MHz of the 23.6–24 GHz passive band, based on the date that complete advance publication information is received by the ITU's Radiocommunication Bureau:

(1) For information received before January 1, 2020: −36 dBW.

(2) For information received on or after January 1, 2020: −46 dBW.

(j) For earth stations in the Fixed-Satellite Service (Earth-to-space) that transmit in the 49.7–50.2 GHz and 50.4–50.9 GHz bands, the unwanted emission power in the 50.2–50.4 GHz band shall not exceed −20 dBW/200 MHz (measured at the input of the antenna), except that the maximum unwanted emission power may be increased to −10 dBW/200 MHz for earth stations having an antenna gain greater than or equal to 57 dBi. These limits apply under clear-sky conditions. During fading conditions, the limits may be exceeded by earth stations when using uplink power control.

(k) Space station downlinks operating as SCS under the provisions of §25.125 and §2.106(d)(33)(i) of this chapter are subject to the following rules.

(1) *Out of band emission limits.* Notwithstanding the emission limitations of paragraph (f) of this section, the aggregation of all space station downlink emissions outside a licensee's SCS frequency band(s) of operation shall not exceed a power flux density of −120 dBW/m^2/MHz at 1.5 meters above ground level.

(2) *Interference caused by out of band emissions.* If any emission from a transmitter operating in the SCS service results in harmful interference to users of another radio service, the FCC may require a greater attenuation of the emission than specified in this section.

[30 FR 7176, May 28, 1965]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §25.202, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.govinfo.gov*.

§25.203 Choice of sites and frequencies.

(a) Sites and frequencies for earth stations, other than ESVs, operating in frequency bands shared with equal rights between terrestrial and space services, shall be selected, to the extent practicable, in areas where the surrounding terrain and existing frequency usage are such as to minimize the possibility of harmful interference between the sharing services.

(b) An applicant for an earth station authorization, other than an ESV, in a frequency band shared with equal

rights with terrestrial microwave services shall compute the great circle coordination distance contour(s) for the proposed station in accordance with the procedures set forth in § 25.251. The applicant shall submit with the application a map or maps drawn to appropriate scale and in a form suitable for reproduction indicating the location of the proposed station and these contours. These maps, together with the pertinent data on which the computation of these contours is based, including all relevant transmitting and/or receiving parameters of the proposed station that is necessary in assessing the likelihood of interference, an appropriately scaled plot of the elevation of the local horizon as a function of azimuth, and the electrical characteristics of the earth station antenna(s), shall be submitted by the applicant in a single exhibit to the application. The coordination distance contour plot(s), horizon elevation plot, and antenna horizon gain plot(s) required by this section may also be submitted in tabular numerical format at 5° azimuthal increments instead of graphical format. At a minimum, this exhibit shall include the information listed in paragraph (c)(2) of this section. An earth station applicant shall also include in the application relevant technical details (both theoretical calculations and/or actual measurements) of any special techniques, such as the use of artificial site shielding, or operating procedures or restrictions at the proposed earth station which are to be employed to reduce the likelihood of interference, or of any particular characteristics of the earth station site which could have an effect on the calculation of the coordination distance.

(c) Prior to the filing of its application, an applicant for operation of an earth station, other than an ESV, VMES or ESAA, shall coordinate the proposed frequency usage with existing terrestrial users and with applicants for terrestrial station authorizations with previously filed applications in accordance with the following procedure:

(1) An applicant for an earth station authorization shall perform an interference analysis in accordance with the procedures set forth in § 25.251 for each terrestrial station, for which a license or construction permit has been granted or for which an application has been accepted for filing, which is or is to be operated in a shared frequency band to be used by the proposed earth station and which is located within the great circle coordination distance contour(s) of the proposed earth station.

(2) The earth station applicant shall provide each such terrestrial station licensee, permittee, and prior filed applicant with the technical details of the proposed earth station and the relevant interference analyses that were made. At a minimum, the earth station applicant shall provide the terrestrial user with the following technical information:

(i) The geographical coordinates of the proposed earth station antenna(s),

(ii) Proposed operating frequency band(s) and emission(s),

(iii) Antenna center height above ground and ground elevation above mean sea level,

(iv) Antenna gain pattern(s) in the plane of the main beam,

(v) Longitude range of geostationary satellite orbit (GSO) satellites at which antenna may be pointed, for proposed earth station antenna(s) accessing GSO satellites,

(vi) Horizon elevation plot,

(vii) Antenna horizon gain plot(s) determined in accordance with § 25.251 for satellite longitude range specified in paragraph (c)(2)(v) of this section, taking into account the provisions of § 25.251 for earth stations operating with non-geostationary satellites,

(viii) Minimum elevation angle,

(ix) Maximum equivalent isotropically radiated power (e.i.r.p.) density in the main beam in any 4 kHz band, (dBW/4 kHz) for frequency bands below 15 GHz or in any 1 MHz band (dBW/MHz) for frequency band above 15 GHz,

(x) Maximum available RF transmit power density in any 1 MHz band and in any 4 kHz band at the input terminals of the antenna(s),

(xi) Maximum permissible RF interference power level as determined in accordance with § 25.251 for all applicable percentages of time, and

(xii) A plot of great circle coordination distance contour(s) and rain scatter coordination distance contour(s) as determined by § 25.251.

(3) The coordination procedures specified in § 101.103 of this chapter and § 25.251 shall be applicable except that the information to be provided shall be that set forth in paragraph (c)(2) of this section, and that the 30-day period allowed for response to a request for coordination may be increased to a maximum of 45 days by mutual consent of the parties.

(4) Where technical problems are resolved by an agreement or operating arrangement between the parties that would require special procedures be taken to reduce the likelihood of harmful interference (such as the use of artificial site shielding) or would result in lessened quality or capacity of either system, the details thereof shall be contained in the application.

(5) The Commission may, in the course of examining any application, require the submission of additional showings, complete with pertinent data and calculations in accordance with § 25.251, showing that harmful interference is not likely to result from the proposed operation.

(6) Multiple antennas in an NGSO FSS gateway earth station complex located within an area bounded by one second of latitude and one second of longitude may be regarded as a single earth station for purposes of coordination with terrestrial services.

(d) An applicant for operation of an earth station, other than an ESV, VMES or an ESAA, shall also ascertain whether the great circle coordination distance contours and rain scatter coordination distance contours, computed for those values of parameters indicated in § 25.251 (Appendix 7 of the ITU RR) for international coordination, cross the boundaries of another Administration. In this case, the applicant shall furnish the Commission copies of these contours on maps drawn to appropriate scale for use by the Commission in effecting coordination of the proposed earth station with the Administration(s) affected.

(e) Protection for Table Mountain Radio Receiving Zone, Boulder County, Colorado.

(1) Applicants for a station authorization to operate in the vicinity of Boulder County, Colorado under this part are advised to give due consideration, prior to filing applications, to the need to protect the Table Mountain Radio Receiving Zone from harmful interference. These are the research laboratories of the Department of Commerce, Boulder County, Colorado. To prevent degradation of the present ambient radio signal level at the site, the Department of Commerce seeks to ensure that the field strengths of any radiated signals (excluding reflected signals) received on this 1800 acre site (in the vicinity of coordinates 40°07′50″ N Latitude, 105°14′40″ W Longitude) resulting from new assignments (other than mobile stations) or from the modification or relocation of existing facilities do not exceed the following values:

Frequency range	In authorized bandwidth of service	
	Field strength (mV/m)	Power flux density [1] (dBW/m^2)
Below 540 kHz	10	−65.8
540 to 1600 kHz	20	−59.8
1.6 to 470 MHz	10	[2] −65.8
470 to 890 MHz	30	[2] −56.2
Above 890 MHz	1	[2] −85.8

[1] Equivalent values of power flux density are calculated assuming free space characteristic impedance of 376.7 = 120π ohms.

[2] Space stations shall conform to the power flux density limits at the earth's surface specified in appropriate parts of the FCC rules, but in no case should exceed the above levels in any 4 kHz band for all angles of arrival.

(2) Advance consultation is recommended particularly for those applicants who have no reliable data which indicates whether the field strength or power flux density figures in the above table would be exceeded by their proposed radio facilities (except mobile stations). In such instances, the following is a suggested guide for determining whether coordination is recommended:

(i) All stations within 2.5 kilometers;

(ii) Stations within 5 kilometers with 50 watts or more average effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Table Mountain Radio Receiving Zone;

(iii) Stations within 15 kilometers with 1 kW or more average ERP in the

primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone;

(iv) Stations within 80 kilometers with 25 kW or more average ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone.

(3) Applicants concerned are urged to communicate with the Radio Frequency Management Coordinator, Department of Commerce, Research Support Services, NOAA R/E5X2, Boulder Laboratories, Boulder, CO 80303; telephone (303) 497–6548, in advance of filing their applications with the Commission.

(4) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Department of Commerce or proceedings to modify any authorization which may be granted which, in fact, delivers a signal at the site in excess of the field strength specified herein.

(f) *Notification to the National Radio Astronomy Observatory:* In order to minimize possible harmful interference at the National Radio Astronomy Observatory site at Green Bank, Pocahontas County, W. Va., and at the Naval Radio Research Observatory site at Sugar Grove, Pendleton County, W. Va., any applicant for operating authority under this part for a new transmit or transmit-receive earth station, other than a mobile or temporary fixed station, within the area bounded by 39°15′ N. on the north, 78°30′ W. on the east, 37°30′ N. on the south and 80°30′ W. on the west or for modification of an existing license for such station to change the station's frequency, power, antenna height or directivity, or location must, when filing the application with the Commission, simultaneously notify the Director, National Radio Astronomy Observatory, P.O. Box No. 2, Green Bank, W. Va. 24944, in writing, of the technical particulars of the proposed station. Such notification shall include the geographical coordinates of the antenna, antenna height, antenna directivity if any, proposed frequency, type of emission, and power. In addition, the applicant shall indicate in his application to the Commission the date notification was made to the observatory. After receipt of such applications, the Commission will allow a period of 20 days for comments or objections in response to the notifications indicated. If an objection to the proposed operation is received during the 20-day period from the National Radio Astronomy Observatory for itself or on behalf of the Naval Radio Research Observatory, the Commission will consider all aspects of the problem and take whatever action is deemed appropriate.

(g) Protection for Federal Communications Commission monitoring stations:

(1) Applicants for authority to operate a new transmitting earth station in the vicinity of an FCC monitoring station or to modify the operation of a transmitting earth station in a way that would increase the field strength produced at such a monitoring station above that previously authorized should consider the possible need to protect the FCC stations from harmful interference. Geographic coordinates of the facilities that require protection are listed in §0.121(c) of this chapter. Applications for fixed stations that will produce field strength greater than 10 mV/m or power flux density greater than -65.8 dBW/m^2 in the authorized emission bandwidth at any of the referenced coordinates may be examined to determine the extent of possible interference. Depending on the theoretical field strength value and existing root-sum-square or other ambient radio field signal levels at the referenced coordinates, a condition to protect the monitoring station may be included in the station authorization.

(2) In the event that the calculated value of the expected field strength exceeds 10 mV/m (-65.8 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.

(3) Advance consultation is suggested particularly for those applicants who have no reliable data which indicates whether the field strength or power

flux density figure indicated would be exceeded by their proposed radio facilities (except mobile stations). In such instances, the following is a suggested guide for determining whether an applicant should coordinate:

(i) All stations within 2.5 kilometers;

(ii) Stations within 5 kilometers with 50 watts or more average effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Monitoring Station;

(iii) Stations within 15 kilometers with 1 kW or more average ERP in the primary plane of polarization in the azimuthal direction of the Monitoring Station;

(iv) Stations within 80 kilometers with 25 kW or more average ERP in the primary plane of polarization in the azimuthal direction of the Monitoring Station.

(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.

(5) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Federal Communications Commission or modification of any authorization which will cause harmful interference.

(h) Sites and frequencies for GSO and NGSO earth stations, operating in a frequency band where both have a co-primary allocation, shall be selected to avoid earth station antenna mainlobe-to-satellite antenna mainlobe coupling, between NGSO systems and between NGSO and GSO systems, in order to minimize the possibility of harmful interference between these services. Prior to filing an earth station application, in bands with co-primary allocations to NGSO and GSO earth stations, the applicant shall coordinate the proposed site and frequency usage with existing earth station licensees and with current earth station authorization applicants.

(i) Any applicant for a new permanent transmitting fixed earth station to be located on the island of Puerto Rico, Desecheo, Mona, Vieques, or Culebra, or for modification of an existing authorization to change the frequency, power, antenna height, directivity, or location of such a station on one of these islands in a way that would increase the likelihood of causing interference, must notify the Interference Office, Arecibo Observatory, HC3 Box 53995, Arecibo, Puerto Rico 00612, in writing or electronically, of the technical parameters of the proposal. Applicants may wish to consult interference guidelines, which will be provided by Cornell University. Applicants who choose to transmit information electronically should e-mail to: *prcz@naic.edu*.

(1) The notification to the Interference Office, Arecibo Observatory shall be made prior to, or simultaneously with, the filing of the application with the Commission. The notification must specify the geographical coordinates of the antenna (NAD–83 datum), antenna height above ground, ground elevation at the antenna, antenna directivity and gain, proposed frequency, relevant FCC rule part, type of emission, effective radiated power, and whether the proposed use is itinerant. Generally, submission of the information in the technical portion of the FCC license application is adequate notification. In addition, the applicant shall indicate in its application to the Commission the date notification was made to the Arecibo Observatory.

(2) After receipt of such applications, the Commission will allow the Arecibo Observatory a period of 20 days for comments or objections in response to the notification indicated. The applicant will be required to make reasonable efforts in order to resolve or mitigate any potential interference problem with the Arecibo Observatory and to file either an amendment to the application or a modification application, as appropriate. If the Commission determines that an applicant has satisfied its responsibility to make reasonable efforts to protect the Observatory from interference, its application may be granted.

(3) The provisions of this paragraph do not apply to operations that transmit on frequencies above 15 GHz.

(j) Applicants for NGSO 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 must coordinate with licensees of FSS and terrestrial-service systems sharing the band to determine geographic protection areas around each NGSO MSS/Radiodetermination-Satellite Service feeder-link earth station.

(k) An applicant for operation of an earth station, other than an ESV, VMES or an ESAA, that will operate with a geostationary satellite or non-geostationary satellite in a shared frequency band in which the non-geostationary system is (or is proposed to be) licensed for feeder links, shall demonstrate in its applications that its proposed earth station will not cause unacceptable interference to any other satellite network that is authorized to operate in the same frequency band, or certify that the operations of its earth station shall conform to established coordination agreements between the operator(s) of the space station(s) with which the earth station is to communicate and the operator(s) of any other space station licensed to use the band.

(l) [Reserved]

(m) Feeder links to DBS space stations:

(1) Each applicant for a license to construct a new FSS earth station to provide feeder-link service to DBS space stations in the frequency band 17.3–17.8 GHz, or to modify any such station currently authorized except where the modification is for a new station within one kilometer of a currently-licensed earth station and modification will not increase the aggregate pfd, measured at any point 3–10 meters above the ground, above that generated by the current earth station, shall identify a coordination zone around its proposed new or modified earth station by the methodology outlined in Annex 3 of Appendix 7 of the ITU Radio Regulations, using the following values for the parameters in Table 9b of Annex 7 of Appendix 7:

TABLE 2 TO PARAGRAPH (m)(1)

Space service designation in which the transmitting earth station operates	Fixed-Satellite				
Frequency bands (GHz)	17.3–17.7			17.3–17.8	
Space service designation in which the receiving earth station operates	Broadcasting-Satellite			Fixed-Satellite	
Orbit	GSO			GSO	
Modulation at receiving earth station	N (digital)			N (digital)	
Receiving earth station interference parameters and criteria:	17/24 GHZ BSS			FSS	
p_o (%)	0.015			0.003	
n	2			2	
p (%)	0.015			0.0015	
N_L(dB)	1			1	
M_s (dB)	In the area specified in § 25.140(b)(3)			In the area specified in § 25.140(a)(3)(iii)	
	(i) and (iv)	(ii)	(iii)	(A)	(B)

TABLE 2 TO PARAGRAPH (m)(1)—Continued

	4.8	3.0	1.8	2.5	0.8
W(dB)	4			0	
Receiving earth station parameters:	17/24 GHz BSS			FSS	
G_m (dBi)	36			N/A	
G_r	0			0	
ε_{min}	20°			5°	
T_e (K)	150			300	
Reference bandwidth: B (Hz)	10^6				
Permissible interference power: P_r(p) (dBW) in B	In the area specified in § 25.140(b)(3)			In the area specified in § 25.140(a)(3)(iii)	
	(i) and (iv)	(ii)	(iii)	(A)	(B)
	−146.8	−149.8	−152.8	−144	−150.1

(2) Each applicant for such new or modified feeder-link earth station shall provide the following information to a third-party coordinator of its choice for use in coordination required by this paragraph:

(i) The geographical coordinates of the proposed earth station antenna(s);

(ii) Proposed operating frequency band(s) and emission(s);

(iii) Antenna diameter (meters);

(iv) Antenna center height above ground and ground elevation above mean sea level;

(v) Antenna gain pattern(s) in the plane of the main beam;

(vi) Longitude range of geostationary satellite orbit (GSO) satellites at which an antenna may be pointed;

(vii) Horizon elevation plot;

(viii) Antenna horizon gain plot(s) determined in accordance with the procedure in Section 2.1 of Annex 5 to Appendix 7 of the ITU Radio Regulations;

(ix) Minimum elevation angle;

(x) Maximum equivalent isotropically radiated power (e.i.r.p.) density in the main beam in any 1 MHz band;

(xi) Maximum available RF transmit power density in any 1 MHz band at the input terminals of the antenna(s);

(xii) A plot of the coordination distance contour(s) and rain scatter coordination distance contour(s) as determined by Table 2 of Section 3 to Appendix 7 of the ITU Radio Regulations.

(3) Each applicant for such new or modified feeder-link earth stations shall file with its application memoranda of coordination with each co-frequency licensee authorized to construct BSS receive earth stations or an individually licensed FSS receive earth station within the coordination zone. Feeder link earth station applicants are not required to complete coordination with blanket-licensed receiving FSS earth stations in the 17.3–17.8 GHz band.

(n) From December 5, 2021 until December 5, 2030, consolidated telemetry, tracking, and control (TT&C) operations at no more than four locations may be authorized on a primary basis to support space station operations, and no other TT&C operations shall be entitled to interference protection in the 3.7–4.0 GHz band.

[30 FR 7176, May 28, 1965]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 25.203, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.govinfo.gov*.

§ 25.204 Power and out-of-band emission limits for earth stations.

(a) In bands shared coequally with terrestrial radio communication services, the equivalent isotropically radiated power transmitted in any direction towards the horizon by an earth station, other than an ESV, operating in frequency bands between 1 and 15 GHz, shall not exceed the following limits except as provided for in paragraph (c) of this section:

+ 40 dBW in any 4 kHz band for $\theta \leq 0°$
+ 40 + 3θ dBW in any 4 kHz band for $0° < \theta \leq 5°$

where θ is the angle of elevation of the horizon viewed from the center of radiation of the antenna of the earth station and measured in degrees as positive above the horizontal plane and negative below it.

(b) In bands shared coequally with terrestrial radiocommunication services, the equivalent isotropically radiated power transmitted in any direction towards the horizon by an earth station operating in frequency bands above 15 GHz shall not exceed the following limits except as provided for in paragraph (c) of this section:

+ 64 dBW in any 1 MHz band for $\theta \leq 0°$
+ 64 + 3 θ dBW in any 1 MHz band for $0° < \theta \leq 5°$

where θ is as defined in paragraph (a) of this section.

(c) For angles of elevation of the horizon greater than 5° there shall be no restriction as to the equivalent isotropically radiated power transmitted by an earth station towards the horizon.

(d) Notwithstanding the e.i.r.p. and e.i.r.p. density limits specified in the station authorization, each earth station transmission shall be conducted at the lowest power level that will provide the required signal quality as indicated in the application and further amended by coordination agreements.

(e) To the extent specified in paragraphs (e)(1) through (e)(3) of this section, earth stations in the Fixed-Satellite Service may employ uplink adaptive power control or other methods of fade compensation to facilitate transmission of uplinks at power levels required for desired link performance while minimizing interference between networks.

(1) Except when paragraphs (e)(2) through (e)(3) of this section apply, transmissions from FSS earth stations in frequencies above 10 GHz may exceed the uplink EIRP and EIRP density limits specified in the station authorization under conditions of uplink fading due to precipitation by an amount not to exceed 1 dB above the actual amount of monitored excess attenuation over clear sky propagation conditions. EIRP levels must be returned to normal as soon as the attenuating weather pattern subsides.

(2) An FSS earth station transmitting to a geostationary space station in the 13.77–13.78 GHz band must not generate more than 71 dBW EIRP in any 6 MHz band. An FSS earth station transmitting to a non-geostationary space station in the 13.77–13.78 GHz band must not generate more than 51 dBW EIRP in any 6 MHz band. Automatic power control may be used to increase the EIRP density in a 6 MHz uplink band in this frequency range to compensate for rain fade, provided that the power flux-density at the space station does not exceed the value that would result when transmitting with an EIRP of 71 dBW or 51 dBW, as appropriate, in that 6 MHz band in clear-sky conditions.

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

(f) An earth station in the Fixed-Satellite Service transmitting in the 13.75–

14 GHz band must have a minimum antenna diameter of 4.5 m, and the EIRP of any emission in that band should be at least 68 dBW and should not exceed 85 dBW.

(g) SCS earth stations providing SCS pursuant to §§25.125 and 25.115 shall comply with the power requirements and out-of-band emission limits corresponding to devices operating in part 22, 24, or 27 of this chapter (*e.g.*, §22.913, §24.232, or §27.50), as required for their operating frequencies.

[48 FR 40255, Sept. 6, 1983, as amended at 58 FR 13420, Mar. 11, 1993; 61 FR 52307, Oct. 7, 1996; 62 FR 61457, Nov. 18, 1997; 66 FR 10623, Feb. 16, 2001; 70 FR 4784, Jan. 31, 2005; 70 FR 32255, June 2, 2005; 72 FR 50029, Aug. 29, 2007; 74 FR 57098, Nov. 4, 2009; 78 FR 8427, Feb. 6, 2013; 78 FR 14927, Mar. 8, 2013; 79 FR 8322, Feb. 12, 2004; 81 FR 55336, Aug. 18, 2016; 83 FR 34491, July 20, 2018; 84 FR 53655, Oct. 8, 2019; 89 FR 34167, Apr. 30, 2024]

§25.205 Minimum antenna elevation angle.

(a) Earth station antennas must not transmit at elevation angles less than five degrees, measured from the horizontal plane to the direction of maximum radiation, in a frequency band shared with terrestrial radio services or in a frequency band with an allocation to space services operating in both the Earth-to-space and space-to-Earth directions. In other bands, earth station antennas must not transmit at elevation angles less than three degrees. In some instances, it may be necessary to specify greater minimum elevation angles because of interference considerations.

(b) ESAAs in aircraft on the ground must not transmit at elevation angles less than three degrees. There is no minimum angle of antenna elevation for ESAAs while airborne.

[81 FR 55336, Aug. 18, 2016]

§25.206 Station identification.

The requirement to transmit station identification is waived for all radio stations licensed under this part with the exception of earth stations subject to the requirements of §25.281.

