(c) A licensee will be considered to be in default if it fails to meet any milestone deadline set forth in §25.164, and, at the time of milestone deadline, the licensee has not provided a sufficient basis for extending the milestone.

(d) A GSO licensee will be permitted to reduce the amount of the bond by $750,000 upon successfully meeting a milestone deadline set forth in section 25.164(a) of this chapter. An NGSO licensee will be permitted to reduce the amount of the bond by $1 million upon successfully meeting a milestone deadline set forth in section 25.164(b) of this chapter.

(e) A replacement satellite is one that is:

(1) Authorized to be operated at the same orbit location, in the same frequency bands, and with the same coverage area as one of the licensee's existing satellites, and

(2) Scheduled to be launched so that it will be brought into use at approximately the same time as, but no later than, the existing satellite is retired.

[68 FR 51507, Aug. 27, 2003, as amended at 69 FR 51587, Aug. 20, 2004]

Subpart C—Technical Standards

SOURCE: 30 FR 7176, May 28, 1965; 36 FR 2562, Feb. 6, 1971, unless otherwise noted.

§25.201 Definitions.

Definitions for terms in subpart C of this part appear in this section, and in §2.1 of this chapter.

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 frequency bands, or in any portion thereof.

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

17/24 GHz Broadcasting-Satellite Service. A radiocommunications service using geostationary satellites between one or more feeder link earth stations and other earth stations, in the 17.3—17.7 GHz (space-to-Earth) (domestic allocation), 17.3—17.8 GHz (international allocation) and 24.75—25.25 GHz frequency bands. This service is also known as ''17/24 GHz BSS.'' For purposes of the application processing provisions of this part, 17/24 GHz BSS is a GSO-like service. For purposes of the technical requirements of this part, we will treat 17/24 GHz BSS as if it were FSS. Unless specifically stated otherwise, the 17/24 GHz BSS systems are subject to the rules in this part applicable to FSS.

Active satellite. An earth satellite carrying a station intended to transmit or re-transmit radiocommunication signals.

Ambulatory. Not stationary. Baselines from which maritime boundaries are measured change with accretion- and erosion-caused ambulation of the boundaries themselves.

Ancillary terrestrial component. The term ''ancillary terrestrial component'' means 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 base station. The term ''ancillary terrestrial component base station'' means a terrestrial fixed facility used to transmit communications to or receive communications from one or more ancillary terrestrial component mobile terminals.

Ancillary terrestrial component mobile terminal. The term ''ancillary terrestrial component mobile terminal'' means a terrestrial mobile facility used to transmit communications to or receive communications from an ancillary terrestrial component base station or a space station.

Base Earth Station. An earth station in the fixed-satellite service or, in some cases, in the land mobile-satellite service, located at a specified fixed point or within a specified area on land to provide a feeder link for the land mobile-satellite service. (RR)

Baseline. The line from which maritime zones are measured, also known as the coast line. The baseline is a combination of the low-water line (''low-tide elevation'') and closing lines

across the mouths of inland water bodies. The baseline is defined by a series of baseline points. The baseline points are not just the low-water marks of the shore of mainland but also includes islands and ''low-water elevations'' (*i.e.*, natural rocks). Baseline points are ambulatory, and thus, require adjustment from time-to-time by the U.S. Department of State's Baseline Committee.

C-band. For purposes of this part, the terms ''C-band'' and ''conventional C-band'' refer specifically to the 3700–4200 MHz downlink and 5925–6425 MHz uplink frequency bands. These paired bands are allocated to the Fixed-Satellite Service and are also referred to as the 4/6 GHz band(s).

Coordination distance. For the purposes of this part, the expression ''coordination distance'' means the distance from an earth station, within which there is a possibility of the use of a given transmitting frequency at this earth station causing harmful interference to stations in the fixed or mobile service, sharing the same band, or of the use of a given frequency for reception at this earth station receiving harmful interference from such stations in the fixed or mobile service.

Direct Broadcast Satellite Service. A radiocommunication service in which signals transmitted or retransmitted by space stations, using frequencies specified in § 25.202(a)(7), are intended for direct reception by the general public. For the purposes of this definition, the term direct reception shall encompass both 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:

(a) With one or more space stations; or

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

Earth Station on Vessel (''ESV''). An ESV is an earth station onboard a craft designed for traveling on water receiving from and transmitting to fixed-satellite space stations.

Electronic filing. The submission of applications, exhibits, pleadings, or other filings to the Commission in an electronic form using *Internet* or *World Wide Web* on-line filing forms.

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, an equivalent diameter can be computed for the antenna. 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. The equivalent power flux-density (EPFD) is the sum of the power flux-densities produced at a geostationary satellite orbit (GSO) receive earth or space station on the Earth's surface or in the geostationary satellite orbit, as appropriate, by all the transmit stations within a non-geostationary satellite orbit fixed-satellite service (NGSO FSS) system, taking into account the off-axis discrimination of a reference receiving antenna assumed to be pointing in its nominal direction. The equivalent power flux-density, in dB(W/m^2) in the reference bandwidth, is calculated using the following formula:

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

Where:

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

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

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

2_i is the off-axis angle between the boresight of the transmit station considered in the non-geostationary satellite orbit system and the direction of the GSO receive station;

$G_t(2_i)$ is the transmit antenna gain (as a ratio) of the station considered in the non-geostationary satellite orbit system in the direction of the GSO receive station;

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

N_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 satellite orbit system;

$G_r(N_i)$ 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 satellite orbit system;

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

Fixed earth station. An earth station intended to be used at a specified fixed point.

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

Geostationary 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 satellite which remains approximately fixed relative to the Earth.

