

§ 25.202

47 CFR Ch. I (10–1–00 Edition)

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

*Space telecommand.* The use of radiocommunication for the transmission of signals to a space station to initiate, modify or terminate function of the equipment on a space object, including the space station.

*Space telemetering.* The use of telemetering for the transmission from a space station of results of measurements made in a spacecraft, including those relating to the functioning of the spacecraft.

*Space tracking.* Determination of the orbit, velocity or instantaneous position of an object in space by means of radiodetermination, excluding primary radar, for the purpose of following the movement of the object.

*Terrestrial radiocommunication.* Any radiocommunication other than space radiocommunication or radio astronomy.

*Terrestrial station.* A station effecting terrestrial radiocommunication.

[30 FR 7176, May 28, 1965, as amended at 36 FR 2562, Feb. 6, 1971; 48 FR 40254, Sept. 6, 1983; 51 FR 18445, May 20, 1986; 54 FR 49993, Dec. 4, 1989; 56 FR 42706, Aug. 29, 1991; 58 FR 68059, Dec. 23, 1993; 59 FR 53329, Oct. 21, 1994; 62 FR 11105, Mar. 11, 1997; 62 FR 59296, Nov. 3, 1997]

§ 25.202 Frequencies, frequency tolerance and emission limitations.

(a)(1) *Frequency bands.* The following frequencies are available for use by the fixed-satellite service. Precise frequencies and bandwidths of emission shall be assigned on a case-by-case basis.

Space-to-earth	Earth-to-space
3.7–4.2 <sup>1</sup>	<sup>1</sup> 5.925–6.425
10.95–11.2 <sup>1</sup>	<sup>4</sup> 13.75–14.0
11.45–11.7 <sup>2</sup>	<sup>5</sup> 14.0–14.2
11.7–12.2 <sup>3</sup>	14.2–14.5
18.3–18.58 <sup>1 10</sup>	<sup>9</sup> 17.3–17.8
18.58–18.8 <sup>6 10 11</sup>	
18.8–19.3 <sup>7 10</sup>	
19.3–19.7 <sup>8 10</sup>	<sup>1</sup> 27.5–29.5
19.7–20.2 <sup>10</sup>	29.5–30.0

<sup>1</sup>This band is shared coequally with terrestrial radiocommunication services.

<sup>2</sup>Use of this band by the fixed-satellite service is limited to international systems, i.e., other than domestic systems.

<sup>3</sup>Use of this band by the fixed-satellite service in Region 2 is limited to national and subregional systems. Fixed-satellite transponders may be used additionally for transmissions in the broadcasting-satellite service.

<sup>4</sup>This band is shared on an equal basis with the Government radiolocation service, grandfathered space stations in the Tracking and Data Relay Satellite System, and until January 1, 2000, spaceborne sensors.

<sup>5</sup>In this band, stations in the radionavigation service shall operate on a secondary basis to the fixed-satellite service.

<sup>6</sup>The band 18.58–18.8 GHz is shared co-equally with existing terrestrial radiocommunications systems until June 8, 2010.

<sup>7</sup>The band 18.8–19.3 GHz is shared co-equally with terrestrial radiocommunications services, until June 8, 2010. After this date, the sub-band 19.26–19.3 GHz is shared co-equally with existing terrestrial radiocommunications systems.

<sup>8</sup>The use of the band 19.3–19.7 GHz by the Fixed-Satellite Service (space-to-Earth) is limited to feeder links for the Mobile-Satellite Service.

<sup>9</sup>The use of the band 17.3–17.8 GHz by the Fixed-Satellite Service (Earth-to-space) is limited to feeder links for broadcasting-satellite service, and the sub-band 17.7–17.8 GHz is shared co-equally with terrestrial fixed services.

<sup>10</sup>This band is shared co-equally with the Federal Government Fixed-Satellite Service.

<sup>11</sup>The band 18.6–18.8 GHz is shared co-equally with the non-Federal Government and Federal Government Earth Exploration-Satellite (passive) and Space Research (passive) Services.