[79 FR 8322, Feb. 12, 2014]

§25.207 Cessation of emissions.

Space stations shall be made capable of ceasing radio emissions by the use of appropriate devices (battery life, timing devices, ground command, etc.) that will ensure definite cessation of emissions.

§25.208 Power flux-density and in-band field strength limits.

(a) In the band 3650–4200 MHz, 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:

- -152 dB(W/m^2) in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;
- $-152 + (\delta - 5)/2$ dB(W/m^2) in any 4 kHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane; and
- -142 dB(W/m^2) in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane

These limits relate to the power flux density which would be obtained under assumed free-space propagation conditions.

(b) In the bands 10.95–11.2 and 11.45–11.7 GHz for GSO FSS space stations and 10.7–11.7 GHz for NGSO FSS space stations, 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 lower of the following values:

(1) -150 dB(W/m^2) in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane; $-150 + (\delta - 5)/2$ dB(W/m^2) in any 4 kHz band for angles of arrival (δ) (in degrees) between 5 and 25 degrees above the horizontal plane; and -140 dB(W/m^2) in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane; or

(2) -126 dB(W/m^2) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane; $-126 + (\delta - 5)/2$ dB(W/m^2) in any 1 MHz band for angles of arrival (δ) (in degrees) between 5 and 25 degrees above the horizontal plane; and -116 dB(W/m^2) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

NOTE TO PARAGRAPH (b): These limits relate to the power flux density, which would be obtained under assumed free-space propagation conditions.

(c) For a GSO space station in the 17.7–19.7 GHz, 22.55–23.55 GHz, or 24.45–24.75 GHz bands, or for an NGSO space station in the 22.55–23.55 GHz or 24.45–24.75 GHz bands, the PFD at the Earth's surface produced by emissions for all conditions and for all methods of modulation must not exceed the following values:

(1) −115 dB (W/m²) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane.

(2) −115 + 0.5 (δ-5) dB (W/m²) in any 1 MHz band for angles of arrival d (in degrees) between 5 and 25 degrees above the horizontal plane.

(3) −105 dB (W/m²) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

(d) In addition to the limits specified in paragraph (c) of this section, the power flux-density across the 200 MHz band 18.6–18.8 GHz produced at the Earth's surface by emissions from a space station under assumed free-space propagation conditions shall not exceed −95 dB (W/m²) for all angles of arrival. This limit may be exceeded by up to 3 dB for no more than 5% of the time.

(e)–(m) [Reserved]

(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.

TABLE N—LIMITS OF POWER-FLUX DENSITY FROM SPACE STATIONS IN THE BAND 6700–7075 MHZ

Frequency band	Limit in dB (W/m²) for angle of arrival (δ) above the horizontal plane			Reference bandwidth
	0°–5°	5°–25°	25°–90°	
6700–6825 MHz	−137	−137 + 0.5(δ−5)	−127	1 MHz.
6825–7075 MHz	−154	−154 + 0.5(δ−5)	−144	4 kHz.
	and	and	and	
	−134	−134 + 0.5(δ−5)	−124	1 MHz.

(o) In the band 12.2–12.7 GHz, for NGSO FSS space stations, the specified low-angle power flux-density at the Earth's surface produced by emissions from a space station shall not be exceeded into an operational MVDDS receiver:

(1) −158 dB(W/m²) in any 4 kHz band for angles of arrival between 0 and 2 degrees above the horizontal plane; and

(2) −158 + 3.33(δ−2) dB(W/m²) in any 4 kHz band for angles of arrival (δ) (in degrees) between 2 and 5 degrees above the horizontal plane.

NOTE TO PARAGRAPH (o): These limits relate to the power flux density, which would be obtained under assumed free-space propagation conditions.

(p) The power flux-density at the Earth's surface produced by emissions from a space station in either the Earth exploration-satellite service in the band 25.5–27 GHz or the inter-satellite service in the band 25.25–27.5 GHz for all conditions and for all methods of modulation shall not exceed the following values:

−115 dB(W/m²) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

−115 + 0.5(−5) dB(W/m²) in any 1 MHz band for angles of arrival between 5 and 25 degrees above the horizontal plane;

−105 dB(W/m²) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions.

(q) In the band 37.5–40.0 GHz, the power flux-density at the Earth's surface produced by emissions from a geostationary space station for all methods of modulation shall not exceed the following values.

(1) This limit relates to the power flux-density which would be obtained

under assumed free space conditions (that is, when no allowance is made for propogation impairments such as rainfade):

−139 dB(W/m²) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

−139 + 4/3 (δ−5) dB(W/m²) in any 1 MHz band for angles of arrival δ (in degrees) between 5 and 20 degrees above the horizontal plane; and

−119 + 0.4 (δ−20) dB(W/m²) in any 1 MHz band for angles of arrival δ (in degrees) between 20 and 25 degrees above the horizontal plane;

−117 dB(W/m²) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane;

(2) This limit relates to the maximum power flux-density which would be obtained anywhere on the surface of the Earth during periods when FSS system raises power to compensate for rain-fade conditions at the FSS Earth station:

−127 dB(W/m²) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

−127 + 4/3 (δ−5) dB(W/m²) in any 1 MHz band for angles of arrival δ (in degrees) between 5 and 20 degrees above the horizontal plane; and

−107 + 0.4 (δ−20) dB(W/m²) in any 1 MHz band for angles of arrival δ (in degrees) between 20 and 25 degrees above the horizontal plane;

−105 dB(W/m²) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

NOTE TO PARAGRAPH (q): The conditions under which satellites may exceed the power flux-density limits for normal free space propagation described in paragraph (p)(1) to compensate for the effects of rain fading are under study and have therefore not yet been defined. Such conditions and the extent to which these limits can be exceeded will be the subject of a further rulemaking by the Commission on the satellite service rules.

(r) In the band 37.5–40.0 GHz, the power flux-density at the Earth's surface produced by emissions from a non-geostationary space station for all methods of modulation shall not exceed the following values:

(1) This limit relates to the power flux-density which would be obtained under assumed free space conditions (that is, when no allowance is made for propogation impairments such as rainfade):

−132 dB(W/m²) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

−132 + 0.75 (δ−5) dB(W/m²) in any 1 MHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane; and

−117 dB(W/m²) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane;

(2) This limit relates to the maximum power flux-density which would be obtained anywhere on the surface of the Earth during periods when FSS system raises power to compensate for rain-fade conditions at the FSS Earth station:

−120 dB(W/m²) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

−120 + 0.75 (δ−5) dB(W/m²) in any 1 MHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane; and

−105 dB(W/m²) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

NOTE TO PARAGRAPH (r): The conditions under which satellites may exceed these power flux-density limits for normal free space propagation described in paragraph (q)(1) to compensate for the effects of rain fading are under study and have therefore not yet been defined. Such conditions and the extent to which these limits can be exceeded will be the subject of a further rulemaking by the Commission on the satellite service rules.

(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:

−115 dB(W/m²) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

−115 + 0.5 (δ−5) dB(W/m²) in any 1 MHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane; and

−105 dB(W/m²) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane;

NOTE TO PARAGRAPH (s): These limits relate to the power flux-density that would be obtained under assumed free-space propagation conditions.

(t) In the band 40.5–42.0 GHz, the power flux density at the Earth's surface produced by emissions from a non-geostationary space station for all conditions and for all methods of modulation shall not exceed the following values:

−115 dB(W/m²) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

−115 + 0.5 (δ−5) dB(W/m²) in any 1 MHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane; and

−105 dB(W/m²) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane;

NOTE TO PARAGRAPH (t): These limits relate to the power flux density that would be obtained under assumed free-space propagation conditions.

(u) In the band 40.5–42.0 GHz, the power flux-density at the Earth's surface produced by emissions from a geostationary space station for all conditions and for all methods of modulation shall not exceed the following values:

−120 dB(W/m²) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

−120 + (δ−5) dB(W/m²) in any 1 MHz band for angles of arrival δ (in degrees) between 5 and 15 degrees above the horizontal plane;

−110 + 0.5 (δ−15) dB(W/m²) in any 1 MHz band for angles of arrival δ (in degrees) between 15 and 25 degrees above the horizontal plane; and

−105 dB(W/m²) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane;

NOTE TO PARAGRAPH (u): These limits relate to the power flux-density that would be obtained under assumed free-space propagation conditions.

(v) In the band 2496–2500 MHz, the power flux-density at the Earth's surface produced by emissions from non-geostationary space stations for all conditions and all methods of modulation shall not exceed the following values (these values are obtained under assumed free-space propagation conditions):

(1) −144 dB (W/m^2) in 4 kHz for all angles of arrival between 0 and 5 degrees above the horizontal plane; −144 dB (W/m^2) + 0.65(δ −5) in 4 kHz for all angles of arrival between 5 and 25 degrees above the horizontal plane; and

−131 dB (W/m^2) in 4 kHz and for all angles of arrival between 25 and 90 degrees above the horizontal plane.

(2) −126 dB (W/m^2) in 1 MHz for all angles of arrival between 0 and 5 degrees above the horizontal plane; −126 dB (W/m^2) + 0.65(δ −5) in 1 MHz for all angles of arrival between 5 and 25 degrees above the horizontal plane; and

−113 dB (W/m^2) in 1 MHz and for all angles of arrival between 25 and 90 degrees above the horizontal plane.

(w) The aggregate field strength at the earth's surface produced by all visible beams and satellites within each satellite constellation providing SCS service as they move over any given point or area in bands authorized by NG33A in the United States Table of Frequency Allocations and §25.125 must meet:

(1) 40 dBμV/m for the 600 MHz, 700 MHz, and 800 MHz bands; and

(2) 47 dBμV/m for the AWS and PCS bands; and

(3) Licensees must comply with all applicable provisions and requirements of treaties and other international agreements between the United States Government and the governments of other countries, including Canada and Mexico. Absent specific international agreements regarding SCS, licensees must comply with the limited provided in paragraphs (w)(1) and (2) of this section.

[48 FR 40255, Sept. 6, 1983]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §25.208, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.govinfo.gov*.

§25.209 Earth station antenna performance standards.

(a) Except as provided in paragraph (f) of this section, the co-polarization gain of any earth station antenna operating in the FSS and transmitting to a GSO satellite, including earth stations providing feeder links for satellite

services other than FSS, may not exceed the following limits:

(1) In the plane tangent to the GSO arc, as defined in § 25.103, for earth stations not operating in the conventional Ku-band, the 24.75–25.25 GHz band, or the 27.5–30 GHz band:

$29–25\log_{10}\theta$	dBi	for $1.5° \le \theta \le 7°$.
8	dBi	for $7° < \theta \le 9.2°$.
$32–25\log_{10}\theta$	dBi	for $9.2° < \theta \le 48°$.
−10	dBi	for $48° < \theta \le 180°$.

Where θ is the angle in degrees from a line from the earth station antenna to the assigned orbital location of the target satellite, and dBi refers to dB relative to an isotropic radiator. This envelope may be exceeded by up to 3 dB in 10% of the range of θ angles from ±7–180°, and by up to 6 dB in the region of main reflector spillover energy.

(2) In the plane tangent to the GSO arc, for earth stations operating in the conventional Ku-band:

$29–25\log_{10}\theta$	dBi	for $1.5° \le \theta \le 7°$.
8	dBi	for $7° < \theta \le 9.2°$.
$32–25\log_{10}\theta$	dBi	for $9.2° < \theta \le 19.1°$.
0	dBi	for $19.1° < \theta \le 180°$.

Where θ and dBi are as defined in paragraph (a)(1) of this section. This envelope may be exceeded by up to 3 dB in 10% of the range of θ angles from ±7–180°, and by up to 6 dB in the region of main reflector spillover energy.

(3) In the plane tangent to the GSO arc, for earth stations operating in the 24.75–25.25 GHz or 27.5–30 GHz bands:

$29–25\log_{10}\theta$	dBi	for $2° \le \theta \le 7°$.
8	dBi	for $7° < \theta \le 9.2°$.
$32–25\log_{10}\theta$	dBi	for $9.2° < \theta \le 19.1°$.
0	dBi	for $19.1° < \theta \le 180°$.

Where θ and dBi are as defined in paragraph (a)(1) of this section. This envelope may be exceeded by up to 3 dB in 10% of the range of θ angles from ±7–180°, and by up to 6 dB in the region of main reflector spillover energy.

(4) In the plane perpendicular to the GSO arc, as defined in § 25.103, for earth stations not operating in the conventional Ku-band, the 24.75–25.25 GHz band, or the 27.5–30 GHz band:

$32–25\log_{10}\theta$	dBi	for $3° < \theta \le 48°$.
−10	dBi	for $48° < \theta \le 180°$.

Where θ and dBi are as defined in paragraph (a)(1) of this section. This envelope may be exceeded by up to 6 dB in 10% of the range of θ angles from ±3–180°, and by up to 6 dB in the region of main reflector spillover energy.

(5) In the plane perpendicular to the GSO arc, for earth stations operating in the conventional Ku-band:

Outside the main beam, the gain of the antenna shall lie below the envelope defined by:

$32–25\log_{10}\theta$	dBi	for $3° < \theta \leq 19.1°$.
0	dBi	for $19.1° < \theta \leq 180°$.

Where θ and dBi are as defined in paragraph (a)(1) of this section. This envelope may be exceeded by up to 6 dB in 10% of the range of θ angles from ±3–180°, and by up to 6 dB in the region of main reflector spillover energy.

(6) In the plane perpendicular to the GSO arc, for earth stations operating in the 24.75–25.25 GHz or 27.5–30 GHz bands:

$32–25\log_{10}\theta$	dBi	for $3.5° < \theta \leq 7°$.
10.9	dBi	for $7° < \theta \leq 9.2°$.
$35–25\log_{10}\theta$	dBi	for $9.2° < \theta \leq 19.1°$.
3	dBi	for $19.1° < \theta \leq 180°$.

Where θ and dBi are as defined in paragraph (a)(1) of this section. This envelope may be exceeded by up to 6 dB in 10% of the range of θ angles from ±3–180°, and by up to 6 dB in the region of main reflector spillover energy.

(b) Except as provided in paragraph (f) of this section, the off-axis cross-polarization gain of any antenna used for transmission from an FSS earth station to a GSO satellite, including earth stations providing feeder links for satellite services other than FSS, may not exceed the following limits:

(1) In the plane tangent to the GSO arc, for earth stations not operating in the 24.75–25.25 GHz or 27.5–30 GHz bands:

$19–25\log_{10}\theta$	dBi	for $1.8° < \theta \leq 7°$.

Where θ and dBi are as defined in paragraph (a)(1) of this section.

(2) In the plane perpendicular to the GSO arc, for earth stations not operating in the 24.75–25.25 GHz or 27.5–30 GHz bands:

$19–25\log_{10}\theta$	dBi	for $3° < \theta \leq 7°$.

Where θ and dBi are as defined in paragraph (a)(1) of this section.

(3) In the plane tangent to the GSO arc or in the plane perpendicular to the GSO arc, for earth stations operating in the 24.75–25.25 GHz or 27.5–30 GHz bands:

$19–25\log_{10}\theta$	dBi	for $2° < \theta \leq 7°$.

Where θ and dBi are as defined in paragraph (a)(1) of this section.

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

(2) A 17/24 GHz BSS telemetry earth station is not entitled to protection

from harmful interference from authorized space station operation that would not cause harmful interference to that earth station if it were using an antenna with receive-band gain patterns conforming to the levels specified in paragraphs (a) and (b) of this section. Receive-only earth stations in the 17/24 GHz BSS are entitled to protection from harmful interference caused by other space stations to the extent indicated in § 25.224.

(d) [Reserved]

(e) An earth station using asymmetrical antennas without skew angle adjustment capability must comply with the gain values specified in paragraph (a)(1) of this section, in the plane orthogonal to the to the main plane of the antenna, or, alternatively, in the plane corresponding to the maximum skew angle experienced at any location at which the earth station may be located.

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

(g) [Reserved]

(h) The gain of any transmitting antenna in a gateway earth station communicating with NGSO FSS satellites in the 10.7–11.7 GHz, 12.75–13.15 GHz, 13.2125–13.25 GHz, 13.8–14.0 GHz, and/or 14.4–14.5 GHz bands must lie below the envelope defined as follows:

$29–25\log_{10}(\theta)$	dBi	for $1° \leq \theta \leq 36°$.
−10	dBi	for $36° \leq \theta \leq 180°$.

Where θ and dBi are as defined in paragraph (a)(1) of this section. This envelope may be exceeded by up to 3 dB in 10% of the range of θ angles from ±7–180°.

[48 FR 40255, Sept. 6, 1983, as amended at 50 FR 2675, Jan. 18, 1985; 50 FR 39004, Sept. 26, 1985; 58 FR 13420, Mar. 11, 1993; 66 FR 10630, Feb. 16, 2001; 70 FR 32255, June 2, 2005; 72 FR 50029, Aug. 29, 2007; 73 FR 70901, Nov. 24, 2008; 74 FR 57099, Nov. 4, 2009; 78 FR 8427, Feb. 6, 2013; 78 FR 14927, Mar. 8, 2013; 79 FR 8322, Feb. 12, 2014; 81 FR 55336, Aug. 18, 2016; 83 FR 34491, July 20, 2018; 84 FR 53655, Oct. 8, 2019; 85 FR 44787, July 24, 2020; 87 FR 72406, Nov. 25, 2022]

§ 25.210 Technical requirements for space stations.

(a)–(b) [Reserved]

(c) Space station antennas operating in the Direct Broadcast Satellite Service or operating in the Fixed-Satellite Service for reception of feeder links for Direct Broadcast Satellite Service must be designed to provide a cross-polarization isolation such that the ratio of the on-axis co-polar gain to the cross-polar gain of the antenna in the assigned frequency band is at least 27 dB within the primary coverage area.

(d)–(e) [Reserved]

(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, 17.3–17.8 GHz (space-to-Earth), 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. This requirement does not apply to telemetry, tracking, and command operation.

(g)–(i) [Reserved]

(j) Space stations operated in the geostationary satellite orbit must be maintained within 0.05° of their assigned orbital longitude in the east/west direction, unless specifically authorized by the Commission to operate with a different longitudinal tolerance,

and except as provided in Section 25.283(b) (End-of-life Disposal).

[58 FR 13420, Mar. 11, 1993, as amended at 61 FR 9952, Mar. 12, 1996; 62 FR 5931, Feb. 10, 1997; 62 FR 61457, Nov. 18, 1997; 68 FR 51508, Aug. 27, 2003; 69 FR 54587, Sept. 9, 2004; 70 FR 32256, June 2, 2005; 72 FR 50029, Aug. 29, 2007; 78 FR 8428, Feb. 6, 2013; 79 FR 8323, Feb. 12, 2014; 81 FR 55338, Aug. 18, 2016; 83 FR 34491, July 20, 2018; 87 FR 72406, Nov. 25, 2022]

§ 25.211 Analog video transmissions in the FSS.

(a) [Reserved]

(b) All conventional C-band analog video transmissions must contain an energy dispersal signal at all times with a minimum peak-to-peak bandwidth set at whatever value is necessary to meet the power flux density limits specified in §25.208(a) and successfully coordinated internationally and accepted by adjacent U.S. satellite operators based on the use of state of the art space and earth station facilities. All transmissions in frequency bands described in §25.208(b) and (c) must also contain an energy dispersal signal at all times with a minimum peak-to-peak bandwidth set at whatever value is necessary to meet the power flux density limits specified in §25.208(b) and (c) and successfully coordinated internationally and accepted by adjacent U.S. satellite operators based on the use of state of the art space and earth station facilities.

(c) All initial analog video transmissions shall be preceded by a video test transmission at an uplink e.i.r.p. at least 10 dB below the normal operating level. The earth station operator shall not increase power until receiving notification from the satellite network control center that the frequency and polarization alignment are satisfactory pursuant to the procedures specified in §25.272. The stationary earth station operator that has successfully transmitted an initial video test signal to a satellite pursuant to this paragraph is not required to make subsequent video test transmissions if subsequent transmissions are conducted using exactly the same parameters as the initial transmission.

(d) An earth station may be routinely licensed for transmission of full-transponder analog video services in the 5925–6425 MHz band or 14.0–14.5 GHz band provided:

(1) The application includes certification, pursuant to §25.132(a)(1), of conformance with the antenna performance standards in §25.209(a) and (b);

(2) For transmission in the 5925–6425 MHz band, the input power into the antenna will not exceed 26.5 dBW; or

(3) For transmission in the 14.0–14.5 GHz band, the input power into the antenna will not exceed 27 dBW.

(e) Applications for authority for analog video uplink transmission in the 5925–6425 MHz or 14.0–14.5 GHz bands that are not eligible for routine processing under paragraph (d) of this section are subject to the requirements of §25.220.

[58 FR 13421, Mar. 11, 1993, as amended at 61 FR 9952, Mar. 12, 1996; 62 FR 5931, Feb. 10, 1997; 70 FR 32256, June 2, 2005; 78 FR 8428, Feb. 6, 2013; 79 FR 8323, Feb. 12, 2014; 81 FR 55338, Aug. 18, 2016]

§ 25.212 Narrowband analog transmissions and digital transmissions in the GSO FSS.

(a) Except as otherwise provided by this part, criteria for unacceptable levels of interference caused by other satellite networks shall be established on the basis of nominal operating conditions and with the objective of minimizing orbital separations between satellites.

(b) Emissions with an occupied bandwidth of less than 2 MHz are not protected from interference from wider bandwidth transmissions if the r.f. carrier frequency of the narrowband signal is within ±1 MHz of one of the frequencies specified in §25.211(a).

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

(2) An earth station may be routinely licensed for digital transmission, including digital video transmission, in

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

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

(e) An earth station may be routinely licensed for digital transmission in the conventional or extended Ka-bands if the input power spectral density into the antenna will not exceed 3.5 dBW/MHz and the application includes certification pursuant to §25.132(a)(1) of conformance with the antenna gain performance requirements in §25.209(a) and (b).

(f) In the 24.75–25.25 GHz band, an earth station that meets the antenna gain pattern requirements set forth in §25.209(a) and (b) of this part may be routinely licensed if the maximum power density into the antenna does not exceed 3.5 dBW/MHz.

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

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

[58 FR 13421, Mar. 11, 1993, as amended at 62 FR 5931, Feb. 10, 1997; 62 FR 51378, Oct. 1, 1997; 70 FR 32256, June 2, 2005; 70 FR 33376, June 8, 2005; 72 FR 50030, Aug. 29, 2007; 73 FR 70902, Nov. 24, 2008; 78 FR 8428, Feb. 6, 2013; 79 FR 8323, Feb. 12, 2014; 81 FR 55338, Aug. 18, 2016; 84 FR 53655, Oct. 8, 2019; 87 FR 72406, Nov. 25, 2022]

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

(a) Protection of the radio astronomy service in the 1610.6–1613.8 MHz band against interference from 1.6/2.4 GHz Mobile-Satellite Service systems.

(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.