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

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)

Ku-band. In this rule part, the terms ''Ku-band'' and ''conventional Ku-band'' refer specifically to the 11700–12200 MHz downlink and 14000–14500 MHz uplink frequency bands. These paired bands are allocated to the Fixed-Satellite Service and are also referred to as the 12/14 GHz band(s).

Low-Tide Elevation. A naturally formed area of land that is surrounded by and above water at low tide but below water at high tide. Low-tide elevations serve as part of the coast line when they are within the breath of the territorial sea of the mainland (either uplands or inland waters) or an island. 1958 Convention on the Territorial Sea, Article 11.

Mobile earth station. An earth station intended to be used while in motion or during halts at unspecified points.

Mobile-Satellite Service. A radiocommunication service:

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

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

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

NGSO FSS gateway earth station. A gateway earth station is an earth station complex consisting of multiple interconnecting earth station antennas supporting the communication routing and switching functions of a non-geostationary satellite orbit fixed-satellite service (NGSO FSS) system as a whole. A gateway earth station in the NGSO FSS:

(1) Does not originate or terminate radiocommunication traffic, but interconnects multiple non-collocated user earth stations operating in frequency bands other than designated gateway bands, through a satellite with other primary terrestrial networks, such as the public switched telephone network (PSTN) and/or Internet networks.

(2) Shall not be for the exclusive use of any customer.

(3) May also be used for telemetry, tracking, and command transmissions for the same NGSO FSS system.

(4) May include multiple antennas, each required to meet the antenna performance standard in §25.209(h), located within an area of one second latitude by one second longitude.

(5) Is considered as a separate gateway earth station complex if it is out side of the area of one second latitude by one second longitude of paragraph (4) of this definition, for the purposes of coordination with terrestrial services.

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

Passive satellite. An earth satellite intended to transmit radio communication signals by reflection.

Permitted Space Station List. A list of satellites operating in the C-band and/or Ku-band including all U.S.-licensed satellites and those non-U.S.-licensed satellites for which the Commission has authorized routine U.S.-licensed earth stations to communicate with that satellite, and the satellite operator has requested the Commission to place its satellite on the Permitted Space Station List.

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

Protection areas. The geographic regions on the surface of the Earth where United States Department of Defense (''DoD'') meteorological satellite systems or National Oceanic and Atmospheric Administration (''NOAA'') meteorological satellite systems, or both such systems, are receiving signals from low earth orbiting satellites.

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. A licensing process whereby applications are processed in an expedited fashion. Such applications must be complete in all regards and consistent with all Commission Rules and must not raise any policy issues. With respect to earth station licensing, an application is ''routine'' only if it conforms to all antenna, power, coordination, radiation hazard, and FAA notification rules, and accesses only ''Permitted Space Station List'' satellites in the conventional C-band or Ku-band frequency bands.

Satellite Digital Audio Radio Service (''DARS''). 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, telemetry, tracking and control facilities.

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

Selected assignment. The term ''selected assignment'' means 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, or other mobile-satellite service spectrum in which the Commission permits a 2 GHz mobile-satellite service licensee to conduct mobile-satellite service operations with authority

superior to that of other in-band, mobile-satellite service licensees.

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

Space operation service. A radiocommunication service concerned exclusively with the operation of spacecraft, in particular space tracking, space telemetry and space telecommand. These functions will normally be provided within the service in which the space station is operating.

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.

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.

Structural attenuation. The term ''structural attenuation'' means the signal attenuation caused by transmitting to and from mobile terminals which are located in buildings or other man-made structures that attenuate the transmission of radiofrequency radiation.

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

Terrestrial station. A station effecting terrestrial radiocommunication.

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

[30 FR 7176, May 28, 1965]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 25.201, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 25.202 Frequencies, frequency tolerance and emission limitations.

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

Space-to-earth (GHz)	Earth-to-space (GHz)
3.65–3.7 [17]	[12] [19] 5.091–5.25
3.7–4.2 [1]	[1] 5.925–6.425
6.7–7.025 [12]	[1] [12] [14] 12.75–13.25
10.7–10.95 [1] [12]	[4] [12] 13.75–14
10.95–11.2 [1] [2] [12]	[5] 14–14.2
11.2–11.45 [1] [12]	14.2–14.5
11.45–11.7 [1] [2] [12]	[12] [20] 15.43–15.63
11.7–12.2 [3]	[9] 17.3–17.8
12.2–12.7 [13]	[18] 24.75–25.05
18.3–18.58 [1] [10]	[1] [18] 25.05–25.25
18.58–18.8 [6] [10] [11]	[1] 27.5–29.5
18.8–19.3 [7] [10]	29.5–30
19.3–19.7 [8] [10]	[1] 47.2–50.2
19.7–20.2 [10]	
37.5–40 [15] [16]	
40–42 [16]	

[1] This band is shared coequally with terrestrial radiocommunication services.

[2] Use of this band by geostationary satellite orbit satellite systems in the fixed-satellite service is limited to international systems; *i.e.*, other than domestic systems.

[3] Fixed-satellite transponders may be used additionally for transmissions in the broadcasting-satellite service.

[4] This band is shared on an equal basis with the Government radiolocation service and grandfathered space stations in the Tracking and Data Relay Satellite System.

[5] In this band, stations in the radionavigation service shall operate on a secondary basis to the fixed-satellite service.

[6] The band 18.58–18.8 GHz is shared coequally with existing terrestrial radiocommunication systems until June 8, 2010.

[7] The band 18.8–19.3 GHz is shared coequally with terrestrial radiocommunication services, until June 8, 2010. After this date, the sub-band 19.26–19.3 GHz is shared coequally with existing terrestrial radiocommunication systems.