(2) The following frequencies are available for use by the Radiodetermination Satellite Service:

- 1610–1626.5 MHz: User-to-Satellite Link
- 2483.5–2500 MHz: Satellite-to-User Link

Fixed-Satellite service frequencies may be used for links between radiodetermination satellites and control centers, including the following designated bands, subject to the Rules in this subpart:

- 5150–5216 MHz: Satellite-to-Control Center Link
- 6525–6541.5 MHz: Control Center-to-Satellite Link

(3) The following frequencies are available for use by the non-voice, non-geostationary mobile-satellite service:

- 137–138 MHz: space-to-Earth
- 148–149.9 MHz: Earth-to-space
- 149.9–150.05 MHz: Earth-to-space
- 399.9–400.05 MHz: Earth-to-space
- 400.15–401 MHz: space-to-Earth

Until January 1, 1997, the allocations in the 149.9–150.05 MHz and 399.9–400.05 MHz bands may be used on a secondary basis only. Since the 399.9–400.05 MHz band is not allocated internationally to the mobile-satellite service, all operations outside the United States will be on a non-interference basis only.

(4) 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

(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

(6) The following spectrum is available for exclusive use by the satellite digital audio radio service:

2320–2345 MHz: space-to-Earth (primary).

(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) Orbital locations assigned to space stations licensed under this part by the commission are subject to change by summary order of the Commission on 30 days notice. An authorization to construct and/or to launch a space station becomes null and void if the construction is not begun or is not completed, or if the space station is not launched and positioned at its assigned orbital location and operations commenced in accordance with the station authorization, by the respective date(s) specified in the authorization. Frequencies and orbital location assignments are subject to the policies set forth in the Report and Order, FCC 83–184, adopted April 27, 1983 in CC Docket No. 81–704 and the Report and Order, adopted July 25, 1985 in CC Docket No. 84–1299 as modified by the Report and Order, adopted January 19, 1996 in IB Docket No. 95–41.

(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.* The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

(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) Telemetry, tracking and telecommand functions for U.S. domestic satellites shall be conducted at either or both edges of the allocated band(s). Frequencies, polarization and coding shall be selected to minimize interference into other satellite networks and within their own satellite system.

[30 FR 7176, May 28, 1965, as amended at 36 FR 2562, Feb. 6, 1971; 38 FR 8573, Apr. 4, 1973; 39 FR 33527, Sept. 18, 1974; 48 FR 40254, Sept. 6, 1983; 50 FR 36079, Sept. 5, 1985; 51 FR 18445, May 20, 1986; 51 FR 20975, June 10, 1986; 54 FR 49993, Dec. 4, 1989; 56 FR 24024, May 28, 1991; 58 FR 13419, Mar. 11, 1993; 58 FR 68061, Dec. 23, 1993; 59 FR 53329, Oct. 21, 1994; 61 FR 9952, Mar. 12, 1996; 61 FR 52307, Oct. 7, 1996; 62 FR 11105, Mar. 11, 1997; 64 FR 2591, Jan. 15, 1999; 64 FR 6565, Feb. 10, 1999; 65 FR 54171, Sept. 7, 2000]

EFFECTIVE DATE NOTE: At 65 FR 54171, Sept. 7, 2000, §24.202 was amended by revising paragraph (a)(1), effective Oct. 10, 2000. For the convenience of the user, the superseded text is set forth as follows:

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Space-to-earth	Earth-to-space
3.7–4.2 <sup>1</sup>	<sup>1</sup> 5.925–6.425
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11.7–12.2 <sup>3</sup>	14.2–14.5
17.7–19.7 <sup>1</sup>	<sup>1</sup> 27.5–29.5
19.7–20.2	29.5–30.0
37.6–38.6	48.2–50.2
40.0–41.0	

<sup>1</sup>This band is shared coequally with terrestrial radiocommunication services.

<sup>2</sup>Use of this band by the fixed-satellite service is limited to international systems, i.e., other than domestic systems.

<sup>3</sup>Use of this band by the fixed-satellite service in Region 2 is limited to national and subregional systems. Fixed-satellite transponders may be used additionally for transmissions in the broadcasting-satellite service.

<sup>4</sup>This band is shared on an equal basis with the Government radiolocation service, grandfathered space stations in the Tracking and Data Relay Satellite System, and until January 1, 2000, spaceborne sensors.

<sup>5</sup>In this band, stations in the radionavigation service shall operate on a secondary basis to the fixed-satellite service.

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

(a) Sites and frequencies for earth stations, 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 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 through 25.253 and the rain scatter coordination distance contour(s) for the proposed station in accordance with the procedures set forth in § 25.254. 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 might be useful 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 his application, an earth station applicant 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 § 25.255 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),