(i) In the band 1610.6–1613.8 MHz, within a 160 km radius of the following radio astronomy sites:

Observatory	Latitude (DMS)	Longitude (DMS)
Arecibo, PR	18 20 46	66 45 11
Green Bank Telescope, WV	38 25 59	79 50 24
	38 26 09	79 49 42
Very Large Array, NM	34 04 43	107 37 04
Owens Valley, CA	37 13 54	118 17 36
Ohio State, OH	40 15 06	83 02 54

(ii) In the band 1610.6–1613.8 MHz, within a 50 km radius of the following sites:

Observatory	Latitude (DMS)	Longitude (DMS)
Pile Town, NM	34 18 04	108 07 07
Los Alamos, NM	35 46 30	106 14 42
Kitt Peak, AZ	31 57 22	111 36 42
Ft. Davis, TX	30 38 06	103 56 39

Observatory	Latitude (DMS)	Longitude (DMS)
N. Liberty, IA	41 46 17	91 34 26
Brewster, WA	48 07 53	119 40 55
Owens Valley, CA	37 13 54	118 16 34
St. Croix, VI	17 45 31	64 35 03
Mauna Kea, HI	19 48 16	155 27 29
Hancock, NH	42 56 01	71 59 12

(iii) Out-of-band emissions of a mobile earth station licensed to operate within the 1610.0–1626.5 MHz band shall be attenuated so that the power flux density it produces in the 1610.6–1613.8 MHz band at any radio astronomy site listed in paragraph (a)(1) (i) or (ii) of this section shall not exceed the emissions of a mobile earth station operating within the 1610.6–1613.8 MHz band at the edge of the protection zone applicable for that site. As an alternative, a mobile earth station shall not operate during radio astronomy observations within the 1613.8–1615.8 MHz band within 100 km of the radio astronomy sites listed in paragraph (a)(1)(i) of this section, and within 30 km of the sites listed in paragraph (a)(1)(ii) of this section, there being no restriction on a mobile earth station operating within the 1615.8–1626.5 MHz band.

(iv) For airborne mobile earth stations operating in the 1610.0–1626.5 MHz band, the separation distance shall be the larger of the distances specified in paragraph (a)(1) (i), (ii) or (iii) of this section, as applicable, or the distance, d, as given by the formula:

d (km) = 4.1 square root of (h)

where h is the altitude of the aircraft in meters above ground level.

(v) Smaller geographic protection zones may be used in lieu of the areas specified in paragraphs (a)(1) (i), (ii), (iii), and (iv) of this section if agreed to by the Mobile-Satellite Service licensee and the Electromagnetic Spectrum Management Unit (ESMU), National Science Foundation, Washington, D.C. upon a showing by the Mobile-Satellite Service licensee that the operation of a mobile earth station will not cause harmful interference to a radio astronomy observatory during periods of observation.

(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.

(vii) A beacon-actuated protection zone may be used in lieu of fixed protection zones in the 1610.6–1613.8 MHz band if a coordination agreement is reached between a mobile-satellite system licensee and the ESMU on the specifics of beacon operations.

(viii) Additional radio astronomy sites, not located within 100 miles of the 100 most populous urbanized areas as defined by the United States Census Bureau at the time, may be afforded similar protection one year after notice to the mobile-satellite system licensees by issuance of a public notice by the Commission.

(2) Mobile-Satellite Service space stations transmitting in the 1613.8–1626.5 MHz band shall take whatever steps necessary to avoid causing harmful interference to the radio astronomy facilities listed in paragraphs (a)(1)(i) and (ii) of this section during periods of observation.

(3) Mobile-Satellite Service space stations operating in the 2483.5–2500 MHz frequency band shall limit spurious emission levels in the 4990–5000 MHz band so as not to exceed −241 dB ($W/m^2/Hz$) at the surface of the Earth.

(4) The Radioastronomy Service shall avoid scheduling radio astronomy observations during peak MSS/RDSS traffic periods to the greatest extent practicable.

(b) If a Mobile-Satellite Service space station operator in the 2496–2500 MHz band intends to operate at powers levels that exceed the PFD limits in

§ 25.208(v), or if actual operations routinely exceed these PFD limits, we require the Mobile-Satellite Service operator to receive approval from each operational BRS system in the affected geographical region.

[59 FR 53329, Oct. 21, 1994, as amended at 61 FR 9945, Mar. 12, 1996; 67 FR 61816, Oct. 2, 2002; 71 FR 35188, June 19, 2006; 78 FR 8428, Feb. 6, 2013]

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

(a) [Reserved]

(b) Each system authorized under this section will be conditioned upon construction, launch and operation milestones as outlined in § 25.144(b). The failure to meet any of the milestones contained in an authorization will result in its cancellation, unless such failure is due to circumstances beyond the licensee's control or unless otherwise determined by the Commission upon proper showing by the licensee in any particular case.

(c) Frequency assignments will be made for each satellite DARS system as follows:

(1) Exclusive SDARS licenses are limited to the 2320–2345 MHz segment of the 2310–2360 MHz allocated bandwidth for SDARS;

(2) Two, 12.5 MHz frequency assignments are available for satellite DARS: 2320.0–2332.5 MHz and 2332.5–2345.0 MHz;

(3) Satellite DARS licensees may reduce their assigned bandwidth occupancy to provide telemetry beacons in their exclusive frequency assignments;

(4) Each licensee may employ cross polarization within its exclusive frequency assignment and/or may employ cross polarized transmissions in frequency assignments of other satellite DARS licensees under mutual agreement with those licensees. Licensees who come to mutual agreement to use cross-polarized transmissions shall apply to the Commission for approval of the agreement before coordination is initiated with other administrations by the licensee of the exclusive frequency assignment; and

(5) Feeder uplink networks are permitted in the following Fixed-Satellite Service frequency bands: 7025–7075 MHz and 6725–7025 MHz (101° W.L. orbital location only).

(d) *Power limit for SDARS terrestrial repeaters.* (1) SDARS terrestrial repeaters must be operated at a power level less than or equal to 12-kW average EIRP, with a maximum peak-to-average power ratio of 13 dB.

(2) SDARS repeaters are permitted to operate at power levels above 12-kW average EIRP, unless a potentially affected WCS licensee provides written notice that it intends to commence commercial service within the following 365 days. Starting 180 days after receipt of such written notice, SDARS repeaters within the area notified by the potentially affected WCS licensee must be operated at a power level less than or equal to 12-kW average EIRP, with a maximum peak-to-average power ratio of 13 dB.

(3) For the purpose of this section, a WCS licensee is potentially affected if it is authorized to operate a base station in the 2305–2315 MHz or 2350–2360 MHz bands within 25 kilometers of a repeater seeking to operate with a power level greater than that prescribed in paragraph (d)(1) of this section.

[62 FR 11106, Mar. 11, 1997, as amended at 75 FR 45068, Aug. 2, 2010; 78 FR 8429, Feb. 6, 2013; 78 FR 9619, Feb. 11, 2013; 79 FR 8323, Feb. 12, 2014]

§ 25.215 [Reserved]

§ 25.216 Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite service.

(a) The e.i.r.p. density of emissions from mobile earth stations placed in service on or before July 21, 2002 with assigned uplink frequencies between 1610 MHz and 1660.5 MHz shall not exceed −70 dBW/MHz, averaged over any 2 millisecond active transmission interval, in the band 1559–1587.42 MHz. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth generated by such stations shall not exceed −80 dBW, averaged over any 2 millisecond active transmission interval, in that band.

(b) The e.i.r.p. density of emissions from mobile earth stations placed in service on or before July 21, 2002 with assigned uplink frequencies between

1610 MHz and 1626.5 MHz shall not exceed −64 dBW/MHz, averaged over any 2 millisecond active transmission interval, in the band 1587.42–1605 MHz. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth generated by such stations shall not exceed −74 dBW, averaged over any 2 millisecond active transmission interval, in the 1587.42–1605 MHz band.

(c) The e.i.r.p. density of emissions from mobile earth stations placed in service after July 21, 2002 with assigned uplink frequencies between 1610 MHz and 1660.5 MHz shall not exceed −70 dBW/MHz, averaged over any 2 millisecond active transmission interval, in the band 1559–1605 MHz. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed −80 dBW, averaged over any 2 millisecond active transmission interval, in the 1559–1605 MHz band.

(d) As of January 1, 2005, the e.i.r.p. density of emissions from mobile earth stations placed in service on or before July 21, 2002 with assigned uplink frequencies between 1610 MHz and 1660.5 MHz (except Standard A and B Inmarsat terminals used as Global Maritime Distress and Safety System ship earth stations) shall not exceed −70dBW/MHz, averaged over any 2 millisecond active transmission interval, in the 1559–1605 MHz band. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed −80 dBW, averaged over any 2 millisecond active transmission interval, in the 1559–1605 MHz band. Standard A Inmarsat terminals used as Global Maritime Distress and Safety System ship earth stations that do not meet the e.i.r.p. density limits specified in this paragraph may continue operation until December 31, 2007. Inmarsat-B terminals manufactured more than six months after FEDERAL REGISTER publication of the rule changes adopted in FCC 03–283 must meet these limits. Inmarsat B terminals manufactured before then are temporarily grandfathered under the condition that no interference is caused by these terminals to aeronautical satellite radio-navigation systems. The full-compliance deadline for grandfathered Inmarsat-B terminals is December 31, 2012.

(e) The e.i.r.p density of emissions from mobile earth stations with assigned uplink frequencies between 1990 MHz and 2025 MHz shall not exceed −70 dBW/MHz, averaged over any 2 millisecond active transmission interval, in frequencies between 1559 MHz and 1610 MHz. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth from such stations between 1559 MHz and 1605 MHz shall not exceed −80 dBW, averaged over any 2 millisecond active transmission interval. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth from such stations between 1605 MHz and 1610 MHz manufactured more than six months after FEDERAL REGISTER publication of the rule changes adopted in FCC 03–283 shall not exceed −80 dBW, averaged over any 2 millisecond active transmission interval.

(f) Mobile earth stations placed in service after July 21, 2002 with assigned uplink frequencies in the 1610–1660.5 MHz band shall suppress the power density of emissions in the 1605–1610 MHz band to an extent determined by linear interpolation from −70 dBW/MHz at 1605 MHz to −10 dBW/MHz at 1610 MHz.

(g) Mobile earth stations manufactured more than six months after FEDERAL REGISTER publication of the rule changes adopted in FCC 03–283 with assigned uplink frequencies in the 1610–1626.5 MHz band shall suppress the power density of emissions in the 1605–1610 MHz band-segment to an extent determined by linear interpolation from −70 dBW/MHz at 1605 MHz to −10 dBW/MHz at 1610 MHz averaged over any 2 millisecond active transmission interval. The e.i.r.p of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed a level determined by linear interpolation from −80 dBW at 1605 MHz to −20 dBW at 1610 MHz, averaged over any 2 millisecond active transmission interval.

(h) Mobile earth stations manufactured more than six months after FEDERAL REGISTER publication of the rule changes adopted in FCC 03–283 with assigned uplink frequencies in the 1626.5–1660.5 MHz band shall suppress the power density of emissions in the 1605–1610 MHz band-segment to an extent determined by linear interpolation

from −70 dBW/MHz at 1605 MHz to −46 dBW/MHz at 1610 MHz, averaged over any 2 millisecond active transmission interval. The e.i.r.p of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed a level determined by linear interpolation from −80 dBW at 1605 MHz to −56 dBW at 1610 MHz, averaged over any 2 millisecond active transmission interval.

(i) The e.i.r.p density of carrier-off state emissions from mobile earth stations manufactured more than six months after FEDERAL REGISTER publication of the rule changes adopted in FCC 03–283 with assigned uplink frequencies between 1 and 3 GHz shall not exceed −80 dBW/MHz in the 1559–1610 MHz band averaged over any two millisecond interval.

(j) A Root-Mean-Square detector shall be used for all power density measurements.

[69 FR 5710, Feb. 6, 2004, as amended at 70 FR 19318, Apr. 13, 2005]

§ 25.217 Default service rules.

(a) The technical rules in this section apply only to licenses to operate a satellite system in a frequency band granted after a domestic frequency allocation has been adopted for that frequency band, but before any frequency-band-specific service rules have been adopted for that frequency band.

(b)(1) For all NGSO-like satellite licenses, except as specified in paragraph (b)(4) of this section, for which the application was filed pursuant to the procedures set forth in §25.157 after August 27, 2003, authorizing operations in a frequency band for which the Commission has not adopted frequency band-specific service rules at the time the license is granted, the licensee will be required to comply with the technical requirements in paragraphs (b)(2) through (4) of this section, notwithstanding the frequency bands specified in these sections: §§25.143(b)(2)(ii) (except NGSO FSS systems) and (iii) (except NGSO FSS systems), 25.204(e), and 25.210(f) and (i).

(2) In addition to the requirements set forth in paragraph (b)(1) of this section, the Commission will coordinate with the National Telecommunications and Information Administration (NTIA) regarding the operations of any licensees authorized to operate in a shared government/non-government frequency band, pursuant to the procedure set forth in §25.142(b)(2)(ii).

(3) Mobile earth station licensees authorized to operate with one or more space stations subject to paragraph (b)(1) of this section must comply with the requirements in §§25.285 and 25.287, notwithstanding the frequency bands specified in those sections. In addition, earth station licensees authorized to operate with one or more space stations described in paragraph (b)(1) of this section in frequency bands shared with terrestrial wireless services shall comply with the requirements in §25.203(c).

(4) For all small satellite licensees, for which the application was filed pursuant to §25.122 or §25.123, authorizing operations in a frequency band for which the Commission has not adopted frequency-band specific service rules at the time the license is granted, the licensee will not be required to comply with the technical requirements specified in this section.

(c)(1) For all GSO-like satellite licenses for which the application was filed pursuant to the procedures set forth in §25.158 after August 27, 2003, authorizing operations in a frequency band for which the Commission has not adopted frequency band-specific service rules at the time the license is granted, the licensee will be required to comply with the following technical requirements, notwithstanding the frequency bands specified in these rule provisions: §§25.143(b)(2)(iv), 25.204(e), and 25.210(f), (i), and (j).

(2) In addition to the requirements set forth in paragraph (c)(1) of this section, the Commission will coordinate with the National Telecommunications and Information Administration (NTIA) regarding the operations of any licensees authorized to operate in a shared government/non-government frequency band, pursuant to the procedure set forth in §25.142(b)(2)(ii).

(3) Earth station licensees authorized to operate with one or more space stations described in paragraph (c)(1) of this section shall comply with the earth station antenna performance verification requirements in §25.132,

and the antenna gain pattern requirements in § 25.209(a) and (b). In addition, earth station licensees authorized to operate with one or more space stations described in paragraph (c)(1) of this paragraph in frequency bands shared with terrestrial wireless services shall comply with the requirements in § 25.203(c).

(4) In addition to the requirements set forth in paragraph (c)(3) of this section, earth station licensees with a gain equivalent or higher than the gain of a 1.2 meter antenna operating in the 14.0–14.5 GHz band, authorized to operate with one or more space stations described in paragraph (c)(1) of this paragraph in frequency bands greater than 14.5 GHz shall be required to comply with the antenna input power density requirements set forth in § 25.212(c).

(d) [Reserved]

(e) In the event that the Commission adopts frequency band-specific service rules for a particular frequency band after it has granted one or more space station or earth station licenses for operations in that frequency band, those licensees will be required to come into compliance with the frequency band-specific service rules within 30 days of the effective date of those rules, unless otherwise specified by either Commission or Bureau Order.

[68 FR 51508, Aug. 27, 2003, as amended at 70 FR 59277, Oct. 12, 2005; 79 FR 8323, Feb. 12, 2014; 82 FR 59986, Dec. 18, 2017; 85 FR 43735, July 20, 2020; 86 FR 11644, Feb. 26, 2021]

§ 25.218 Off-axis EIRP density envelopes for FSS earth stations transmitting in certain frequency bands.

(a) *Applicability*. This section applies to applications for fixed and temporary-fixed FSS earth stations transmitting to geostationary space stations in the conventional C-band, extended C-band, conventional Ku-band, extended Ku-band, conventional Ka-band, extended Ka-band, or 24.75–25.25 GHz, and applications for ESIMs transmitting in the conventional C-band, conventional Ku-band, conventional Ka-band, except for applications proposing transmission of analog command signals at a band edge with bandwidths greater than 1 MHz or transmission of any other type of analog signal with bandwidths greater than 200 kHz.

(b) *Routine processing*. Earth station applications subject to this section may be routinely processed if they meet the applicable off-axis EIRP density envelopes set forth in this section.

(c) *Analog earth station operation in the conventional or extended C-bands.* (1) For co-polarized transmissions in the plane tangent to the GSO arc, as defined in § 25.103:

$29.5–25\log_{10}\theta$	dBW/4 kHz	for $1.5° \le \theta \le 7°$.
8.5	dBW/4 kHz	for $7° < \theta \le 9.2°$.
$32.5–25\log_{10}\theta$	dBW/4 kHz	for $9.2° < \theta \le 48°$.
−9.5	dBW/4 kHz	for $48° < \theta \le 180°$.

Where θ is the angle in degrees from a line from the earth station antenna to the assigned orbital location of the target satellite. The EIRP density levels specified for $\theta > 7°$ may be exceeded by up to 3 dB in up to 10% of the range of theta (θ) angles from ±7–180°, and by up to 6 dB in the region of main reflector spillover energy.

(2) For co-polarized transmissions in the plane perpendicular to the GSO arc, as defined in § 25.103:

$32.5–25\log_{10}\theta$	dBW/4 kHz	for $3° \le \theta \le 48°$.
−9.5	dBW/4 kHz	for $48° < \theta \le 180°$.

Where θ is as defined in paragraph (c)(1) of this section. These EIRP density levels may be exceeded by up to 6 dB in the region of main reflector spillover energy and in up to 10% of the range of θ angles not included in that

region, on each side of the line from the earth station to the target satellite.

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

$19.5–25\log_{10}\theta$	dBW/4 kHz	for $1.5° \le \theta \le 7°$.

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

(d) *Digital earth station operation in the conventional or extended C-bands.* (1) For co-polarized transmissions in the plane tangent to the GSO arc:

$26.3–25\log_{10}\theta$	dBW/4 kHz	for $1.5° \le \theta \le 7°$.
5.3	dBW/4 kHz	for $7° < \theta \le 9.2°$.
$29.3–25\log_{10}\theta$	dBW/4 kHz	for $9.2° < \theta \le 48°$.
−12.7	dBW/4 kHz	for $48° < \theta \le 180°$.

Where θ is as defined in paragraph (c)(1) of this section. The EIRP density levels specified for $\theta > 7°$ may be exceeded by up to 3 dB in up to 10% of the range of theta (θ) angles from ±7–180°, and by up to 6 dB in the region of main reflector spillover energy.

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

$29.3–25\log_{10}\theta$	dBW/4 kHz	for $3° \le \theta \le 48°$.
−12.7	dBW/4 kHz	for $48° < \theta \le 180°$.

Where θ is as defined in paragraph (c)(1) of this section. These EIRP density levels may be exceeded by up to 6 dB in the region of main reflector spillover energy and in up to 10% of the range of θ angles not included in that region, on each side of the line from the earth station to the target satellite.

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

$16.3–25\log_{10}\theta$	dBW/4 kHz	for $1.5° \le \theta \le 7°$.

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

(4) A license application for earth station operation in a network using variable power density control of earth stations transmitting simultaneously in shared frequencies to the same target satellite receiving beam may be routinely processed if the applicant certifies that the aggregate off-axis EIRP density from all co-frequency earth stations transmitting simultaneously to the same target satellite receiving beam, not resulting from colliding data bursts transmitted pursuant to a contention protocol, will not exceed the off-axis EIRP density limits permissible for a single earth station, as specified in paragraphs (d)(1) through (d)(3) of this section.

(e) *Analog earth station operation in the conventional Ku-band.* (1) For co-polarized transmissions in the plane tangent to the GSO arc:

$21–25\log_{10}\theta$	dBW/4 kHz	for $1.5° \le \theta \le 7°$.
0	dBW/4 kHz	for $7° < \theta \le 9.2°$.
$24–25\log_{10}\theta$	dBW/4 kHz	for $9.2° < \theta \le 19.1°$.
−8	dBW/4 kHz	for $19.1° < \theta \le 180°$.

Where θ is as defined in paragraph (c)(1) of this section. The EIRP density levels specified for θ > 7° may be exceeded by up to 3 dB in up to 10% of the range of theta (θ) angles from ±7–180°, and by up to 6 dB in the region of main reflector spillover energy.

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

$24–25\log_{10}\theta$	dBW/4 kHz	for $3° \le \theta \le 19.1°$.
−8	dBW/4 kHz	for $19.1° < \theta \le 180°$.

Where θ is as defined in paragraph (c)(1) of this section. These EIRP density levels may be exceeded by up to 6 dB in the region of main reflector spillover energy and in up to 10% of the range of θ angles not included in that region, on each side of the line from the earth station to the target satellite.

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

$11–25\log_{10}\theta$	dBW/4 kHz	for $1.5° \le \theta \le 7°$.

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

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

$15–25\log_{10}\theta$	dBW/4 kHz	for $1.5° \le \theta \le 7°$.
−6	dBW/4 kHz	for $7° < \theta \le 9.2°$.
$18–25\log_{10}\theta$	dBW/4 kHz	for $9.2° < \theta \le 19.1°$.
−14	dBW/4 kHz	for $19.1° < \theta \le 180°$.

Where θ is as defined in paragraph (c)(1) of this section. The EIRP density levels specified for θ > 7° may be exceeded by up to 3 dB in up to 10% of the range of theta (θ) angles from ±7–180°, and by up to 6 dB in the region of main reflector spillover energy.

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

$18–25\log_{10}\theta$	dBW/4 kHz	for $3° \le \theta \le 19.1°$.
−14	dBW/4 kHz	for $19.1° < \theta \le 180°$.

Where θ is as defined in paragraph (c)(1) of this section. These EIRP density levels may be exceeded by up to 6 dB in the region of main reflector spillover energy and in up to 10% of the range of θ angles not included in that region, on each side of the line from the earth station to the target satellite.

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

$5–25\log_{10}\theta$	dBW/4 kHz	for $1.5° \le \theta \le 7°$.

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

(4) A license application for earth station operation in a network using variable power density control of earth stations transmitting simultaneously in shared frequencies to the same target satellite receiving beam may be

routinely processed if the applicant certifies that the aggregate off-axis EIRP density from all co-frequency earth stations transmitting simultaneously to the same target satellite receiving beam, not resulting from colliding data bursts transmitted pursuant to a contention protocol, will not exceed the off-axis EIRP density limits permissible for a single earth station, as specified in paragraphs (f)(1) through -(f)(3) of this section.

(g) *Analog earth station operation in the extended Ku-band.* (1) For co-polarized transmissions in the plane tangent to the GSO arc:

$21–25\log_{10}\theta$	dBW/4 kHz	for $1.5° \le \theta \le 7°$.
0	dBW/4 kHz	for $7° < \theta \le 9.2°$.
$24–25\log_{10}\theta$	dBW/4 kHz	for $9.2° < \theta \le 48°$.
−18	dBW/4 kHz	for $48° < \theta \le 180°$.

Where θ is as defined in paragraph (c)(1) of this section, and N is as defined in paragraph (d)(1) of this section. The EIRP density levels specified for θ > 7° may be exceeded by up to 3 dB in up to 10% of the range of theta (θ) angles from ±7–180°, and by up to 6 dB in the region of main reflector spillover energy.

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

$24–25\log_{10}\theta$	dBW/4 kHz	for $3° \le \theta \le 48°$.
−18	dBW/4 kHz	for $48° < \theta \le 180°$.

Where θ is as defined in paragraph (c)(1) of this section. These EIRP density levels may be exceeded by up to 6 dB in the region of main reflector spillover energy and in up to 10% of the range of θ angles not included in that region, on each side of the line from the earth station to the target satellite.

