

(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 co-operating 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)(1) Each initial license for an earth station governed by this part, except for blanket licenses, will specify as a condition therein the period in which construction of facilities must be completed and station operation commenced. Construction of the earth station must be completed and the station must be brought into operation within 12 months from the date of the license grant except as may be determined by the Commission for any particular application.

(2) Operation of a network of earth stations at unspecified locations under an initial blanket license must commence within 12 months from the date of the license grant unless the Commission orders otherwise.

(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;

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- (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]

§ 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 $-77.6 \text{ dBm/m}^2/\text{MHz}$;
- (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),