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

$11–25\log_{10}\theta$	dBW/4 kHz	for $1.5° \le \theta \le 7°$.

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

(h) *Digital earth station operation in the extended Ku-band.* (1) For co-polarized transmissions in the plane tangent to the GSO arc:

$15–25\log_{10}\theta$	dBW/4 kHz	for $1.5° \le \theta \le 7°$.
−6	dBW/4 kHz	for $7° < \theta \le 9.2°$.
$18–25\log_{10}\theta$	dBW/4 kHz	for $9.2° < \theta \le 48°$.
−24	dBW/4 kHz	for $48° < \theta \le 180°$.

Where θ is as defined in paragraph (c)(1) of this section. The EIRP density levels specified for θ > 7° may be exceeded by up to 3 dB in up to 10% of the range of theta (θ) angles from ±7–180°, and by up to 6 dB in the region of main reflector spillover energy.

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

$18–25\log_{10}\theta$	dBW/4 kHz	for $3° \le \theta \le 48°$.
−24	dBW/4 kHz	for $48° < \theta \le 85°$.

Where θ is as defined in paragraph (c)(1) of this section. These EIRP density levels may be exceeded by up to 6 dB in the region of main reflector spillover energy and in up to 10% of the range of θ angles not included in that region, on each side of the line from the earth station to the target satellite.

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

$5–25\log_{10}\theta$	dBW/4 kHz	for $1.5° \le \theta \le 7°$.

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

(4) A license application for earth station operation in a network using variable power density control of earth stations transmitting simultaneously in shared frequencies to the same target satellite receiving beam may be routinely processed if the applicant certifies that the aggregate off-axis EIRP density from all co-frequency earth stations transmitting simultaneously to the same target satellite receiving beam, not resulting from colliding data bursts transmitted pursuant to a contention protocol, will not exceed the off-axis EIRP density limits permissible for a single earth station, as specified in paragraphs (h)(1) through (h)(3) of this section.

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

$32.5–25\log(\theta)$	dBW/MHz	for	$2.0° \le \theta \le 7°$.
11.5	dBW/MHz	for	$7° \le \theta \le 9.2°$.
$35.5–25\log(\theta)$	dBW/MHz	for	$9.2° \le \theta \le 19.1°$.
3.5	dBW/MHz	for	$19.1° < \theta \le 180°$.

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

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

$35.5–25\log(\theta)$	dBW/MHz	for	$3.5° \le \theta \le 7°$.
14.4	dBW/MHz	for	$7° < \theta \le 9.2°$.
$38.5–25\log(\theta)$	dBW/MHz	for	$9.2° < \theta \le 19.1°$.
6.5	dBW/MHz	for	$19.1° < \theta \le 180°$.

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

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

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

$22.5–25\log(\theta)$	dBW/MHz	for	$2.0° < \theta \le 7.0°$.

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

(5) A license application for earth station operation in a network using variable power density control of earth stations transmitting simultaneously in shared frequencies to the same target satellite receiving beam may be routinely processed if the applicant certifies that the aggregate off-axis

EIRP density from all co-frequency earth stations transmitting simultaneously to the same target satellite receiving beam, not resulting from colliding data bursts transmitted pursuant to a contention protocol, will not exceed the off-axis EIRP density limits permissible for a single earth station, as specified in paragraphs (i)(1) through (4) of this section.

(j) *Non-qualifying applications.* Applications for authority for fixed earth station operation in the conventional C-band, extended C-band, conventional Ku-band, extended Ku-band, conventional Ka-band, extended Ka-band, or 24.75–25.25 GHz, that do not qualify for routine processing under relevant criteria in this section, § 25.211, or § 25.212 are subject to the requirements in § 25.220.

[81 FR 55339, Aug. 18, 2016, as amended at 84 FR 53656, Oct. 8, 2019; 85 FR 44787, July 24, 2020; 87 FR 72407, Nov. 25, 2022]

§ 25.219 [Reserved]

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

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

(b) Applications filed pursuant to this section must include the information required by § 25.115(g)(1).

(c) [Reserved]

(d)(1) The applicant must submit the certifications listed in paragraphs (d)(1)(i) through (d)(1)(iv) of this section. The applicant will be authorized to transmit only to the satellite systems included in the coordination agreements referred to in the certification required by paragraph (d)(1)(ii) of this section. The applicant will be granted protection from receiving interference only with respect to the satellite systems included in the coordination agreements referred to in the certification required by paragraph (d)(1)(ii) of this section, and only to the extent that protection from receiving interference is afforded by those coordination agreements.

(i) [Reserved]

(ii) A statement from the satellite operator that it has coordinated the operation of the subject non-conforming earth station accessing its satellite(s), including its required downlink power density based on the information contained in the application, with all adjacent satellite networks within 6° of orbital separation from its satellite(s), and the operations will operate in conformance with existing coordination agreement for its satellite(s) with other satellite systems, except as set forth in paragraph (d)(4) of this section.

(iii) A statement from the satellite operator that it will include the subject non-conforming earth station operations in all future satellite network coordinations, and

(iv) A statement from the earth station applicant certifying that it will comply with all coordination agreements reached by the satellite operator(s).

(2) Unless the non-routine uplink transmission levels are permitted under a coordination agreement with the space station operator, or unless coordination with the operator is not required pursuant to § 25.140(d)(3) or (d)(4), the operator of an earth station licensed pursuant to this section must reduce its transmitted EIRP density to levels at or within relevant routine limits:

(i) Toward the part of the geostationary orbit arc within one degree of a subsequently launched, two-degree-compliant space station receiving in the same uplink band at an orbital location within six degrees of the earth station's target satellite, and

(ii) Toward a two-degree-compliant space station receiving in the same uplink band at an orbital location more than six degrees away from the target satellite if co-frequency reception by the space station is adversely affected by the non-routine earth station transmission levels.

(3) In the event that a coordination agreement discussed in paragraph (d)(1)(ii) of this section is reached, but that coordination agreement does not address protection from interference

for the earth station, that earth station will be protected from interference to the same extent that an earth station that meets the requirements of § 25.209 of this title would be protected from interference.

(4) Notwithstanding paragraph (d)(1)(ii) of this section, a party applying for an earth station license pursuant to this section will not be required to certify that its target satellite operator has reached a coordination agreement with another satellite operator whose satellite is within 6° of orbital separation from its satellite in cases where the off-axis EIRP density level of the proposed earth station operations will be less than or equal to the levels specified by the applicable off-axis EIRP envelope set forth in § 25.218 of this chapter in the direction of the part of the geostationary orbit arc within 1° of the nominal orbit location of the adjacent satellite.

(e)–(f) [Reserved]

(g) Applicants filing applications for earth stations pursuant to this section must provide the following information for the Commission's public notice:

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

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

(3) Proposed power and power density levels.

(4) Identification of any rule or rules for which a waiver is requested.

[70 FR 32256, June 2, 2005, as amended at 72 FR 50030, Aug. 29, 2007; 73 FR 70902, Nov. 24, 2008; 74 FR 57099, Nov. 4, 2009; 78 FR 14927, Mar. 8, 2013; 79 FR 8324, Feb. 12, 2014; 81 FR 55341, Aug. 18, 2016; 83 FR 34491, July 20, 2018; 84 FR 53656, Oct. 8, 2019; 87 FR 72407, Nov. 25, 2022]

§§ 25.221–25.223 [Reserved]

§ 25.224 Protection of receive-only earth stations in the 17/24 GHz BSS.

(a) Notwithstanding § 25.209(c) of this part, receive-only earth stations operating in the 17/24 GHz broadcasting-satellite service can claim no greater protection from interference than they would receive if the equivalent antenna diameter were equal to or greater than 45 cm and the antenna meets the co-polar and cross-polar performance patterns represented by the following set of formulas (adopted in Recommendation ITU–R BO.1213–1, dated November 2005) that are valid for $D/\lambda \geq 11$:

(1) Co-polar pattern:

$$G_{co}(\varphi) = G_{max} - 2.5 \times 10^{-3}\left(\frac{D}{\lambda}\varphi\right)^2 \text{ for } \quad 0 \le \varphi < \varphi_m$$

where:

$$\varphi_m = \frac{\lambda}{D}\sqrt{\frac{G_{max} - G_1}{0.0025}}$$

$$G_{max} = 10\log\left(\eta\left(\frac{\pi D}{\lambda}\right)^2\right)$$

$G_1 = 29 - 25 \log \varphi_r$, and $\varphi_r = 95\frac{\lambda}{D}$

$G_{CO}(\varphi) = G_1$ for $\varphi_m \le \varphi < \varphi_r$

$G_{CO}(\varphi) = 29 - 25 \log \varphi$ for $\varphi_r \le \varphi < \varphi_b$ where $\varphi_b = 10^{(34/25)}$

$G_{CO}(\varphi) = -5$ dBi for $\varphi_b \le \varphi < 70°$

$G_{CO}(\varphi) = 0$ dBi for $70° \le \varphi < 180°$

(2) Cross-polar pattern:

$G_{cross}(\varphi) = G_{max} - 25$ for $0 \le \varphi < 0.25\ \varphi_0$

where:

$$\varphi_0 = 2\frac{\lambda}{D}\sqrt{\frac{3}{0.0025}} = 3 \text{ dB beamwidth}$$

$$G_{cross}(\varphi) = G_{max} - 25 + 8\left(\frac{\varphi - 0.25\ \varphi_0}{0.19\ \varphi_0}\right) \text{ for } 0.25\ \varphi_0 \le \varphi < 0.44\ \varphi_0$$

$G_{cross}(\varphi) = G_{max} - 17$ for $0.44\ \varphi_0 \le \varphi < \varphi_0$

$$G_{cross}(\varphi) = G_{max} - 17 + C\left|\frac{\varphi - \varphi_0}{\varphi_1 - \varphi_0}\right| \text{ for } \varphi_0 \le \varphi < \varphi_1 \text{ where } \varphi_1 = \frac{\varphi_0}{2}\sqrt{10.1875}$$

and $C = 21 - 25 \log(\varphi_1) - (G_{max} - 17)$

$G_{cross}(\varphi) = 21 - 25 \log \varphi$ for $\varphi_1 \le \varphi < \varphi_2$ where $\varphi_2 = 10^{(26/25)}$

$G_{cross}(\varphi) = -5$ dBi for $\varphi_2 \le \varphi < 70°$

$G_{cross}(\varphi) = 0$ dBi for $70° \le \varphi < 180°$

where:

D: equivalent antenna diameter

λ: wavelength expressed in the same unit as the diameter

φ: off-axis angle of the antenna relative to boresight (degrees)

η: antenna efficiency = 0.65

(b) Paragraph (a) of this section does not apply to 17/24 GHz BSS telemetry earth stations. Those earth stations are subject to the antenna performance standards of §25.209(a) and (b) of this part.

[72 FR 50031, Aug. 29, 2007]

§ 25.225 Geographic Service Requirements for 17/24 GHz Broadcasting Satellite Service.

(a) Each operator of a 17/24 GHz BSS space station that is used to provide video programming directly to consumers in the 48 contiguous United States (CONUS) must provide comparable service to Alaska and Hawaii, unless such service is not technically feasible or not economically reasonable from the authorized orbital location.

(b) Each operator of a 17/24 GHz BSS space station subject to paragraph (a) of this section must design and configure its space station to be capable of providing service to Alaska and Hawaii, that is comparable to the service that such satellites will provide to CONUS subscribers, from any orbital location capable of providing service to either Alaska or Hawaii to which it may be located or relocated in the future.

(c) If an operator of a 17/24 GHz BSS space station that is used to provide video programming directly to consumers in the United States relocates or replaces a 17/24 GHz BSS space station at a location from which service to Alaska and Hawaii had been provided by another 17/24 GHz BSS space station, the operator must use a space station capable of providing at least the same level of service to Alaska and Hawaii as previously provided from that location.

[72 FR 50033, Aug. 29, 2007]

§§ 25.226–25.227 [Reserved]

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

(a) GSO FSS ESIM transmissions must comport with the applicable EIRP density limits in § 25.218, unless coordinated pursuant to the requirements in § 25.220.

(b) Each FSS ESIM must be self-monitoring and, should a condition occur that would cause the ESIMs to exceed its authorized off-axis EIRP density limits in the case of GSO FSS ESIMs or any emission limits included in the licensing conditions in the case of NGSO FSS ESIMs, the ESIM must automatically cease transmissions within 100 milliseconds, and not resume transmissions until the condition that caused the ESIM to exceed those limits is corrected.

(c) Each FSS ESIM must be monitored and controlled by a network control and monitoring center (NCMC) or equivalent facility. Each ESIM must comply with a ''disable transmission'' command from the NCMC within 100 milliseconds of receiving the command. In addition, the NCMC must monitor the operation of each ESIM in its network, and transmit a ''disable transmission'' command to any ESIM that operates in such a way as to exceed the authorized off-axis EIRP density limit for GSO FSS ESIMs or any emission limits included in the licensing conditions in the case of NGSO FSS ESIMs. The NCMC must not allow the ESIM(s) under its control to resume transmissions until the condition that caused the ESIM(s) to exceed the authorized EIRP density limits is corrected.

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

(e) The following requirements govern all ESV operations:

(1) ESV operators must control all ESVs by a NCMC or equivalent facility located in the United States, except that an ESV on U.S.-registered vessels may operate under control of a NCMC location outside the United States provided the ESV operator maintains a point of contact within the United States that will have the capability and authority to cause an ESV on a U.S.-registered vessel to cease transmitting if necessary.

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

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

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

(g) The following requirements govern all ESAA operations:

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

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

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

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

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

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

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

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

(5) ESVs operating within 200 km from the baseline of the United States, or within 200 km from a U.S.-licensed fixed service offshore installation, must complete coordination with potentially affected U.S.-licensed fixed service operators prior to operation. The coordination method and the interference criteria objective will be determined by the frequency coordinator. The details of the coordination must be maintained and available at the frequency coordinator, and must be filed with the Commission electronically via

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

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

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

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

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

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

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

(1) Operations of ESIMs in the 14.0–14.2 GHz (Earth-to-space) frequency band within 125 km (for ESVs and VMESs) or within radio line of sight (for ESAAs) of the NASA TDRSS facilities on Guam (latitude 13°36′55″ N, longitude 144°51′22″ E), White Sands, New Mexico (latitude 32°20′59″ N, longitude 106°36′31″ W and latitude 32°32′40″ N, longitude 106°36′48″ W), or Blossom Point, Maryland (latitude 38°25′44″ N, longitude 77°05′02″ W) are subject to coordination with the National Aeronautics and Space Administration (NASA) through the National Telecommunications and Information Administration (NTIA) Interdepartment

Radio Advisory Committee (IRAC). Licensees must notify the Space Bureau once they have completed coordination. Upon receipt of such notification from a licensee, the Space Bureau will issue a public notice stating that the licensee may commence operations within the coordination zone in 30 days if no party has opposed the operations. When NTIA seeks to provide similar protection to future TDRSS sites that have been coordinated through the IRAC Frequency Assignment Subcommittee process, NTIA will notify the Commission's Space Bureau that the site is nearing operational status. Upon public notice from the Space Bureau, all Ku-band ESIM licensees must cease operations in the 14.0–14.2 GHz band within 125 km (for ESVs and VMESs) or within radio line of sight (for ESAAs) of the new TDRSS site until the licensees complete coordination with NTIA/IRAC for the new TDRSS facility. Licensees must notify the Space Bureau once they have completed coordination for the new TDRSS site. Upon receipt of such notification from a licensee, the Space Bureau will issue a public notice stating that the licensee may commence operations within the coordination zone in 30 days if no party has opposed the operations. The ESIM licensee then will be permitted to commence operations in the 14.0–14.2 GHz band within 125 km (for ESVs and VMESs) or within radio line of sight (for ESAAs) of the new TDRSS site, subject to any operational constraints developed in the coordination process.

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

(3) Operations of ESIMs in the 14.47–14.5 GHz (Earth-to-space) frequency band in the vicinity (for ESVs and VMESs) or within radio line of sight (for ESAAs) of radio astronomy service (RAS) observatories observing in the 14.47–14.5 GHz band are subject to coordination with the National Science Foundation (NSF). The appropriate NSF contact point to initiate coordination is Electromagnetic Spectrum Management Unit, NSF, Division of Astronomical Sciences, 2415 Eisenhower Avenue, Arlington VA 22314; Email: *esm@nsf.gov*. Licensees must notify the Space Bureau once they have completed coordination. Upon receipt of the coordination agreement from a licensee, the Space Bureau will issue a public notice stating that the licensee may commence operations within the coordination zone in 30 days if no party has opposed the operations. Table 1 provides a list of each applicable RAS site, its location, and the applicable coordination zone.

TABLE 1 TO § 25.228(j)(3)—APPLICABLE RADIO ASTRONOMY SERVICE (RAS) FACILITIES AND ASSOCIATED COORDINATION DISTANCES

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

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

(4) When NTIA seeks to provide similar protection to future RAS sites that have been coordinated through the IRAC Frequency Assignment Subcommittee process, NTIA will notify the Commission's Space Bureau that the site is nearing operational status. Upon public notice from the Space Bureau, all Ku-band ESIMs licensees must cease operations in the 14.47–14.5 GHz band within the relevant geographic zone (160 kms for single-dish radio observatories and Very Large Array antenna systems and 50 kms for Very Long Baseline Array antenna systems for ESVs and VMESs, radio line of sight for ESAAs) of the new RAS site until the licensees complete coordination for the new RAS facility. Licensees must notify the Space Bureau once they have completed coordination for the new RAS site and must submit the coordination agreement to the Commission. Upon receipt of such notification from a licensee, the Space Bureau will issue a public notice stating that the licensee may commence operations within the coordination zone in 30 days if no party opposed the operations. The ESIMs licensee then will be permitted to commence operations in the 14.47–14.5 GHz band within the relevant coordination distance around the new RAS site, subject to any operational constraints developed in the coordination process.

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

[84 FR 53656, Oct. 8, 2019, as amended at 85 FR 44787, July 24, 2020; 88 FR 21441, Apr. 10, 2023]

§§ 25.229–25.249 [Reserved]

§ 25.250 Sharing between NGSO MSS Feeder links Earth Stations in the 19.3–19.7 GHz and 29.1–29.5 GHz Bands.

(a) NGSO MSS applicants shall be licensed to operate in the 29.1–29.5 GHz band for Earth-to-space transmissions and 19.3–19.7 GHz for space-to-Earth transmissions from feeder link earth station complexes. A ''feeder link earth station complex'' may include up to three (3) earth station groups, with each earth station group having up to four (4) antennas, located within a radius of 75 km of a given set of geographic coordinates provided by NGSO-MSS licensees or applicants.

(b) Licensees of NGSO MSS feeder link earth stations separated by 800 km or less are required to coordinate their operations, see § 25.203. The results of the coordination shall be reported to the Commission.

[61 FR 44181, Aug. 28, 1996]

§ 25.251 Special requirements for coordination.

(a) The administrative aspects of the coordination process are set forth in § 101.103 of this chapter in the case of coordination of terrestrial stations with earth stations, and in § 25.203 in the case of coordination of earth stations with terrestrial stations.

(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).

[66 FR 10630, Feb. 16, 2001, as amended at 78 FR 8430, Feb. 6, 2013]

§ 25.252 [Reserved]

§ 25.253 Special requirements for ancillary terrestrial components operating in the 1626.5–1660.5 MHz/1525–1559 MHz bands.

(a) An ancillary terrestrial component in these bands shall:

(1) In any band segment coordinated for the exclusive use of an MSS applicant within the land area of the U.S., where there is no other L-Band MSS satellite making use of that band segment within the visible portion of the geostationary arc as seen from the ATC coverage area, the ATC system will be limited by the in-band and out-of-band emission limitations contained in this section and the requirement to maintain a substantial MSS service.

(2) In any band segment that is coordinated for the shared use of the applicant's MSS system and another MSS operator, where the coordination agreement existed prior to February 10, 2005 and permits a level of interference to the other MSS system of less than 6% $\Delta T/T$, the applicant's combined ATC

and MSS operations shall increase the system noise level of the other MSS to no more then 6% ΔT/T. Any future coordination agreement between the parties governing ATC operation will supersede this paragraph.

(3) In any band segment that is coordinated for the shared use of the applicant's MSS system and another MSS operator, where a coordination agreement existed prior to February 10, 2005 and permits a level of interference to the other MSS system of 6% ΔT/T or greater, the applicant's ATC operations may increase the system noise level of the other MSS system by no more than an additional 1% ΔT/T. Any future coordination agreement between the parties governing ATC operations will supersede this paragraph.

(4) In a band segment in which the applicant has no rights under a coordination agreement, the applicant may not implement ATC in that band.

(b) ATC base stations shall not exceed an out-of-channel emissions measurement of −57.9 dBW/MHz at the edge of a MSS licensee's authorized and internationally coordinated MSS frequency assignment.

(c) An applicant for an ancillary terrestrial component in these bands shall:

(1) Demonstrate, at the time of application, how its ATC network will comply with the requirements of footnotes US308 and US315 to the table of frequency allocations contained in §2.106 of this chapter regarding priority and preemptive access to the L-band MSS spectrum by the aeronautical mobile-satellite en-route service (AMS(R)S) and the global maritime distress and safety system (GMDSS).

(2) Coordinate with the terrestrial CMRS operators prior to initiating ATC transmissions when co-locating ATC base stations with terrestrial commercial mobile radio service (CMRS) base stations that make use of Global Positioning System (GPS) time-based receivers.

(3) Provide, at the time of application, calculations that demonstrate the ATC system conforms to the ΔT/T requirements in paragraphs (a)(2) and (a)(3) of this section, if a coordination agreement that incorporates the ATC operations does not exist with other MSS operators.

(d) Applicants for an ancillary terrestrial component in these bands must demonstrate that ATC base stations shall not:

(1) Exceed a peak EIRP of 31.9–10*log (number of carriers) dBW/200kHz, per sector, for each carrier in the 1525–1541.5 MHz and 1547.5–1559 MHz frequency bands;

(2) Exceed an EIRP in any direction toward the physical horizon (not to include man-made structures) of 26.9–10*log (number of carriers) dBW/200 kHz, per sector, for each carrier in the 1525–1541.5 MHz and 1547.5–1559 MHz frequency bands;

(3) Exceed a peak EIRP of 23.9 −10*log(number of carriers) dBW/200 kHz, per sector, for each carrier in the 1541.5–1547.5 MHz frequency band;

(4) Exceed an EIRP toward the physical horizon (not to include man-made structures) of 18.9–10*log(number of carriers) dBW/200 kHz, per sector, for each carrier in the 1541.5–1547.5 MHz frequency band;

(5) Exceed a total power flux density level of −56.8 dBW/m^2/200 kHz at the edge of all airport runways and aircraft stand areas, including takeoff and landing paths from all carriers operating in the 1525–1559 MHz frequency bands. The total power flux density here is the sum of all power flux density values associated with all carriers in a sector in the 1525–1559 MHz frequency band, expressed in dB(Watts/m^2/200 kHz). Free-space loss must be assumed if this requirement is demonstrated via calculation;

(6) Exceed a total power flux density level of −56.6 dBW/ m^2/200 kHz at the water's edge of any navigable waterway from all carriers operating in the 1525–1541.5 MHz and 1547.5–1559 MHz frequency bands. The total power flux density here is the sum of all power flux density values associated with all carriers in a sector in the 1525–1541.5 MHz and 1547.5–1559 MHz frequency bands, expressed in dB(Watts/m^2/200 kHz). Free-space loss must be assumed if this requirement is demonstrated via calculation;

(7) Exceed a total power flux density level of −64.6 dBW/ m^2/200 kHz at the

water's edge of any navigable waterway from all carriers operating in the 1541.5–1547.5 MHz frequency band. The total power flux density here is the sum of all power flux density values associated with all carriers in a sector in the 1541.5–1547.5 MHz frequency band, expressed in dB(Watts/m^2/200 kHz). Free-space loss must be assumed if this requirement is demonstrated via calculation;

(8) Exceed a peak antenna gain of 16 dBi;

(9) Generate EIRP density, averaged over any two-millisecond active transmission interval, greater than −70 dBW/MHz in the 1559–1605 MHz band or greater than a level determined by linear interpolation in the 1605–1610 MHz band, from −70 dBW/MHz at 1605 MHz to −46 dBW/MHz at 1610 MHz. The EIRP, averaged over any two-millisecond active transmission interval, of discrete out-of-band emissions of less than 700 Hz bandwidth from such base stations shall not exceed −80 dBW in the 1559–1605 MHz band or exceed a level determined by linear interpolation in the 1605–1610 MHz band, from −80 dBW at 1605 MHz to −56 dBW at 1610 MHz. A root-mean-square detector function with a resolution bandwidth of one megahertz or equivalent and no less video bandwidth shall be used to measure wideband EIRP density for purposes of this rule, and narrowband EIRP shall be measured with a root-mean-square detector function with a resolution bandwidth of one kilohertz or equivalent.

(e) Applicants for an ancillary terrestrial component in these bands must demonstrate, at the time of the application, that ATC base stations shall use left-hand-circular polarization antennas with a maximum gain of 16 dBi and overhead gain suppression according to the following:

Angle from direction of maximum gain, in vertical plane, above antenna (degrees)	Antenna discrimination pattern (dB)
0	Gmax
5	Not to Exceed Gmax −5
10	Not to Exceed Gmax −19
15 to 55	Not to Exceed Gmax −27
55 to 145	Not to Exceed Gmax −30
145 to 180	Not to Exceed Gmax −26

Where: Gmax is the maximum gain of the base station antenna in dBi.

(f) Prior to operation, ancillary terrestrial component licensees shall:

(1) Provide the Commission with sufficient information to complete coordination of ATC base stations with Search-and-Rescue Satellite-Aided Tracking (SARSAT) earth stations operating in the 1544–1545 MHz band for any ATC base station located either within 27 km of a SARSAT station, or within radio horizon of the SARSAT station, whichever is less.

(2) Take all practicable steps to avoid locating ATC base stations within radio line of sight of Mobile Aeronautical Telemetry (MAT) receive sites in order to protect U.S. MAT systems consistent with ITU–R Recommendation ITU–R M.1459. MSS ATC base stations located within radio line of sight of a MAT receiver must be coordinated with the Aerospace and Flight Test Radio Coordinating Council (AFTRCC) for non-Government MAT receivers on a case-by-case basis prior to operation. For government MAT receivers, the MSS licensee shall supply sufficient information to the Commission to allow coordination to take place. A listing of current and planned MAT receiver sites can be obtained from AFTRCC for non-Government sites and through the FCC's IRAC Liaison for Government MAT receiver sites.

(g) ATC mobile terminals shall:

(1) Be limited to a peak EIRP level of 0 dBW and an out-of-channel emissions of −67 dBW/4 kHz at the edge of an MSS licensee's authorized and internationally coordinated MSS frequency assignment.

(2) Be operated in a fashion that takes all practicable steps to avoid causing interference to U.S. radio astronomy service (RAS) observations in the 1660–1660.5 MHz band.

(3) Not generate EIRP density, averaged over any two-millisecond active transmission interval, greater than −70 dBW/MHz in the 1559–1605 MHz band or greater than a level determined by linear interpolation in the 1605–1610 MHz band, from −70 dBW/MHz at 1605 MHz to −46 dBW/MHz at 1610 MHz. The EIRP, averaged over any two-millisecond active transmission

interval, of discrete out-of-band emissions of less than 700 Hz bandwidth from such mobile terminals shall not exceed −80 dBW in the 1559–1605 MHz band or exceed a level determined by linear interpolation in the 1605–1610 MHz band, from −80 dBW at 1605 MHz to −56 dBW at 1610 MHz. The EIRP density of carrier-off-state emissions from such mobile terminals shall not exceed −80 dBW/MHz in the 1559–1610 MHz band, averaged over a two-millisecond interval. A root-mean-square detector function with a resolution bandwidth of one megahertz or equivalent and no less video bandwidth shall be used to measure wideband EIRP density for purposes of this rule, and narrowband EIRP shall be measured with a root-mean-square detector function with a resolution bandwidth of one kilohertz or equivalent.

(h) When implementing multiple base stations and/or base stations using multiple carriers, where any third-order intermodulation product of these base stations falls on an L-band MSS band coordinated for use by another MSS operator with rights to the coordinated band, the MSS ATC licensee must notify the MSS operator. The MSS operator may request coordination to modify the base station carrier frequencies, or to reduce the maximum base station EIRP on the frequencies contributing to the third-order intermodulation products. The threshold for this notification and coordination is when the sum of the calculated signal levels received by an MSS receiver exceeds −70 dBm. The MSS receiver used in these calculations can be assumed to have an antenna with 0 dBi gain. Free-space propagation between the base station antennas and the MSS terminals can be assumed and actual signal polarizations for the ATC signals and the MSS system may be used.

[70 FR 19319, Apr. 13, 2005]

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

(a) An applicant for an ancillary terrestrial component in these bands must demonstrate that ATC base stations shall:

(1) Not exceed a peak EIRP of 32 dBW in 1.25 MHz;

(2) Not cause unacceptable interference to systems identified in paragraph (c) of this section and, in any case, shall not exceed out-of-channel emissions of −44.1 dBW/30 kHz at the edge of the MSS licensee's authorized frequency assignment;

(3) At the time of application, that it has taken, or will take steps necessary to avoid causing interference to other services sharing the use of the 2450–2500 MHz band through frequency coordination; and

(4) Base stations operating in frequencies above 2483.5 MHz shall not generate EIRP density, averaged over any two-millisecond active transmission interval, greater than −70 dBW/MHz in the 1559–1610 MHz band. The EIRP, averaged over any two-millisecond active transmission interval, of discrete out-of-band emissions of less than 700 Hz bandwidth from such base stations shall not exceed −80 dBW in the 1559–1610 MHz band. A root-mean-square detector function with a resolution bandwidth of one megahertz or equivalent and no less video bandwidth shall be used to measure wideband EIRP density for purposes of this rule, and narrowband EIRP shall be measured with a root-mean-square detector function with a resolution bandwidth of one kilohertz or equivalent.

(b) An applicant for an ancillary terrestrial component in these bands must demonstrate that mobile terminals shall:

(1) Meet the requirements contained in § 25.213 to protect radio astronomy service (RAS) observations in the 1610.6–1613.8 MHz band from unacceptable interference;

(2) Observe a peak EIRP limit of 1.0 dBW in 1.25 MHz;

(3) Observe an out-of-channel EIRP limit of −57.1 dBW/30 kHz at the edge of the licensed MSS frequency assignment.

(4) ATC mobile terminals operating in assigned frequencies in the 1610–1626.5 MHz band shall not generate EIRP density, averaged over any two-millisecond active transmission interval, greater than −70 dBW/MHz in the 1559–1605 MHz band or greater than a

level determined by linear interpolation in the 1605–1610 MHz band, from −70 dBW/MHz at 1605 MHz to −10 dBW/MHz at 1610 MHz. The EIRP, averaged over any two-millisecond active transmission interval, of discrete out-of-band emissions of less than 700 Hz bandwidth from such mobile terminals shall not exceed −80 dBW in the 1559–1605 MHz band or exceed a level determined by linear interpolation in the 1605–1610 MHz band, from −80 dBW at 1605 MHz to −20 dBW at 1610 MHz. The EIRP density of carrier-off-state emissions from such mobile terminals shall not exceed −80 dBW/MHz in the 1559–1610 MHz band, averaged over a two-millisecond interval. A root-mean-square detector function with a resolution bandwidth of one megahertz or equivalent and no less video bandwidth shall be used to measure wideband EIRP density for purposes of this rule, and narrowband EIRP shall be measured with a root-mean-square detector function with a resolution bandwidth of one kilohertz or equivalent.

(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 (incorporated by reference, see § 25.108).

(d) To avoid interference to an adjacent channel licensee in the Broadband Radio Service (BRS), the power of any ATC base station emission above 2495 MHz shall be attenuated below the transmitter power (P) measured in watts in accordance with the standards below. If these measures do not resolve a documented interference complaint received from the adjacent channel BRS licensee, the provisions of § 25.255 shall apply.

(1) For base stations, the attenuation shall be not less than 43 + 10 log (P) dB at the upper edge of the authorized ATC band, unless a documented interference complaint is received from an adjacent channel licensee in the BRS. Provided that a documented interference complaint cannot be mutually resolved between the parties, the following additional attenuation requirements set forth in subsections (2)–(5) shall apply:

(2) If a pre-existing BRS base station suffers harmful interference from emissions caused by a new or modified ATC base station located 1.5 km or more away, within 24 hours of the receipt of a documented interference complaint the ATC licensee must attenuate its emissions by at least 67 + 10 log (P) dB measured at 3 megahertz above the edge of the authorized ATC band, and shall immediately notify the complaining licensee upon implementation of the additional attenuation.

(3) If a pre-existing BRS base station suffers harmful interference from emissions caused by a new or modified ATC base station located less than 1.5 km away, within 24 hours of the receipt of a documented interference complaint the ATC licensee must attenuate its emissions by at least 67 + 10 log (P) −20 log(D_{km}/1.5) dB measured at 3 megahertz above the edge of the authorized ATC band, or if both base stations are co-located, limit its undesired signal level at the pre-existing BRS base station receiver(s) to no more than −107 dBm measured in a 5.5 megahertz bandwidth and shall immediately notify the complaining licensee upon such reduction in the undesired signal level.

(4) If a new or modified BRS base station suffers harmful interference from emissions caused by a pre-existing ATC base station located 1.5 km or more away, within 60 days of receipt of a documented interference complaint the licensee of the ATC base station must attenuate its base station emissions by at least 67 + 10 log (P) dB measured at 3 megahertz above the edge of the authorized ATC band.

(5) If a new or modified BRS base station suffers harmful interference from emissions caused by a pre-existing ATC base station located less than 1.5 km away, within 60 days of receipt of a documented interference complaint:

(i) the ATC licensee must attenuate its base station emissions by at least 67 + 10 log (P) −20 log(D_{km}/1.5) dB measured 3 megahertz above the edge of the authorized ATC band, or

(ii) if both base stations are co-located, the ATC licensee must limit its undesired signal level at the new or modified BRS base station receiver(s)

to no more than −107 dBm measured in a 5.5 megahertz bandwidth.

(6) Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately above and adjacent to the 2495 MHz a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy, provided the measured power is integrated over the full required measurement bandwidth (i.e., 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

(e) Licensees of terrestrial low-power systems operating in the 2483.5–2495 MHz band shall operate consistent with the technical limits and other requirements specified in §25.149(c)(4) and (g)(2)–(3).

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.

[68 FR 33653, June 5, 2003, as amended at 69 FR 18803, Apr. 9, 2004; 70 FR 19320, Apr. 13, 2005; 73 FR 25592, May 5, 2008; 78 FR 8430, Feb. 6, 2013; 82 FR 8819, Jan. 31, 2017; 88 FR 21441, Apr. 10, 2023]

§25.255 Procedures for resolving harmful interference related to operation of ancillary terrestrial components operating in the 1.5/1.6 GHz and 1.6/2.4 GHz bands.

If harmful interference is caused to other services by ancillary MSS ATC operations, either from ATC base stations or mobile terminals, the MSS ATC operator must resolve any such interference. If the MSS ATC operator claims to have resolved the interference and other operators claim that interference has not been resolved, then the parties to the dispute may petition the Commission for a resolution of their claims.

[68 FR 33653, June 5, 2003, as amended at 78 FR 8267, Feb. 5, 2013]

§25.256 Special Requirements for operations in the 3.65–3.7 GHz band.

Upon request from a terrestrial licensee authorized under subpart Z, part 90 that seeks to place base and fixed stations in operation within 150 km of a primary earth station, licensees of earth stations operating on a primary basis in the Fixed-Satellite Service in the 3.65–3.7 GHz band must negotiate in good faith with that terrestrial licensee to arrive at mutually agreeable operating parameters to prevent unacceptable interference.

[70 FR 24725, May 11, 2005, as amended at 78 FR 8430, Feb. 6, 2013]

§25.257 Special requirements for NGSO MSS operations in the 29.1–29.25 GHz band regarding LMDS.

(a) Non-geostationary Mobile-Satellite Service (NGSO MSS) operators shall be licensed to use the 29.1–29.25 GHz band for Earth-to-space transmissions from feeder link earth station complexes. A ''feeder link earth station complex'' may include up to three (3) earth station groups, with each earth station group having up to four (4) antennas, located within a radius of 75 km of a given set of geographic coordinates provided by a NGSO MSS licensees or applicants pursuant to §101.147.

(b) A maximum of seven (7) feeder link earth station complexes in the contiguous United States, Alaska and Hawaii may be placed into operation, in the largest 100 MSAs, in the band 29.1–29.25 GHz in accordance with §25.203 and §101.147 of this chapter.

(c) One of the NGSO MSS operators licensed to use the 29.1–29.25 GHz band may specify geographic coordinates for a maximum of eight feeder link earth station complexes that transmit in the 29.1–29.25 GHz band. The other NGSO

MSS operator licensed to use the 29.1–29.25 GHz band may specify geographic coordinates for a maximum of two feeder link earth station complexes that transmit in the 29.1–29.25 GHz band.

(d) Additional NGSO MSS operators may be licensed in this band if the additional NGSO MSS operator shows that its system can share with the existing NGSO MSS systems.

(e) All NGSO MSS operators shall cooperate fully and make reasonable efforts to identify mutually acceptable locations for feeder link earth station complexes. In this regard, any single NGSO MSS operator may identify only one feeder-link earth station complex protection zone in each category identified in §101.147(y)(2) of this chapter until the other NGSO MSS operator has been given an opportunity to select a location from the same category.

[61 FR 44181, Aug. 28, 1996, as amended at 78 FR 8430, Feb. 6, 2013; 81 FR 55348, Aug. 18, 2016]

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

(a) Operators of NGSO MSS feeder link earth stations and GSO FSS earth stations in the band 29.25 to 29.5 GHz where both services have a co-primary allocation shall cooperate fully in order to coordinate their systems. During the coordination process both service operators shall exchange the necessary technical parameters required for coordination.

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

(c) Applicants for authority to use the 29.25–29.5 GHz band for NGSO MSS feeder uplinks will have to demonstrate that their systems can share with GSO FSS and NGSO MSS systems that have been authorized for operation in that band.

[67 FR 37336, May 29, 2002, as amended at 68 FR 16967, Apr. 8, 2003; 81 FR 55348, Aug. 18, 2016; 84 FR 53659, Oct. 8, 2019]

§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.

(b) An NVNG licensee time sharing spectrum in the 137–138 MHz band must establish a 24-hour per day contact person and telephone number so that claims of harmful interference into NOAA earth stations and other operational issues can be reported and resolved expeditiously. This contact information must be made available to NOAA or its designee. If the NTIA notifies the Commission that NOAA is receiving unacceptable interference from a NVNG licensee, the Commission will require such NVNG licensee to terminate its interfering operations immediately unless it demonstrates to the Commission's reasonable satisfaction, and that of NTIA, that it is not responsible for causing harmful interference into the worldwide NOAA system. An NVNG licensee assumes the risk of any liability or damage that it and its directors, officers, employees, affiliates, agents and subcontractors may incur or suffer in connection with an interruption of its Mobile-Satellite Service, in whole or in part, arising from or relating to its compliance or noncompliance with the requirements of this paragraph.

(c) Each satellite in a NVNG licensee's system time-sharing spectrum with NOAA in the 137–138 MHz band shall automatically turn off and cease satellite transmissions if, after 72 consecutive hours, no reset signal is received from the NVNG licensee's gateway earth station and verified by the satellite. All satellites in such NVNG licensee's system shall be capable of instantaneous shutdown on any sub-band upon command from such NVNG licensee's gateway earth station.

[62 FR 59296, Nov. 3, 1997, as amended at 78 FR 8430, Feb. 6, 2013; 79 FR 8324, Feb. 12, 2014]

§ 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.

(b) An NVNG licensee time sharing spectrum in the 400.15–401 MHz band must establish a 24-hour per day contact person and telephone number so that claims of harmful interference into DoD earth stations and other operational issues can be reported and resolved expeditiously. This contact information must be made available to DoD or its designee. If the NTIA notifies the Commission that DoD is receiving unacceptable interference from a NVNG licensee, the Commission will require such NVNG licensee to terminate its interfering operations immediately unless it demonstrates to the Commission's reasonable satisfaction, and that of NTIA, that it is not responsible for causing harmful interference into the worldwide DoD system. A NVNG licensee assumes the risk of any

liability or damage that it and its directors, officers, employees, affiliates, agents and subcontractors may incur or suffer in connection with an interruption of its Mobile-Satellite Service, in whole or in part, arising from or relating to its compliance or noncompliance with the requirements of this paragraph.

(c) Each satellite in a NVNG licensee's system time-sharing spectrum with DoD in the 400.15–401 MHz band shall automatically turn off and cease satellite transmissions if, after 72 consecutive hours, no reset signal is received from the NVNG licensee's gateway earth station and verified by the satellite. All satellites in such NVNG licensee's system shall be capable of instantaneous shutdown on any sub-band upon command from such NVNG licensee's gateway earth station.

(d) Initially, a NVNG licensee time-sharing spectrum with DoD in the 400.15–401 MHz band shall be able to change the frequency on which its system satellites are operating within 125 minutes of receiving notification from a DoD required frequency change in the 400.15–401 MHz band. Thereafter, when a NVNG licensee constructs additional gateway earth stations located outside of North and South America, it shall use its best efforts to decrease to 90 minutes the time required to implement a DoD required frequency change. A NVNG licensee promptly shall notify the Commission and NTIA of any decrease in the time it requires to implement a DoD required frequency change.

(e) Once a NVNG licensee time-sharing spectrum with DoD in the 400.15–401 MHz band demonstrates to DoD that it is capable of implementing a DoD required frequency change within the time required under paragraph (d) of this section, thereafter, such NVNG licensee shall demonstrate its capability to implement a DoD required frequency change only once per year at the instruction of DoD. Such demonstrations shall occur during off-peak hours, as determined by the NVNG licensee, unless otherwise agreed by the NVNG licensee and DoD. Such NVNG licensee will coordinate with DoD in establishing a plan for such a demonstration. In the event that a NVNG licensee fails to demonstrate to DoD that it is capable of implementing a DoD required frequency change in accordance with a demonstration plan established by DoD and the NVNG licensee, upon the Commission's receipt of a written notification from NTIA describing such failure, the Commission shall impose additional conditions or requirements on the NVNG licensee's authorization as may be necessary to protect DoD operations in the 400.15–401 MHz downlink band until the Commission is notified by NTIA that the NVNG licensee has successfully demonstrated its ability to implement a DoD required frequency change. Such additional conditions or requirements may include, but are not limited to, requiring such NVNG licensee immediately to terminate its operations interfering with the DoD system.

[62 FR 59296, Nov. 3, 1997, as amended at 78 FR 8430, Feb. 6, 2013; 79 FR 8325, Feb. 12, 2014]

§ 25.261 Sharing among NGSO FSS space stations.

(a) *Scope.* This section applies to NGSO FSS operation with earth stations with directional antennas anywhere in the world under a Commission license, or in the United States under a grant of U.S. market access.

(b) *Coordination.* NGSO FSS licensees and market access recipients must coordinate in good faith the use of commonly authorized frequencies regardless of their processing round status.

(c) *Default procedure.* Absent coordination between two or more satellite systems, whenever the increase in system noise temperature of an earth station receiver, or a space station receiver for a satellite with on-board processing, of either system, $\Delta T/T$, exceeds 6 percent due to interference from emissions originating in the other system in a commonly authorized frequency band, such frequency band will be divided among the affected satellite networks in accordance with the following procedure:

(1) Each of n (number of) satellite networks involved that were licensed or granted market access through the same processing round, except as provided in paragraph (e) of this section, must select 1/n of the assigned spectrum available in each of these frequency bands. The selection order for

each satellite network will be determined by the date that the first space station in each satellite system is launched and capable of operating in the frequency band under consideration;

(2) The affected station(s) of the respective satellite systems may operate in only the selected (1/n) spectrum associated with its satellite system while the ΔT/T of 6 percent threshold is exceeded;

(3) All affected station(s) may resume operations throughout the assigned frequency bands once the threshold is no longer exceeded.

(d) *Protection of earlier-round systems.* Prior to commencing operations, an NGSO FSS licensee or market access recipient must either certify that it has completed a coordination agreement with any operational NGSO FSS system licensed or granted U.S. market access in an earlier processing round, or submit for Commission approval a compatibility showing which demonstrates by use of a degraded throughput methodology that it will not cause harmful interference to any such system with which coordination has not been completed. If an earlier-round system becomes operational after a later-round system has commenced operations, the later-round licensee or market access recipient must submit a certification of coordination or a compatibility showing with respect to the earlier-round system no later than 60 days after the earlier-round system commences operations as notified pursuant to § 25.121(b) or otherwise.

(1) Compatibility showings must contain the following elements:

(i) A demonstration that the later-round system will cause no more than 3 percent time-weighted average degraded throughput of the link to the earlier-round system, for links with a baseline link availability of 99.0 percent or higher at a C/N threshold of 0 dB;

(ii) A demonstration that the later-round system will cause no more than 0.4 percent absolute change in link availability to the earlier-round system using a C/N threshold value of 0 dB, for links with a baseline link availability of 99.0 percent link availability or higher; and

(iii) With respect to an earlier-round system that has not yet satisfied its 50 percent deployment milestone pursuant to § 25.164(b)(1), the compatibility showing may consider only 50 percent deployment of the earlier-round system; if the 50 percent deployment milestone has been satisfied, the showing must consider 100 percent deployment of the authorized system.

(2) Compatibility showings will be placed on public notice pursuant to § 25.151(a)(13).

(3) While a compatibility showing remains pending before the Commission, the submitting NGSO FSS licensee or market access recipient may commence operations on an unprotected, non-interference basis with respect to the operations of the system that is the subject of the showing.

(4) A later-round NGSO FSS system will be required to conform its operations to its compatibility showing submitted for the protection of an earlier-round system to the extent necessary to protect the actual number of deployed and operating space stations of the earlier-round system.

(e) *Sunsetting.* Ten years after the first authorization or grant of market access in a processing round, the systems approved in that processing round will no longer be required to protect earlier-

rounds systems under paragraph (d) of this section, and instead will be required to share spectrum with earlier-round systems under paragraph (c) of this section.

[82 FR 59986, Dec. 18, 2017, as amended at 88 FR 39792, June 20, 2023; 89 FR 100917, Dec. 13, 2024; 90 FR 7651, Jan. 22, 2025]

EFFECTIVE DATE NOTE: At 88 FR 39792, June 20, 2023, § 25.261 was amended, delayed indefinitely.

§ 25.262 Licensing and domestic coordination requirements for 17/24 GHz BSS space stations and FSS space stations transmitting in the 17.3–17.8 GHz band.

(a) A 17/24 GHz BSS or FSS applicant seeking to transmit in the 17.3–17.8 GHz band may be authorized to operate a space station at levels up to the maximum power flux density limits defined in paragraphs (a)(1) and (2) of this section without coordinating its power

flux density levels with adjacent licensed or permitted operators, as follows:

(1) For 17/24 GHz BSS applicants, up to the power flux density levels specified in §25.140(b)(3) only if there is no licensed space station, or prior-filed application for a space station transmitting in the 17.3–17.8 GHz band at a location less than four degrees from the orbital location at which the applicant proposes to operate; and

(2) For FSS space station applicants transmitting in the 17.3–17.8 GHz band, up to the maximum power flux density levels in §25.140(a)(3)(iii), only if there is no licensed 17/24 GHz BSS space station, or prior-filed application for a 17/24 GHz BSS space station, at a location less than four degrees from the orbital location at which the FSS applicant proposes to operate, and there is no licensed FSS space station, or prior-filed application for an FSS space station transmitting in the 17.3–17.8 GHz band, at a location less than two degrees from the orbital location at which the applicant proposes to operate.

(b) Any U.S. licensee or permittee authorized to transmit in the 17.3–17.8 GHz band that does not comply with the applicable power flux-density limits set forth in §25.140(a)(3)(iii) and/or (b)(3) shall bear the burden of coordinating with any future co-frequency licensees and permittees of a space station transmitting in the 17.3–17.8 GHz band as required in §25.114(d)(15)(ii).

(c) If no good faith agreement can be reached, the operator of the FSS space station transmitting in the 17.3–17.8 GHz band that does not comply with §25.140(a)(3)(iii) or the operator of the 17/24 GHz BSS space station that does not comply with §25.140(b)(3), shall reduce its power flux-density levels to be compliant with those specified in §25.140(a)(3)(iii) and/or (b)(3) as appropriate.

(d) Any U.S. licensee or permittee of a space station transmitting in the 17.3–17.8 GHz band that is required to provide information in its application pursuant to §25.140(a)(2) or (b)(4) must accept any increased interference that may result from adjacent space stations transmitting in the 17.3–17.8 GHz band that are operating in compliance with the rules for such space stations specified in §§25.140(a) and (b), 25.202(a)(9) and (e) through (g), 25.210(i) through (j), 25.224, 25.262, 25.264(h), and 25.273(a)(3).

(e) Notwithstanding the provisions of this section, licensees and permittees will be allowed to apply for a license or authorization for a replacement satellite that will be operated at the same power level and interference protection as the satellite to be replaced.

[87 FR 72407, Nov. 25, 2022]

§ 25.263 Information sharing requirements for SDARS terrestrial repeater operators.

This section requires SDARS licensees in the 2320–2345 MHz band to share information regarding the location and operation of terrestrial repeaters with WCS licensees in the 2305–2320 MHz and 2345–2360 MHz bands. Section 27.72 of this chapter requires WCS licensees to share information regarding the location and operation of base stations in the 2305–2320 MHz and 2345–2360 MHz bands with SDARS licensees in the 2320–2345 MHz band.

(a) SDARS licensees must select terrestrial repeater sites and frequencies, to the extent practicable, to minimize the possibility of harmful interference to WCS base station operations in the 2305–2320 MHz and 2345–2360 MHz bands.

(b) *Notice requirements.* SDARS licensees that intend to operate a new terrestrial repeater must, before commencing such operation, provide 10 business days prior notice to all potentially affected Wireless Communications Service (WCS) licensees. SDARS licensees that intend to modify an existing repeater must, before commencing such modified operation, provide 5 business days prior notice to all potentially affected WCS licensees.

(1) For purposes of this section, a ''potentially affected WCS licensee'' is a WCS licensee that:

(i) Is authorized to operate a base station in the 2305–2315 MHz or 2350–2360 MHz bands in the same Major Economic Area (MEA) as that in which the terrestrial repeater is to be located;

(ii) Is authorized to operate base station in the 2315–2320 MHz or 2345–2350 MHz bands in the same Regional Economic Area Grouping (REAG) as that

in which the terrestrial repeater is to be located;

(iii) In addition to the WCS licensees identified in paragraphs (b)(1)(i) and (ii) of this section, in cases in which the SDARS licensee plans to deploy or modify a terrestrial repeater within 5 kilometers of the boundary of an MEA or REAG in which the terrestrial repeater is to be located, a potentially affected WCS licensee is one that is authorized to operate a WCS base station in that neighboring MEA or REAG within 5 kilometers of the location of the terrestrial repeater.

(2) For the purposes of this section, a business day is defined by §1.4(e)(2) of this chapter.

(3) For modifications other than changes in location, a licensee may provide notice within 24 hours after the modified operation if the modification does not result in a predicted increase of the power flux density (PFD) at ground level by more than 1 dB since the last advance notice was given. If a demonstration is made by the WCS licensee that such modifications may cause harmful interference to WCS receivers, SDARS licensees will be required to provide notice 5 business days in advance of additional repeater modifications.

(4) SDARS repeaters operating below 2 watts equivalent isotropically radiated power (EIRP) are exempt from the notice requirements set forth in this paragraph.

(5) SDARS licensees are encouraged to develop separate coordination agreements with WCS licensees to facilitate efficient deployment of and coexistence between each service. To the extent the provisions of any such coordination agreement conflict with the requirements set forth herein, the procedures established under a coordination agreement will control. SDARS licensees must maintain a copy of any coordination agreement with a WCS license in their station files and disclose it to prospective assignees, transferees, or spectrum lessees and, upon request, to the Commission.

(6) SDARS and WCS licensees may enter into agreements regarding alternative notification procedures.

(c) *Contents of notice.* (1) Notification must be written (*e.g.*, certified letter, fax, or e-mail) and include the licensee's name, and the name, address, and telephone number of its coordination representative, unless the SDARS licensee and all potentially affected WCS licensees reach a mutual agreement to provide notification by some other means. WCS licensees and SDARS licensees may establish such a mutually agreeable alternative notification mechanism without prior Commission approval, provided that they comply with all other requirements of this section.

(2) Regardless of the notification method, notification must specify relevant technical details, including, at a minimum:

(i) The coordinates of the proposed repeater to an accuracy of no less than ±1 second latitude and longitude;

(ii) The proposed operating power(s), frequency band(s), and emission(s);

(iii) The antenna center height above ground and ground elevation above mean sea level, both to an accuracy of no less than ±1 meter;

(iv) The antenna gain pattern(s) in the azimuth and elevation planes that include the peak of the main beam; and

(v) The antenna downtilt angle(s).

(3) An SDARS licensee operating terrestrial repeaters must maintain an accurate and up-to-date inventory of its terrestrial repeaters operating above 2 watts average EIRP, including the information set forth in §25.263(c)(2), which shall be available upon request by the Commission.

(d) *Calculation of Notice Period.* Notice periods are calculated from the date of receipt by the licensee being notified. If notification is by mail, the date of receipt is evidenced by the return receipt on certified mail. If notification is by fax, the date of receipt is evidenced by the notifying party's fax transmission confirmation log. If notification is by e-mail, the date of receipt is evidenced by a return e-mail receipt. If the SDARS licensee and all potentially affected WCS licensees reach a mutual agreement to provide notification by some other means, that agreement must specify the method for determining the beginning of the notice period.

(e) *Duty to cooperate.* SDARS licensees must cooperate in good faith in the

selection and use of new repeater sites to reduce interference and make the most effective use of the authorized facilities. SDARS licensees should provide WCS licensees as much lead time as practicable to provide ample time to conduct analyses and opportunity for prudent repeater site selection prior to SDARS licensees entering into real estate and tower leasing or purchasing agreements. Licensees of stations suffering or causing harmful interference must cooperate in good faith and resolve such problems by mutually satisfactory arrangements. If the licensees are unable to do so, the Space Bureau, in consultation with the Office of Engineering and Technology and the Wireless Telecommunications Bureau, will consider the actions taken by the parties to mitigate the risk of and remedy any alleged interference. In determining the appropriate action, the Bureau will take into account the nature and extent of the interference and act promptly to remedy the interference. The Bureau may impose restrictions on SDARS licensees, including specifying the transmitter power, antenna height, or other technical or operational measures to remedy the interference, and will take into account previous measures by the licensees to mitigate the risk of interference.

[75 FR 45069, Aug. 2, 2010, as amended at 78 FR 9619, Feb. 11, 2013; 88 FR 21441, Apr. 10, 2023]

§ 25.264 Requirements to facilitate reverse-band operation in the 17.3–17.8 GHz band.

(a) Each applicant or licensee for a space station transmitting in the 17.3–17.8 GHz band must submit a series of tables or graphs containing predicted off-axis gain data for each antenna that will transmit in any portion of the 17.3–17.8 GHz band, in accordance with the following specifications. Using a Cartesian coordinate system wherein the X axis is tangent to the geostationary orbital arc with the positive direction pointing east, *i.e.*, in the direction of travel of the satellite; the Y axis is parallel to a line passing through the geographic north and south poles of the Earth, with the positive direction pointing south; and the Z axis passes through the satellite and the center of the Earth, with the positive direction pointing toward the Earth, the applicant or licensee must provide the predicted transmitting antenna off-axis antenna gain information:

(1) In the X–Z plane, *i.e.*, the plane of the geostationary orbit, over a range of ±30 degrees from the positive and negative X axes in increments of 5 degrees or less.

(2) In planes rotated from the X–Z plane about the Z axis, over a range of ±60 degrees relative to the equatorial plane, in increments of 10 degrees or less.

(3) In both polarizations.

(4) At a minimum of one measurement frequency at the center of the portion of the 17.3–17.8 GHz frequency band over which the space station is designed to transmit. Applicants or licensees must provide additional measurement data at 5 MHz above the lower edge of the band and/or at 5 MHz below the upper edge of the band, upon request by the Commission staff.

(5) Over a greater angular measurement range, if necessary, to account for any planned spacecraft orientation bias or change in operating orientation relative to the reference coordinate system. The applicant or licensee must state the reasons for including such additional information.

(6) The predictive gain information must be submitted to the Commission for each license application that is filed for a space station transmitting in any portion of the 17.3–17.8 GHz band no later than two years after license grant for the space station.

(b) A space station applicant or licensee transmitting in any portion of the 17.3–17.8 GHz band must submit power flux density (pfd) calculations based on the predicted gain data submitted in accordance with paragraph (a) of this section, as follows:

(1) The pfd calculations must be provided at the location of all prior-filed U.S. DBS space stations where the applicant's pfd level exceeds the coordination trigger of -117 dBW/m^2/100 kHz in the 17.3–17.8 GHz band. In this rule, the term prior-filed U.S. DBS space station refers to any co-frequency Direct Broadcast Satellite service space station for which an application was

filed with the Commission, or an authorization was granted by the Commission, prior to the filing of the information and certifications required by paragraphs (a) and (b) of this section. The term prior-filed U.S. DBS space station does not include any applications (or authorizations) that have been denied, dismissed, or are otherwise no longer valid. Prior-filed U.S. DBS space stations may include foreign-licensed DBS space stations seeking authority to serve the United States market, but do not include foreign-licensed DBS space stations that have not filed applications with the Commission for market access in the United States.

(2) The calculations must take into account the aggregate pfd levels at the DBS receiver at each measurement frequency arising from all antenna beams on the space station transmitting in the 17.3–17.8 GHz band. They must also take into account the maximum permitted longitudinal station-keeping tolerance, orbital inclination and orbital eccentricity of both the space station transmitting in the 17.3–17.8 GHz band and DBS space stations, and must:

(i) Identify each prior-filed U.S. DBS space station at whose location the coordination threshold pfd level of −117 dBW/m^2/100 kHz is exceeded; and

(ii) Indicate the extent to which the calculated pfd of the space station's transmissions in the 17.3–17.8 GHz band exceed the threshold pfd level of −117 dBW/m^2/100 kHz at those prior-filed U.S. DBS space station locations.

(3) If the calculated pfd exceeds the threshold level of −117 dBW/m^2/100 kHz at the location of any prior-filed U.S. DBS space station, the applicant or licensee must also provide with the pfd calculations a certification that all affected DBS operators acknowledge and do not object to such higher off-axis pfd levels. No such certification is required in cases where the frequencies assigned to the DBS and to the space station transmitting in the 17.3–17.8 GHz band do not overlap.

(4) The information and any certification required by paragraph (b) of this section must be submitted to the Commission for each license application that is filed for a space station transmitting in any portion of the 17.3–17.8 GHz band no later than two years after license grant for the space station.

(c) No later than two months prior to launch, each licensee of a space station transmitting in any portion of the 17.3–17.8 GHz band must update the predicted transmitting antenna off-axis gain information provided in accordance with paragraph (a) of this section by submitting measured transmitting antenna off-axis gain information over the angular ranges, measurement frequencies and polarizations specified in paragraphs (a)(1) through (5) of this section. The transmitting antenna off-axis gain information should be measured under conditions as close to flight configuration as possible. As an alternative, licensees authorized to operate at locations one degree or greater from a prior-filed DBS space station may submit simulated transmitting antenna off-axis gain data in lieu of measured data, over the same angular ranges, frequencies and polarizations.

(d) No later than two months prior to launch, or when applying for authority to change the location of a space station transmitting in any portion of the 17.3–17.8 GHz band that is already in orbit, each such space station licensee must provide pfd calculations based on the measured off-axis gain data submitted in accordance with paragraph (c) of this section, as follows:

(1) The pfd calculations must be provided:

(i) At the location of all prior-filed U.S. DBS space stations as defined in paragraph (b)(1) of this section, where the applicant's pfd level in the 17.3–17.8 GHz band exceeds the coordination trigger of −117 dBW/m^2/100 kHz; and

(ii) At the location of any subsequently filed U.S. DBS space station where the pfd level in the 17.3–17.8 GHz band calculated on the basis of measured gain data exceeds −117 dBW/m^2/100 kHz. In this paragraph (d)(1)(ii), the term ''subsequently filed U.S. DBS space station'' refers to any co-frequency Direct Broadcast Satellite service space station proposed in a license application filed with the Commission after the operator of a space station transmitting in any portion of the 17.3–17.8 GHz band submitted the predicted data required by paragraphs (a) and (b)

of this section but before submission of the measured data required by this paragraph. Subsequently filed U.S. DBS space stations may include foreign-licensed DBS space stations seeking authority to serve the United States market. The term does not include any applications (or authorizations) that have been denied, dismissed, or are otherwise no longer valid, nor does it include foreign-licensed DBS space stations that have not filed applications with the Commission for market access in the United States.

(2) The pfd calculations must take into account the maximum permitted longitudinal station-keeping tolerance, orbital inclination and orbital eccentricity of both the transmitting 17.3–17.8 GHz and DBS space stations, and must:

(i) Identify each prior-filed U.S. DBS space station at whose location the coordination threshold pfd level of −117 dBW/m^2/100 kHz is exceeded; and

(ii) Demonstrate the extent to which the applicant's or licensee's transmissions in the 17.3–17.8 GHz band exceed the threshold pfd level of −117 dBW/m^2/100 kHz at those prior-filed U.S. DBS space station locations.

(e) If the aggregate pfd level calculated from the measured data submitted in accordance with paragraph (d) of this section is in excess of the threshold pfd level of −117 dBW/m^2/100 kHz:

(1) At the location of any prior-filed U.S. DBS space station as defined in paragraph (b)(1) of this section, then the operator of the space station transmitting in any portion of the 17.3–17.8 GHz band must either:

(i) Coordinate its operations that are in excess of the threshold pfd level of −117 dBW/m^2/100 kHz with the affected prior-filed U.S. DBS space station operator, or

(ii) Adjust its operating parameters so that at the location of the prior-filed U.S. DBS space station, the pfd level of −117 dBW/m^2/100 kHz is not exceeded.

(2) At the location of any subsequently filed U.S. DBS space station as defined in paragraph (d)(1) of this section, where the aggregate pfd level submitted in accordance with paragraph (d) of this section is also in excess of the pfd level calculated on the basis of the predicted data submitted in accordance with paragraph (a) of this section that were on file with the Commission at the time the DBS space station application was filed, then the operator of the space station transmitting in the 17.3–17.8 GHz band must either:

(i) Coordinate with the affected subsequently-filed U.S. DBS space station operator all of its operations that are either in excess of the pfd level calculated on the basis of the predicted antenna off-axis gain data, or are in excess of the threshold pfd level of −117 dBW/m^2/100 kHz, whichever is greater, or

(ii) Adjust its operating parameters so that at the location of the subsequently-filed U.S. DBS space station, either the pfd level calculated on the basis of the predicted off-axis transmitting antenna gain data, or the threshold pfd level of −117 dBW/m^2/100 kHz, whichever is greater, is not exceeded.

(3) No coordination or adjustment of operating parameters is required in cases where there is no overlap in frequencies assigned to the DBS and the space station transmitting in the 17.3–17.8 GH band.

(f) The applicant or licensee for the space station transmitting in the 17.3–17.8 GHz band must modify its license, or amend its application, as appropriate, based upon new information:

(1) If the pfd levels submitted in accordance with paragraph (d) of this section, are in excess of those submitted in accordance with paragraph (b) of this section at the location of any prior-filed or subsequently-filed U.S. DBS space station as defined in paragraphs (b)(1) and (d)(1)of this section, or

(2) If the operator of the space station transmitting in the 17.3–17.8 GHz band adjusts its operating parameters in accordance with paragraph (e)(1)(ii) or (e)(2)(ii) or this section.

(g) Absent an explicit agreement between operators to permit more closely spaced operations, U.S. authorized 17/24 GHz BSS or FSS space stations transmitting in the 17.3–17.8 GHz band and U.S. authorized DBS space stations with co-frequency assignments may not be licensed to operate at locations

separated by less than 0.2 degrees in orbital longitude.

(h) All operational space stations transmitting in the 17.3–17.8 GHz band must be maintained in geostationary orbits that:

(1) Do not exceed 0.075° of inclination.

(2) Operate with an apogee less than or equal to 35,806 km above the surface of the Earth, and with a perigee greater than or equal to 35,766 km above the surface of the Earth (*i.e.*, an eccentricity of less than 4.7×10^{-4}).

(i) U.S. authorized DBS networks may claim protection from space path interference arising from the reverse-band operations of U.S. authorized space stations transmitting in the 17.3–17.8 GHz band to the extent that the DBS space station operates within the bounds of inclination and eccentricity listed in paragraphs (i)(1) and (2) of this section. When the geostationary orbit of the DBS space station exceeds these bounds on inclination and eccentricity, it may not claim protection from any additional space path interference arising as a result of its inclined or eccentric operations and may only claim protection as if it were operating within the bounds listed in paragraphs (i)(1) and (2) of this section:

(1) The DBS space station's orbit does not exceed 0.075° of inclination, and

(2) The DBS space station's orbit maintains an apogee less than or equal to 35,806 km above the surface of the Earth, and a perigee greater than or equal to 35,766 km above the surface of the Earth (*i.e.*, an eccentricity of less than 4.7×10^{-4}).

[76 FR 50431, Aug. 15, 2011, as amended at 81 FR 55348, Aug. 18, 2016; 87 FR 72407, Nov. 25, 2022; 89 FR 58072, 58074, July 17, 2024]

§ 25.265 Acceptance of interference in 2000–2020 MHz.

(a) MSS receivers operating in the 2000–2020 MHz band must accept interference from lawful operations in the 1995–2000 MHz band, where such interference is due to:

(1) The in-band power of any operations in 1995–2000 MHz (*i.e.*, the portion of transmit power contained in the 1995–2000 MHz band); or

(2) The portion of out-of-band emissions contained in 2000–2005 MHz.

(b) [Reserved]

[78 FR 8267, Feb. 5, 2013]

Subpart D—Technical Operations

SOURCE: 58 FR 13421, Mar. 11, 1993, unless otherwise noted.

§ 25.271 Control of transmitting stations.

(a) The licensee of a facility licensed under this part is responsible for the proper operation and maintenance of the station.

(b) The licensee of a transmitting earth station licensed under this part shall ensure that a trained operator is present on the earth station site, or at a designated remote control point for the earth station, at all times that transmissions are being conducted. No operator's license is required for a person to operate or perform maintenance on facilities authorized under this part.

(c) Authority will be granted to operate a transmitting earth station by remote control only on the conditions that:

(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);

(2) The earth station facilities are protected by appropriate security measures to prevent unauthorized entry or operations;

(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

(4) The licensee shall have available at all times the technical personnel necessary to perform expeditiously the

technical servicing and maintenance of the remote stations.

(5) Operators of blanket-licensed GSO FSS earth station networks that provide international service must maintain a control point within the United States, or maintain a point of contact within the United States available 24 hours a day, 7 days a week, with the ability to shut off any earth station within the network immediately upon notification of harmful interference.

(d) The licensee shall ensure that the licensed facilities are properly secured against unauthorized access or use whenever an operator is not present at the transmitter. For space station operations, this includes securing satellite commands against unauthorized access and use.

(e) [Reserved]

(f) The licensee of any transmitting earth station licensed under this part must update the contact information provided in the most recent license application for the station within 10 days of any change therein. The updated information must be filed electronically in the ''Other Filings'' tab of the station's current authorization file in the International Communications Filing System.

(g) All applicants shall ensure compliance with the Commission's radio frequency exposure requirements in §§ 1.1307(b), 2.1091, and 2.1093 of this chapter, as appropriate. Applicants with terminals that will exceed the guidelines in § 1.1310 of this chapter for radio frequency radiation exposure shall provide a plan for mitigation of radiation exposure to the extent required to meet those guidelines. Licensees of transmitting earth stations are prohibited from using remote earth stations in their networks that are not designed to stop transmission when synchronization to signals from the target satellite fails.

[58 FR 13421, Mar. 11, 1993, as amended at 66 FR 10631, Feb. 16, 2001; 70 FR 4787, Jan. 31, 2005; 70 FR 32257, June 2, 2005; 74 FR 47107, Sept. 15, 2009; 78 FR 8430, Feb. 6, 2013; 79 FR 8325, Feb. 12, 2014; 81 FR 55349, Aug. 18, 2016; 82 FR 59986, Dec. 18, 2017; 85 FR 18150, Apr. 1, 2020; 85 FR 52453, Aug. 25, 2020; 88 FR 21442, Apr. 10, 2023]

§ 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.

(b) [Reserved]

(c) The transmitting earth station licensee shall provide the operator(s) of the satellites, on which the licensee is authorized to transmit, contact telephone numbers for the control center of the earth station and emergency telephone numbers for key personnel; a current file of these contacts shall be maintained at each satellite system control center.

(d) An earth station licensee shall ensure that each of its authorized earth stations complies with the following:

(1) The earth station licensee shall ensure that there is continuously available means of communications between the satellite network control center and the earth station operator or its remote control point as designated by the licensee.

(2) The earth station operator shall notify the satellite network control center and receive permission from the control center before transmitting to the satellite or changing the basic characteristics of a transmission.

(3) The earth station operator shall keep the space station licensee informed of all actual and planned usage.

(4) Upon approval of the satellite network control center, the earth station operator may radiate an RF carrier into the designated transponder. Should improper illumination of the transponder or undue adjacent transponder interference be observed by the satellite network control center, the earth station operator shall immediately take whatever measures are needed to eliminate the problem.

(5) The space station licensee may delegate the responsibility and duties of the satellite network control center to a technically qualified user or group of users, but the space station licensee shall remain ultimately responsible for the performance of those duties.

[58 FR 13421, Mar. 11, 1993, as amended at 62 FR 5931, Feb. 10, 1997; 78 FR 8431, Feb. 6, 2013; 79 FR 8325, Feb. 12, 2014]

§ 25.273 Duties regarding space communications transmissions.

(a) No person shall:

(1) Transmit to a satellite unless the specific transmission is first authorized by the satellite network control center;

(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

(3) Transmit in any manner that causes unacceptable interference to the authorized transmission of another licensee.

(b) Satellite operators shall provide upon request by the Commission and by earth station licensees authorized to transmit on their satellites relevant information needed to avoid unacceptable interference to other users, including the polarization angles for proper illumination of a given transponder.

(c) Space station licensees are responsible for maintaining complete and accurate technical details of current and planned transmissions over their satellites, and shall require that authorized users of transponders on their satellites, whether by tariff or contract, provide any necessary technical information in this regard including that required by § 25.272. Based on this information, space station licensees shall exchange among themselves general technical information concerning current and planned transmission parameters as needed to identify and promptly resolve any potential cases of unacceptable interference between their satellite systems.

(d) Space stations authorized after May 10, 1993 which do not satisfy the requirements of § 25.210 may be required to accept greater constraints in resolving interference problems than complying ones. The extent of these constraints shall be determined on a case-by-case basis.

[58 FR 13421, Mar. 11, 1993, as amended at 78 FR 8431, Feb. 6, 2013]

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

(a) The earth station operator whose transmission is suffering harmful interference shall first check the earth station equipment to ensure that the equipment is functioning properly.

(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.

(c) After the earth station operator has determined that the source of the interference is not another earth station operating in the same network or from a terrestrial source, the earth station operator shall contact the satellite system control center and advise the satellite operator of the problem. The control center operator shall observe the interference incident and make reasonable efforts to determine the source of the problem. A record shall be maintained by the control center operator and the earth station operator of all harmful interference incidents and their resolution. These records shall be made available to an FCC representative on request.

(d) Where the suspected source of the interference incident is the operation of an earth station licensed to operate on one or more of the satellites in the satellite operator's system, the control center operator shall advise the offending earth station of the harmful interference incident and assist in the resolution of the problem where reasonably possible.

(e) The earth station licensee whose operations are suspected of causing harmful interference to the operations of another earth station shall take reasonable measures to determine whether its operations are the source of the harmful interference problem. Where the operations of the suspect earth station are the source of the interference, the licensee of that earth station shall

take all measures necessary to resolve the interference.

(f) Where the earth station suspected of causing harmful interference to the operations of another earth station cannot be identified or is identified as an earth station operating on a satellite system other than the one on which the earth station suffering harmful interference is operating, it is the responsibility of a representative of the earth station suffering harmful interference to contact the control center of other satellite systems. The operator of the earth station suffering harmful interference is free to choose any representative to make this contact, including but not limited to the operator of the satellite system on which the earth station is operating. The operator of the earth station suffering harmful interference is also free to contact the control center of the other satellite systems directly.

(g) At any point, the system control center operator may contact the Commission's Columbia Operations Center in Columbia, Maryland, to assist in resolving the matter. This office specializes in the resolution of satellite interference problems. All licensees are required to cooperate fully with the Commission in any investigation of interference problems.

[58 FR 13421, Mar. 11, 1993, as amended at 62 FR 5931, Feb. 10, 1997; 70 FR 32257, June 2, 2005; 78 FR 8431, Feb. 6, 2013]

§ 25.275 Particulars of operation.

(a) Radio station authorizations issued under this part will normally specify only the frequency bands authorized for transmission and/or reception of the station.

(b) When authorized frequency bands are specified in the station authorization, the licensee is authorized to transmit any number of r.f. carriers on any discrete frequencies within an authorized frequency band in accordance with the other terms and conditions of the authorization and the requirements of this part. Specific r.f. carrier frequencies within the authorized frequency band shall be selected by the licensee to avoid unacceptable levels of interference being caused to other earth, space or terrestrial stations. Any coordination agreements, both domestic and international, concerning specific frequency usage constraints, including non-use of any particular frequencies within the frequency bands listed in the station authorization, are considered to be conditions of the station authorization.

(c) A license for a transmitting earth station will normally specify only the r.f. carriers having the highest e.i.r.p. density, the narrowest bandwidth, and the largest bandwidth authorized for transmission from that station. Unless otherwise specified in the station authorization, the licensee is authorized to transmit any other type of carrier not specifically listed which does not exceed the highest e.i.r.p., e.i.r.p. density and bandwidth prescribed for any listed emission.

(d) Only the most sensitive emission(s) for which protection is being afforded from interference in the authorized receive frequency band(s) will be specified in the station authorization.

(e) Transmission from an earth station of an unmodulated carrier at a power level sufficient to saturate a satellite transponder is prohibited, except as consented to by the space station licensee to determine transponder performance characteristics.

[58 FR 13421, Mar. 11, 1993, as amended at 81 FR 55349, Aug. 18, 2016]

§ 25.276 Points of communication.

Unless otherwise specified in the station authorization, an earth station may transmit to any space station in the same radio service that is listed as a point of communication in the earth station license, provided that permission has been received from the space station operator to access that space station.

[79 FR 8325, Feb. 12, 2014]

§ 25.277 Temporary fixed earth station operations.

(a) When an earth station in the Fixed-Satellite Service is to remain at a single location for fewer than 6 months, the location may be considered to be temporary fixed. Services provided at a single location which are initially known to be of longer than six months' duration shall not be provided under a temporary fixed authorization.

(b) When a station, other than an ESV, authorized as a temporary fixed earth station, is to remain at a single location for more than six months, application for a regular station authorization at that location shall be filed at least 30 days prior to the expiration of the six-month period.

(c) The licensee of an earth station, other than an ESV, which is authorized to conduct temporary fixed operations in bands shared co-equally with terrestrial fixed stations shall provide the following information to the Director of the Columbia Operations Center at 9200 Farmhouse Lane, Columbia, Maryland 21046, and to the licensees of all terrestrial facilities lying within the coordination contour of the proposed temporary fixed earth station site before beginning transmissions:

(1) The name of the person operating the station and the telephone number at which the operator can be reached directly;

(2) The exact frequency or frequencies used and the type of emissions and power levels to be transmitted; and

(3) The commencement and anticipated termination dates of operation from each location.

(d) Except as set forth in §25.151(e), transmissions may not be commenced until all affected terrestrial licensees have been notified and the earth station operator has confirmed that unacceptable interference will not be caused to such terrestrial stations.

(e) Operations of temporary fixed earth stations shall cease immediately upon notice of harmful interference from the Commission or the affected licensee.

(f) Filing requirements concerning applications for new temporary fixed earth station facilities operating in frequency bands shared co-equally with terrestrial fixed stations.

(1) When the initial location of the temporary fixed earth station's operation is known, the applicant shall provide, as part of the Form 312 application, a frequency coordination report in accordance with §25.203 for the initial station location.

(2) When the initial location of the temporary fixed earth station's operation is not known at the time the application is filed, the applicant shall provide, as part of the Form 312 application, a statement by the applicant acknowledging its coordination responsibilities under §25.277.

[58 FR 13421, Mar. 11, 1993, as amended at 62 FR 5931, Feb. 10, 1997; 70 FR 4787, Jan. 31, 2005; 70 FR 32257, June 2, 2005]

§25.278 Additional coordination obligation for non-geostationary and geostationary satellite systems in frequencies allocated to the fixed-satellite service.

Licensees of non-geostationary satellite systems that use frequency bands allocated to the Fixed-Satellite Service for their feeder link operations shall coordinate their operations with licensees of geostationary Fixed-Satellite Service systems licensed by the Commission for operation in the same frequency bands. Licensees of geostationary Fixed-Satellite Service systems in the frequency bands that are licensed to non-geostationary satellite systems for feeder link operations shall coordinate their operations with the licensees of such non-geostationary satellite systems.

[59 FR 53330, Oct. 21, 1994, as amended at 78 FR 8431, Feb. 6, 2013]

§25.279 Inter-satellite service.

(a) Any satellite communicating with other space stations may use frequencies in the inter-satellite service as indicated in §2.106 of this chapter. This does not preclude the use of other frequencies for such purposes as provided for in several service definitions, *e.g.*, FSS. The technical details of the proposed inter-satellite link shall be provided in accordance with §25.114(c).

(b) *Operating conditions.* In order to ensure compatible operations with authorized users in the frequency bands to be utilized for operations in the inter-satellite service, these inter-satellite service systems must operate in accordance with the conditions specified in this section.

(1) *Coordination requirements with federal government users.* (i) In frequency bands allocated for use by the inter-satellite service that are also authorized for use by agencies of the federal government, the federal use of frequencies in the inter-satellite service

frequency bands is under the regulatory jurisdiction of the National Telecommunications and Information Administration (NTIA).

(ii) The Commission will use its existing procedures to reach agreement with NTIA to achieve compatible operations between federal government users under the jurisdiction of NTIA and inter-satellite service systems through frequency assignment and coordination practice established by NTIA and the Interdepartment Radio Advisory Committee (IRAC). In order to facilitate such frequency assignment and coordination, applicants shall provide the Commission with sufficient information to evaluate electromagnetic compatibility with the federal government users of the spectrum, and any additional information requested by the Commission. As part of the coordination process, applicants shall show that they will not cause interference to authorized federal government users, based upon existing system information provided by the government. The frequency assignment and coordination of the satellite system shall be completed prior to grant of construction authorization.

(2) *Coordination among inter-satellite service systems.* Applicants for authority to establish inter-satellite service are encouraged to coordinate their proposed frequency usage with existing permittees and licensees in the inter-satellite service whose facilities could be affected by the new proposal in terms of frequency interference or restricted system capacity. All affected applicants, permittees, and licensees, shall at the direction of the Commission, cooperate fully and make every reasonable effort to resolve technical problems and conflicts that may inhibit effective and efficient use of the radio spectrum; however, the permittee or licensee being coordinated with is not obligated to suggest changes or re-engineer an applicant's proposal in cases involving conflicts.

[59 FR 53331, Oct. 21, 1994, as amended at 65 FR 59144, Oct. 4, 2000]

§ 25.280 Inclined orbit operations.

(a) Satellite operators may commence operation in inclined orbit mode without obtaining prior Commission authorization provided that the Commission is notified by letter within 30 days after the last north-south station keeping maneuver. The notification shall include:

(1) The operator's name;

(2) The date of commencement of inclined orbit operation;

(3) The initial inclination;

(4) The rate of change in inclination per year; and

(5) The expected end-of-life of the satellite accounting for inclined orbit operation, and the maneuvers specified under § 25.283 of the Commission's rules.

(b) Licensees operating in inclined-orbit are required to:

(1) Periodically correct the satellite attitude to achieve a stationary spacecraft antenna pattern on the surface of the Earth and centered on the satellite's designated service area;

(2) Control all electrical interference to adjacent satellites, as a result of operating in an inclined orbit, to levels not to exceed that which would be caused by the satellite operating without an inclined orbit;

(3) Not claim protection in excess of the protection that would be received by the satellite network operating without an inclined orbit; and

(4) Continue to maintain the space station at the authorized longitude orbital location in the geostationary satellite arc with the appropriate east-west station-keeping tolerance.

[69 FR 54587, Sept. 9, 2004]

§ 25.281 Transmitter identification requirements for video uplink transmissions.

(a) Earth-to-space transmissions carrying video information with analog modulation must be identified through use of an Automatic Transmitter Identification System (ATIS) with an analog identifier or a direct sequence spread spectrum signal.

(1) Use of an analog identifier must be in accordance with the following requirements:

(i) The ATIS signal must be a separate subcarrier that is automatically activated whenever any radio frequency signal is transmitted.

(ii) The ATIS message must continuously repeat.

(iii) The ATIS subcarrier signal must be generated at a frequency of 7.1 MHz ±25 kHz and modulate the uplink radio frequency carrier at a level no less than −26 dB (referenced to the unmodulated carrier).

(iv) ATIS subcarrier deviation must not exceed 25 kHz.

(v) The ATIS message protocol must be International Morse Code keyed by a 1200 Hz ±800 Hz tone representing a mark and a message rate of 15 to 25 words per minute. The tone must frequency-modulate the subcarrier signal with the ATIS message.

(vi) The ATIS message must include the FCC-assigned call sign of the transmitting earth station, a telephone number providing immediate access to personnel capable of resolving interference or coordination problems, and a unique serial number of ten or more digits programmed into the ATIS message in a permanent manner so that it cannot be readily changed by the operator on duty. Additional information may be included in the ATIS data stream provided the total ATIS message length does not exceed 30 seconds.

(2) Use of a direct sequence spread spectrum ATIS signal must be in accordance with the requirements in paragraphs (b)(1) and (2) of this section.

(b) As of September 3, 2017, transmissions of fixed-frequency, digitally modulated video signals with a symbol rate of 128,000/s or more from a temporary-fixed earth station must be identified through use of an ATIS in accordance with the requirements that follow.

(1) The ATIS message must be modulated onto a direct sequence spread spectrum signal in accordance with the DVB–CID standard, ETSI TS 103 129 V1.1.2 (2014–03) (incorporated by reference, *see* § 25.108).

(2) The ATIS message must continuously repeat.

NOTE 1 TO PARAGRAPH (b): Paragraph (b) is waived for earth stations using modulators manufactured before August 1, 2017, that cannot be made compliant with the DVB–CID standard by a software upgrade.

(c) ATIS equipment must be integrated into the uplink transmitter chain with a method that cannot easily be defeated.

[79 FR 8325, Feb. 12, 2014; 81 FR 33601, May 31, 2016, as amended at 82 FR 40494, Aug. 25, 2017]

§ 25.282 Orbit raising maneuvers.

A space station authorized to operate in the geostationary satellite orbit under this part is also authorized to transmit in connection with short-term, transitory maneuvers directly related to post-launch, orbit-raising maneuvers, provided that the following conditions are met:

(a) Authority is limited to those tracking, telemetry, and control frequencies in which the space station is authorized to operate once it reaches its assigned geostationary orbital location;

(b) The space station operator will coordinate on an operator-to-operator basis with any potentially affected satellite networks.

(c) The space station licensee is required to accept interference from any lawfully operating satellite network or radio communication system.

[69 FR 54587, Sept. 9, 2004, as amended at 85 FR 52453, Aug. 25, 2020]

§ 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:

$36{,}021\ \text{km} + (1000 \cdot C_R \cdot A/m)$

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.

(b) *Geostationary orbit space station end of life operations.* A space station authorized to operate in the geostationary satellite orbit under this part may operate using its authorized

tracking, telemetry and control frequencies, and outside of its assigned orbital location, for the purpose of removing the satellite from the geostationary satellite orbit at the end of its useful life, provided that the conditions of paragraph (a) of this section are met, and on the condition that the space station's tracking, telemetry and control transmissions are planned so as to avoid electrical interference to other space stations, and coordinated with any potentially affected satellite networks.

(c) *All space stations.* Upon completion of any relocation authorized by paragraph (b) of this section, or any relocation at end-of-life specified in an authorization, or upon a spacecraft otherwise completing its authorized mission, a space station licensee shall ensure, unless prevented by technical failures beyond its control, that stored energy sources on board the satellite are discharged, by venting excess propellant, discharging batteries, relieving pressure vessels, or other appropriate measures.

(d) *Applicability of minimum perigee for geostationary orbit space stations.* The minimum perigee requirement of paragraph (a) of this section shall not apply to space stations launched prior to March 18, 2002.

(e) *Low-Earth orbit space stations.* For space stations ending their mission in or passing through the low-Earth orbit region below 2000 km altitude and planning disposal through uncontrolled atmospheric re-entry, disposal must be completed as soon as practicable following end of mission, and no later than five years after the end of the mission. For purposes of this paragraph (e), *end of mission* is defined as the time at which the individual spacecraft is no longer capable of conducting collision avoidance maneuvers. For spacecraft without collision avoidance capabilities, *end of mission* is defined as the point in which the individual spacecraft has completed its primary mission.

[69 FR 54588, Sept. 9, 2004, as amended at 78 FR 8431, Feb. 6, 2013; 81 FR 55349, Aug. 18, 2016; 89 FR 65223, Aug. 9, 2024]

§ 25.284 [Reserved]

§ 25.285 Operation of MSS and ATC transmitters or transceivers on board civil aircraft.

(a) Operation of any of the following devices aboard civil aircraft is prohibited, unless the device is installed in a manner approved by the Federal Aviation Administration or is used by the pilot or with the pilot's consent:

(1) Earth stations capable of transmitting in the 1.5/1.6 GHz, 1.6/2.4 GHz, or 2 GHz Mobile-Satellite Service frequency bands;

(2) ATC terminals capable of transmitting in the 1.5/1.6 GHz or 1.6/2.4 GHz MSS bands;

(3) Earth stations used for non-voice, non-geostationary Mobile-Satellite Service communication that can emit radiation in the 108–137 MHz band.

(b) No portable device of any type identified in paragraph (a) of this section (including transmitter or transceiver units installed in other devices that are themselves portable) may be sold or distributed to users unless it conspicuously bears the following warning: ''This device must be turned off at all times while on board aircraft.'' For purposes of this section, a device is portable if it is a ''portable device'' as defined in § 2.1093(b) of this chapter or is designed to be carried by hand.

[79 FR 8325, Feb. 12, 2014]

§ 25.286 Antenna painting and lighting.

The owner of an earth station antenna structure must comply with all applicable painting, marking, and/or lighting requirements in part 17 of this chapter. In the event of default by the owner, the station licensee will be responsible for ensuring that such requirements are met.

[79 FR 8326, Feb. 12, 2014]

§ 25.287 Requirements pertaining to operation of mobile stations in the NVNG, 1.5/1.6 GHz, 1.6/2.4 GHz, and 2 GHz Mobile-Satellite Service bands.

(a) Any mobile earth station (MES) operating in the 1530–1544 MHz and 1626.5–1645.5 MHz bands must 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.

(1) All MES transmissions must have a priority assigned to them that preserves the priority and preemptive access given to maritime distress and safety communications sharing the band.

(2) Each MES with a requirement to handle maritime distress and safety data communications must be capable of either:

(i) Recognizing message and call priority identification when transmitted from its associated Land Earth Station (LES), or

(ii) Accepting message and call priority identification embedded in the message or call when transmitted from its associated LES and passing the identification to shipboard data message processing equipment.

(3) Each MES must be assigned a unique terminal identification number that will be transmitted upon any attempt to gain access to a system.

(4) After an MES has gained access to a system, the mobile terminal must be under control of an LES and must obtain all channel assignments from it.

(5) All MESs that do not continuously monitor a separate signaling channel or signaling within the communications channel must monitor the signaling channel at the end of each transmission.

(6) Each MES must automatically inhibit its transmissions if it is not correctly receiving separate signaling channel or signaling within the communications channel from its associated LES.

(7) Each MES must automatically inhibit its transmissions on any or all channels upon receiving a channel-shut-off command on a signaling or communications channel it is receiving from its associated LES.

(8) Each MES with a requirement to handle maritime distress and safety communications must have the capability within the station to automatically preempt lower precedence traffic.

(b) Any LES for an MSS system operating in the 1530–1544 MHz and 1626.5–1645.5 MHz bands must have the following minimum set of capabilities to ensure compliance with Footnotes 5.353A and the priority and real-time preemption requirements imposed by Footnote US315. An LES fulfilling these requirements must not have any additional priority with respect to FSS stations operating with other systems.

(1) LES transmissions to MESs must have a priority assigned to them that preserves the priority and preemptive access given to maritime distress and safety communications pursuant to paragraph (a) of this section.

(2) The LES must recognize the priority of calls to and from MESs and make channel assignments taking into account the priority access that is given to maritime distress and safety communications.

(3) The LES must be capable of receiving the MES identification number when transmitted and verifying that it is an authorized user of the system to prohibit unauthorized access.

(4) The LES must be capable of transmitting channel assignment commands to the MESs.

(5) The communications channels used between the LES and the MES shall have provision for signaling within the voice/data channel, for an MES that does not continuously monitor the LES signaling channel during a call.

(6) The LES must transmit periodic control signals to MESs that do not continuously monitor the LES signaling channel.

(7) The LES must automatically inhibit transmissions to an MES to which it is not transmitting in a signaling channel or signaling within the communications channel.

(8) The LES must be capable of transmitting channel-shut-off commands to MESs on signaling or communications channels.

(9) Each LES must be capable of interrupting, and if necessary, preempting ongoing routine traffic from an MES in order to complete a maritime distress, urgency or safety call to that MES.

(10) Each LES must be capable of automatically turning off one or more of its associated channels in order to complete a maritime distress, urgency or safety call.

(c) No person without an FCC license for such operation may transmit to a

space station in the NVNG, 1.5/1.6 GHz, 1.6/2.4 GHz, or 2 GHz Mobile-Satellite Service from anywhere in the United States except to receive service from the holder of a pertinent FCC blanket license or from another party with the permission of such a blanket licensee.

[79 FR 8326, Feb. 12, 2014, as amended at 84 FR 53659, Oct. 8, 2019]

§ 25.288 Obligation to remedy interference caused by NGSO MSS feeder downlinks in the 6700–6875 MHz band.

If an NGSO MSS satellite transmitting in the 6700–6875 MHz band causes harmful interference to previously licensed co-frequency Public Safety facilities, the satellite operator has an obligation to remedy the interference.

[81 FR 55349, Aug. 18, 2016]

§ 25.289 Protection of GSO networks by NGSO systems.

Unless otherwise provided in this chapter, an NGSO system licensee must not cause unacceptable interference to, or claim protection from, a GSO FSS or GSO BSS network. An NGSO FSS licensee operating in compliance with the applicable equivalent power flux-density limits in Article 22, Section II of the ITU Radio Regulations (incorporated by reference, § 25.108) will be considered as having fulfilled this obligation with respect to any GSO network.

[82 FR 59986, Dec. 18, 2017]

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

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

[84 FR 53659, Oct. 8, 2019]

Subpart E—Miscellaneous

§ 25.301 Satellite Emergency Notification Devices (SENDs).

No device described by the marketer or seller using the terms ''SEND'' or ''Satellite Emergency Notification Device'' may be marketed or sold in the United States unless it complies with the requirements of RTCM 12800.0 (incorporated by reference, see § 25.108).

[88 FR 21442, Apr. 10, 2023]

Subpart F—Competitive Bidding Procedures for DARS

SOURCE: 62 FR 11106, Mar. 11, 1997, unless otherwise noted.

§ 25.401 Satellite DARS applications subject to competitive bidding.

Mutually exclusive initial applications for DARS service licenses are subject to competitive bidding. The general competitive bidding procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise provided in this part.

[67 FR 45373, July 9, 2002]

§ 25.402 [Reserved]

§ 25.403 Bidding application and certification procedures.

Submission of Supplemental Application Information. In order to be eligible to bid, each pending applicant must timely submit certain supplemental information. All supplemental information shall be filed by the applicant five days after publication of these rules in the FEDERAL REGISTER. The supplemental information must be certified and include the following:

(a) Applicant's name;

(b) Mailing Address (no Post Office boxes);

(c) City;

(d) State;

(e) ZIP Code;

(f) Auction Number 15;

(g) FCC Account Number;

(h) Person(s) authorized to make or withdraw a bid (list up to three individuals);

(i) Certifications and name and title of person certifying the information provided;

(j) Applicant's contact person and such person's telephone number, E-mail address and FAX number; and

(k) Signature and date.

§ 25.404 Submission of down payment and filing of long-form applications.

A high bidder that meets its down payment obligations in a timely manner must, within thirty (30) business days after being notified that it is a high bidder, submit an amendment to its pending application to provide the information required by § 25.144.

[67 FR 45373, July 9, 2002]

§§ 25.405–25.406 [Reserved]

Subparts G–H [Reserved]

Subpart I—Equal Employment Opportunities

§ 25.601 Equal employment opportunities.

Notwithstanding other EEO provisions within these rules, an entity that uses an owned or leased Fixed-Satellite Service or Direct Broadcast Satellite Service or 17/24 GHz Broadcasting-Satellite Service facility (operating under this part) to provide video programming directly to the public on a subscription basis must comply with the equal employment opportunity requirements set forth in part 76, subpart E, of this chapter, if such entity exercises control (as defined in part 76, subpart E, of this chapter) over the video programming it distributes. Notwithstanding other EEO provisions within these rules, a licensee or permittee of a direct broadcast satellite station operating as a broadcaster, and a licensee or permittee in the satellite DARS service, must comply with the equal employment opportunity requirements set forth in 47 CFR part 73.

[72 FR 50033, Aug. 29, 2007, as amended at 78 FR 8431, Feb. 6, 2013; 81 FR 10122, Feb. 29, 2016]

Subpart J—Public Interest Obligations

§ 25.701 Other DBS Public interest obligations.

(a) DBS providers are subject to the public interest obligations set forth in paragraphs (b), (c), (d), (e) and (f) of this section. As used in this section, DBS providers are any of the following:

(1) Entities licensed to operate satellites in the 12.2 to 12.7 GHz DBS frequency bands; or

(2) Entities licensed to operate satellites in the Ku band Fixed-Satellite Service and that sell or lease capacity to a video programming distributor that offers service directly to consumers providing a sufficient number of channels so that four percent of the total applicable programming channels yields a set aside of at least one channel of non commercial programming pursuant to paragraph (e) of this section, or

(3) Non U.S. licensed satellite operators in the Ku band that offer video programming directly to consumers in the United States pursuant to an earth station license issued under part 25 of this title and that offer a sufficient number of channels to consumers so that four percent of the total applicable programming channels yields a set aside of one channel of noncommercial programming pursuant to paragraph (e) of this section, or

(4) Entities licensed to operate satellites in the 17/24 GHz BSS that offer video programming directly to consumers or that sell or lease capacity to a video programming distributor that offers service directly to consumers providing a sufficient number of channels so that four percent of the total applicable programming channels yields a set aside of at least one channel of noncommercial programming pursuant to paragraph (e) of this section, or

(5) Non U.S. licensed satellite operators in the 17/24 GHz BSS that offer video programming directly to consumers in the United States or that sell or lease capacity to a video programming distributor that offers service directly to consumers in the United States pursuant to an earth station license issued under part 25 of this title

and that offer a sufficient number of channels to consumers so that four percent of the total applicable programming channels yields a set aside of one channel of noncommercial programming pursuant to paragraph (e) of this section.

(b) Political broadcasting requirements—

(1) Legally qualified candidates for public office for purposes of this section are as defined in §73.1940 of this chapter.

(2) DBS origination programming is defined as programming (exclusive of broadcast signals) carried on a DBS facility over one or more channels and subject to the exclusive control of the DBS provider.

(3) *Reasonable access.* (i) DBS providers must comply with section 312(a)(7) of the Communications Act of 1934, as amended, by allowing reasonable access to, or permitting purchase of reasonable amounts of time for, the use of their facilities by a legally qualified candidate for federal elective office on behalf of his or her candidacy.

(ii) *Weekend access.* For purposes of providing reasonable access, DBS providers shall make facilities available for use by federal candidates on the weekend before the election if the DBS provider has provided similar access to commercial advertisers during the year preceding the relevant election period. DBS providers shall not discriminate between candidates with regard to weekend access.

(4) *Use of facilities; equal opportunities.* DBS providers must comply with section 315 of the Communications Act of 1934, as amended, by providing equal opportunities to legally qualified candidates for DBS origination programming.

(i) *General requirements.* Except as otherwise indicated in §25.701(b)(3), no DBS provider is required to permit the use of its facilities by any legally qualified candidate for public office, but if a DBS provider shall permit any such candidate to use its facilities, it shall afford equal opportunities to all other candidates for that office to use such facilities. Such DBS provider shall have no power of censorship over the material broadcast by any such candidate. Appearance by a legally qualified candidate on any:

(A) Bona fide newscast;

(B) Bona fide news interview;

(C) Bona fide news documentary (if the appearance of the candidate is incidental to the presentation of the subject or subjects covered by the news documentary); or

(D) On the spot coverage of bona fide news events (including, but not limited to political conventions and activities incidental thereto) shall not be deemed to be use of a DBS provider's facility. (Section 315(a) of the Communications Act.)

(ii) *Uses.* As used in this section and §25.701(c), the term ''use'' means a candidate appearance (including by voice or picture) that is not exempt under paragraphs (b)(3)(i)(A) through (b)(3)(i)(D) of this section.

(iii) *Timing of request.* A request for equal opportunities must be submitted to the DBS provider within 1 week of the day on which the first prior use giving rise to the right of equal opportunities occurred: Provided, however, That where the person was not a candidate at the time of such first prior use, he or she shall submit his or her request within 1 week of the first subsequent use after he or she has become a legally qualified candidate for the office in question.

(iv) *Burden of proof.* A candidate requesting equal opportunities of the DBS provider or complaining of noncompliance to the Commission shall have the burden of proving that he or she and his or her opponent are legally qualified candidates for the same public office.

(v) *Discrimination between candidates.* In making time available to candidates for public office, no DBS provider shall make any discrimination between candidates in practices, regulations, facilities, or services for or in connection with the service rendered pursuant to this part, or make or give any preference to any candidate for public office or subject any such candidate to any prejudice or disadvantage; nor shall any DBS provider make any contract or other agreement that shall have the effect of permitting any legally qualified candidate for any public

office to use DBS origination programming to the exclusion of other legally qualified candidates for the same public office.

(c) *Candidate rates*—(1) *Charges for use of DBS facilities.* The charges, if any, made for the use of any DBS facility by any person who is a legally qualified candidate for any public office in connection with his or her campaign for nomination for election, or election, to such office shall not exceed:

(i) During the 45 days preceding the date of a primary or primary runoff election and during the 60 days preceding the date of a general or special election in which such person is a candidate, the lowest unit charge of the DBS provider for the same class and amount of time for the same period.

(A) A candidate shall be charged no more per unit than the DBS provider charges its most favored commercial advertisers for the same classes and amounts of time for the same periods. Any facility practices offered to commercial advertisers that enhance the value of advertising spots must be disclosed and made available to candidates upon equal terms. Such practices include but are not limited to any discount privileges that affect the value of advertising, such as bonus spots, time sensitive make goods, preemption priorities, or any other factors that enhance the value of the announcement.

(B) The Commission recognizes non preemptible, preemptible with notice, immediately preemptible and run of schedule as distinct classes of time.

(C) DBS providers may establish and define their own reasonable classes of immediately preemptible time so long as the differences between such classes are based on one or more demonstrable benefits associated with each class and are not based solely upon price or identity of the advertiser. Such demonstrable benefits include, but are not limited to, varying levels of preemption protection, scheduling flexibility, or associated privileges, such as guaranteed time sensitive make goods. DBS providers may not use class distinctions to defeat the purpose of the lowest unit charge requirement. All classes must be fully disclosed and made available to candidates.

(D) DBS providers may establish reasonable classes of preemptible with notice time so long as they clearly define all such classes, fully disclose them and make them available to candidates.

(E) DBS providers may treat non preemptible and fixed position as distinct classes of time provided that they articulate clearly the differences between such classes, fully disclose them, and make them available to candidates.

(F) DBS providers shall not establish a separate, premium priced class of time sold only to candidates. DBS providers may sell higher priced non preemptible or fixed time to candidates if such a class of time is made available on a bona fide basis to both candidates and commercial advertisers, and provided such class is not functionally equivalent to any lower priced class of time sold to commercial advertisers.

(G) [Reserved]

(H) Lowest unit charge may be calculated on a weekly basis with respect to time that is sold on a weekly basis, such as rotations through particular programs or dayparts. DBS providers electing to calculate the lowest unit charge by such a method must include in that calculation all rates for all announcements scheduled in the rotation, including announcements aired under long term advertising contracts. DBS providers may implement rate increases during election periods only to the extent that such increases constitute ''ordinary business practices,'' such as seasonal program changes or changes in audience ratings.

(I) DBS providers shall review their advertising records periodically throughout the election period to determine whether compliance with this section requires that candidates receive rebates or credits. Where necessary, DBS providers shall issue such rebates or credits promptly.

(J) Unit rates charged as part of any package, whether individually negotiated or generally available to all advertisers, must be included in the lowest unit charge calculation for the same class and length of time in the same time period. A candidate cannot be required to purchase advertising in

every program or daypart in a package as a condition for obtaining package unit rates.

(K) DBS providers are not required to include non cash promotional merchandising incentives in lowest unit charge calculations; provided, however, that all such incentives must be offered to candidates as part of any purchases permitted by the system. Bonus spots, however, must be included in the calculation of the lowest unit charge calculation.

(L) Make goods, defined as the rescheduling of preempted advertising, shall be provided to candidates prior to election day if a DBS provider has provided a time sensitive make good during the year preceding the pre election periods, respectively set forth in paragraph (c)(1)(i) of this section, to any commercial advertiser who purchased time in the same class.

(M) DBS providers must disclose and make available to candidates any make good policies provided to commercial advertisers. If a DBS provider places a make good for any commercial advertiser or other candidate in a more valuable program or daypart, the value of such make good must be included in the calculation of the lowest unit charge for that program or daypart.

(ii) At any time other than the respective periods set forth in paragraph (c)(1)(i) of this section, DBS providers may charge legally qualified candidates for public office no more than the charges made for comparable use of the facility by commercial advertisers. The rates, if any, charged all such candidates for the same office shall be uniform and shall not be rebated by any means, direct or indirect. A candidate shall be charged no more than the rate the DBS provider would charge for comparable commercial advertising. All discount privileges otherwise offered by a DBS provider to commercial advertisers must be disclosed and made available upon equal terms to all candidates for public office.

(2) If a DBS provider permits a candidate to use its facilities, it shall make all discount privileges offered to commercial advertisers, including the lowest unit charges for each class and length of time in the same time period and all corresponding discount privileges, available on equal terms to all candidates. This duty includes an affirmative duty to disclose to candidates information about rates, terms, conditions and all value enhancing discount privileges offered to commercial advertisers, as provided herein. DBS providers may use reasonable discretion in making the disclosure; provided, however, that the disclosure includes, at a minimum, the following information:

(i) A description and definition of each class of time available to commercial advertisers sufficiently complete enough to allow candidates to identify and understand what specific attributes differentiate each class;

(ii) A description of the lowest unit charge and related privileges (such as priorities against preemption and make goods prior to specific deadlines) for each class of time offered to commercial advertisers;

(iii) A description of the DBS provider's method of selling preemptible time based upon advertiser demand, commonly known as the ''current selling level,'' with the stipulation that candidates will be able to purchase at these demand generated rates in the same manner as commercial advertisers;

(iv) An approximation of the likelihood of preemption for each kind of preemptible time; and

(v) An explanation of the DBS provider's sales practices, if any, that are based on audience delivery, with the stipulation that candidates will be able to purchase this kind of time, if available to commercial advertisers.

(3) Once disclosure is made, DBS providers shall negotiate in good faith to actually sell time to candidates in accordance with the disclosure.

(d) *Political file.* (1) Each DBS operator engaged in origination programming shall maintain, and make available for public inspection, a complete record of a request to purchase adverting time that:

(i) Is made by or on behalf of a legally qualified candidate for public office; or

(ii) Communicates a message relating to any political matter of national importance, including:

(A) A legally qualified candidate;

(B) Any election to Federal office; or

(C) A national legislative issue of public importance.

(2) A record maintained under this paragraph shall contain information regarding:

(i) Whether the request to purchase advertising time is accepted or rejected by the DBS operator;

(ii) The rate charged for the advertising time;

(iii) The date and time on which the communication is aired;

(iv) The class of time that is purchased;

(v) The name of the candidate to which the communication refers and the office to which the candidate is seeking election, the election to which the communication refers, or the issue to which the communication refers (as applicable);

(vi) In the case of a request made by, or on behalf of, a candidate, the name of the candidate, the authorized committee of the candidate, and the treasurer of such committee; and

(vii) In the case of any other request, the name of the person purchasing the time, the name, address, and phone number of a contact person for such person, and a list of the chief executive officers or members of the executive committee or of the board of directors of such person.

(3) When free time is provided for use by or on behalf of candidates, a record of the free time provided shall be placed in the political file.

(4) All records required by this paragraph shall be placed in the online public file hosted by the Commission as soon as possible and shall be retained for a period of two years. As soon as possible means immediately absent unusual circumstances.

(e) *Commercial limits in children's programs.* (1) No DBS provider shall air more than 10.5 minutes of commercial matter per hour during children's programming on weekends, or more that 12 minutes of commercial matter per hour on week days.

(2) This rule shall not apply to programs aired on a broadcast television channel which the DBS provider passively carries, or to channels over which the DBS provider may not exercise editorial control, pursuant to 47 U.S.C. 335(b)(3).

(3) DBS providers airing children's programming must maintain in the online file hosted by the Commission records sufficient to verify compliance with this rule. Such records must be maintained for a period sufficient to cover the limitations period specified in 47 U.S.C. 503(b)(6)(B).

NOTE 1 TO PARAGRAPH (e): *Commercial matter* means airtime sold for purposes of selling a product or service.

NOTE 2 TO PARAGRAPH (e): For purposes of this section, children's programming refers to programs originally produced and broadcast primarily for an audience of children 12 years old and younger.

(f) Carriage obligation for noncommercial programming—

(1) *Reservation requirement.* DBS providers shall reserve four percent of their channel capacity exclusively for use by qualified programmers for noncommercial programming of an educational or informational nature. Channel capacity shall be determined annually by calculating, based on measurements taken on a quarterly basis, the average number of channels available for video programming on all satellites licensed to the provider during the previous year. DBS providers may use this reserved capacity for any purpose until such time as it is used for noncommercial educational or informational programming.

(2) *Qualified programmer.* For purposes of these rules, a qualified programmer is:

(i) A noncommercial educational broadcast station as defined in section 397(6) of the Communications Act of 1934, as amended,

(ii) A public telecommunications entity as defined in section 397(12) of the Communications Act of 1934, as amended,

(iii) An accredited nonprofit educational institution or a governmental organization engaged in the formal education of enrolled students (A publicly supported educational institution must be accredited by the appropriate state department of education; a privately controlled educational institution must be accredited by the appropriate state department of education or

the recognized regional and national accrediting organizations), or

(iv) A nonprofit organization whose purposes are educational and include providing educational and instructional television material to such accredited institutions and governmental organizations.

(v) Other noncommercial entities with an educational mission.

(3) *Editorial control.* (i) A DBS operator will be required to make capacity available only to qualified programmers and may select among such programmers when demand exceeds the capacity of their reserved channels.

(ii) A DBS operator may not require the programmers it selects to include particular programming on its channels.

(iii) A DBS operator may not alter or censor the content of the programming provided by the qualified programmer using the channels reserved pursuant to this section.

(4) Non-commercial channel limitation. A DBS operator cannot initially select a qualified programmer to fill more than one of its reserved channels except that, after all qualified entities that have sought access have been offered access on at least one channel, a provider may allocate additional channels to qualified programmers without having to make additional efforts to secure other qualified programmers.

(5) *Rates, terms and conditions.* (i) In making the required reserved capacity available, DBS providers cannot charge rates that exceed costs that are directly related to making the capacity available to qualified programmers. Direct costs include only the cost of transmitting the signal to the uplink facility and uplinking the signal to the satellite.

(ii) Rates for capacity reserved under paragraph (a) of this section shall not exceed 50 percent of the direct costs as defined in this section.

(iii) Nothing in this section shall be construed to prohibit DBS providers from negotiating rates with qualified programmers that are less than 50 percent of direct costs or from paying qualified programmers for the use of their programming.

(iv) DBS providers shall reserve discrete channels and offer these to qualifying programmers at consistent times to fulfill the reservation requirement described in these rules.

(6) *Public file.* (i) In addition to the political file requirements in §25.701, each DBS provider shall maintain in the online file hosted by the Commission a complete and orderly record of:

(A) Quarterly measurements of channel capacity and yearly average calculations on which it bases its four percent reservation, as well as its response to any capacity changes;

(B) A record of entities to whom noncommercial capacity is being provided, the amount of capacity being provided to each entity, the conditions under which it is being provided and the rates, if any, being paid by the entity;

(C) A record of entities that have requested capacity, disposition of those requests and reasons for the disposition.

(D) Each satellite carrier shall, no later than July 31, 2020, provide an up-to-date email address for carriage election notice submissions and an up-to-date phone number for carriage-related questions. Each satellite carrier is responsible for the continuing accuracy and completeness of the information furnished. It must respond to questions from broadcasters as soon as is reasonably possible.

(ii) All records required by paragraph (i) of this paragraph shall be placed in the online file hosted by the Commission as soon as possible and shall be retained for a period of two years.

(iii) Each DBS provider must also place in the online file hosted by the Commission the records required to be placed in the public inspection file by §25.701(e) (commercial limits in children's programs) and by §25.601 and 47 CFR part 76, subpart E (equal employment opportunity requirements) and retain those records for the period required by those rules.

(iv) Each DBS provider must provide a link to the online public inspection file hosted on the Commission's Web site from the home page of its own Web site, if the provider has a Web site, and provide on its Web site contact information for a representative who can assist any person with disabilities with issues related to the content of the public files. Each DBS provider also

must include in the online public file hosted by the Commission the address of the provider's local public file, if the provider retains documents in the local public file that are not available in the Commission's online file, and the name, phone number, and email address of the provider's designated contact for questions about the public file.

(7) *Effective date.* DBS providers are required to make channel capacity available pursuant to this section upon the effective date. Programming provided pursuant to this rule must be available to the public no later than six months after the effective date.

[69 FR 23157, Apr. 28, 2004, as amended at 72 FR 50033, Aug. 29, 2007; 78 FR 8431, Feb. 6, 2013; 81 FR 10122, Feb. 29, 2016; 84 FR 45668, Aug. 30, 2019; 87 FR 7754, Feb. 10, 2022]

§ 25.702 Other SDARS Public interest obligations.

(a) *Political broadcasting requirements.* The following political broadcasting rules shall apply to all SDARS licensees: 47 CFR 73.1940 (Legally qualified candidates for public office), 73.1941 (Equal opportunities), 73.1942 (Candidate rates), and 73.1944 (Reasonable access).

(b) *Political file.* (1) Each SDARS licensee engaged in origination programming shall maintain, and make available for public inspection, a complete record of a request to purchase broadcast time that:

(i) Is made by or on behalf of a legally qualified candidate for public office; or

(ii) Communicates a message relating to any political matter of national importance, including:

(A) A legally qualified candidate;

(B) Any election to Federal office; or

(C) A national legislative issue of public importance.

(2) A record maintained under this paragraph shall contain information regarding:

(i) Whether the request to purchase broadcast time is accepted or rejected by the licensee;

(ii) The rate charged for the broadcast time;

(iii) The date and time on which the communication is aired;

(iv) The class of time that is purchased;

(v) The name of the candidate to which the communication refers and the office to which the candidate is seeking election, the election to which the communication refers, or the issue to which the communication refers (as applicable);

(vi) In the case of a request made by, or on behalf of, a candidate, the name of the candidate, the authorized committee of the candidate, and the treasurer of such committee; and

(vii) n the case of any other request, the name of the person purchasing the time, the name, address, and phone number of a contact person for such person, and a list of the chief executive officers or members of the executive committee or of the board of directors of such person.

(3) When free time is provided for use by or on behalf of candidates, a record of the free time provided shall be placed in the political file.

(4) All records required by this paragraph shall be placed in the online public file hosted by the Commission as soon as possible and shall be retained for a period of two years. As soon as possible means immediately absent unusual circumstances.

(c) *Public inspection file.* (1) Each SDARS applicant or licensee must also place in the online public file hosted by the Commission the records required to be placed in the public inspection file by 47 CFR 25.601 and 73.2080 (equal employment opportunities (EEO)) and retain those records for the period required by those rules.

(2) Each SDARS licensee must provide a link to the public inspection file hosted on the Commission's Web site from the home page of its own Web site, if the licensee has a Web site, and provide on its Web site contact information for a representative who can assist any person with disabilities with issues related to the content of the public files. Each SDARS licensee also must include in the online public file the address of the licensee's local public file, if the licensee retains documents in the local public file that are not available in the Commission's online file, and the name, phone number,

and email address of the licensee's designated contact for questions about the public file.

[81 FR 10122, Feb. 29, 2016, as amended at 87 FR 7754, Feb. 10, 2022]

PART 26—SPACE LAUNCH SERVICES

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AUTHORITY: 47 U.S.C. 151, 152, 154, 301, 303, unless otherwise noted.

SOURCE: 89 FR 63321, Aug. 5, 2024, unless otherwise noted.

Subpart A—General Information

§ 26.1 Basis and purpose.

This section contains the statutory basis for the rules in this part and provides the purpose for which this part is issued.

(a) *Basis.* The rules for Space Launch Services in this part are promulgated under the provisions of the Communications Act of 1934, as amended, that vest authority in the Federal Communications Commission to regulate radio transmission and to issue licenses for radio stations, and the Launch Communications Act, Public Law 118–85, 138 Stat. 1546 (2024). All rules in this part are in accordance with applicable treaties and agreements to which the United States is a party.

(b) *Purpose.* This part states the conditions under which spectrum is made available and licensed for the provision of Space Launch Services. This part does not govern the licensing of radio systems belonging to and operated by the United States.

[89 FR 63321, Aug. 5, 2024, as amended at 90 FR 11492, Mar. 7, 2025]

§ 26.2 Frequencies.

The following frequencies are available for assignment on a nationwide, non-exclusive basis for Space Launch Services:

(a) 2025–2110 MHz;

(b) 2200–2290 MHz; and

(c) 2360–2395 MHz.

[90 FR 11492, Mar. 7, 2025]

§ 26.3 Scope of service.

(a) Space launch stations are restricted to the following uses:

(1) *2025–2110 MHz band.* The use of Space Launch Services licenses in the 2025–2110 MHz band is restricted to ground-to-launch vehicle telecommand uses necessary to support space launch operations.

(2) *2200–2290 MHz band.* The use of Space Launch Services licenses in the 2200–2290 MHz band is restricted to launch vehicle-to-ground communications associated with telemetry and tracking operations.

(3) *2360–2395 MHz band.* The use of Space Launch Services licenses in the 2360–2395 MHz band is restricted to ground-to-launch vehicle and launch vehicle-to-ground communications associated with telemetry and telecommand uses necessary to support space launch operations.

(b) Telemetry, tracking, and telecommand functions permissible as space launch operations, subject to the restrictions in paragraph (a) of this section, include, but are not limited to: