meets the eligibility criteria set forth in § 24.709;

(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*.

(e) 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.

[59 FR 37610, July 22, 1994, as amended at 59 FR 63238, Dec. 7, 1994; 61 FR 33870, July 1, 1996]

§§ 24.840—24.842 [Reserved]

§ 24.843 Extension of time to complete construction.

(a) If construction is not completed within the time period set forth in § 24.203, the authorization will automatically expire. Before the period for construction expires an application for an extension of time to complete construction (FCC Form 489) may be filed. *See* paragraph (b) of this section. Within 30 days after the authorization expires an application for reinstatement may be filed on FCC Form 489.

(b) Extension of Time to Complete Construction. An application for extension of time to complete construction may be made on FCC Form 489. Extension of time requests must be filed prior to the expiration of the construction period. Extensions will be granted only if the licensee shows that the failure to complete construction is due to causes beyond its control.

(c) An application for modification of an authorization (under construction) does not extend the initial construction period. If additional time to construct is required, an FCC Form 489 must be submitted.

(d) [Reserved]

§ 24.844 Termination of authorization.

(a) Termination of authorization.

(1) All authorizations shall terminate on the date specified on the authorization or on the date specified by these rules, unless a timely application for renewal has been filed.

(2) If no application for renewal has been made before the authorization's expiration date, a late application for renewal will be considered only if it is filed within thirty (30) days of the expiration date and shows that the failure to file a timely application was due to causes beyond the applicant's control. During this 30-day period, a reinstatement application must be filed on FCC Form 489. Service to subscribers need not be suspended while a late-filed renewal application is pending, but such service shall be without prejudice to Commission action on the renewal application and any related sanctions. *See also* § 24.16 (Criteria for Comparative Renewal Proceedings).

(b) Termination of special temporary authorization. A special temporary authorization shall automatically terminate upon failure to comply with the conditions in the authorization.

(c) [Reserved]

PART 25—SATELLITE COMMUNICATIONS

Subpart A—General

Sec.

Subpart B—Applications and Licenses

Subpart I—Equal Employment Opportunities

AUTHORITY: Secs. 25.101 to 25.601 issued under Sec. 4, 48 Stat. 1066, as amended; 47 U.S.C. 154. Interpret or apply secs. 101–104, 76 Stat. 419–427; 47 U.S.C. 701–744; 47 U.S.C. 554.

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.

(a) *Communications common carrier.* The term ''communications common carrier'' as used in this part means any person (individual, partnership, association, joint-stock company, trust, corporation, or other entity) engaged as a common carrier for hire, in interstate or foreign communication by wire or radio or in interstate or foreign radio transmission of energy, including such carriers as are described in subsection 2(b) (2) and (3) of the Communications Act of 1934, as amended, and, in addition, for purposes of Subpart H of this part, includes any individual, partnership, association, joint-stock company, trust, corporation, or other entity which owns or controls, directly or indirectly, or is under direct or indirect common control with, any such carrier.

(b) *Authorized carrier.* (1) Except as provided in paragraph (b)(2) of this section, the term ''authorized carrier'' means a communications common carrier which is authorized by the Federal Communications Commission under the Communications Act of 1934, as amended, to provide services by means of communications satellites.

(2) For the purposes of Subpart H of this part, the term ''authorized carrier'' means a communications common carrier which is specifically authorized or which is a member of a class of carriers authorized by the Commission to own shares of stock in the corporation.

(c) *Communications satellite corporation.* (1) The terms ''communications satellite corporation'' or ''corporation'' as used in this part mean the corporation created pursuant to the provisions of Title III of the Communications Satellite Act of 1962.

(2) The corporation shall be deemed to be a common carrier within the meaning of section 3(h) of the Communications Satellite Act of 1962.

(d) *Communication-satellite earth station complex.* The term communication-

satellite earth station complex includes transmitters, receivers, and communications antennas at the earth station site together with the interconnecting terrestrial facilities (cables, lines, or microwave facilities) and modulating and demodulating equipment necessary for processing of traffic received from the terrestrial distribution system(s) prior to transmission via satellite and of traffic received from the satellite prior to transfer of channels of communication to terrestrial distribution system(s).

(e) *Communication-satellite earth station complex functions.* The communication-satellite earth station complex interconnects with terminal equipment of common carriers or authorized entities at the interface; accepts traffic from such entities at the interface, processes for transmission via satellite and performs the transmission function; receives traffic from a satellite or satellites, processes it in a form necessary to deliver channels of communication to terrestrial common carriers or such other authorized entities and delivers the processed traffic to such entities at the interface.

(f) *Interface.* The point of interconnection between two distinct but adjacent communications systems having different functions. The interface in the communication-satellite service is that point where communications terminal equipment of the terrestrial common carriers or other authorized entities interconnects with the terminal equipment of the communication-satellite earth station complex. The interface in the communication-satellite service shall be located at the earth station site, or if this is impracticable, as close thereto as possible.

[28 FR 13037, Dec. 5, 1963, as amended at 31 FR 3289, Mar. 2, 1966]

§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.

§25.104 Preemption of local zoning of earth stations.

State and local zoning or other regulations that differentiate between satellite receive-only antennas and other types of antenna facilities are preempted unless such regulations:

(a) Have a reasonable and clearly defined health, safety or aesthetic objective; and

(b) Do not operate to impose unreasonable limitations on, or prevent, reception of satellite delivered signals by receive-only antennas or to impose costs on the users of such antennas that are excessive in light of the purchase and installation cost of the equipment.

Regulation of satellite transmitting antennas is preempted in the same manner except that state and local health and safety regulation is not preempted.

[51 FR 5526, Feb. 14, 1986]

§25.105–25.108 [Reserved]

§25.109 Cross-reference.

The space radiocommunications stations in the following services are not licensed under this part:

(a) Amateur Satellite Service, see 47 CFR part 97.

(b) Direct Broadcasting Satellite Service, see 47 CFR part 100; and

(c) Ship earth stations in the Maritime Mobile Satellite Service, see 47 CFR part 83.

[56 FR 24016, May 28, 1991]

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) Standard application forms applicable to this Part may be obtained by writing Federal Communications Commission, Forms Distribution Center, 2803 52nd Ave., Hyattsville, MD 20781 or calling (202) 632–FORM.

(b) Applications for satellite radio station authorizations governed by this part and requiring a fee shall be mailed or hand-delivered to the locations specified in part 1, subpart G of this chapter. All other applications shall be submitted to the Secretary, Federal Communications Commission, 1919 M Street, N.W., Washington, DC 20554.

(c) All correspondence and amendments concerning an application shall clearly identify the satellite radio service, the name of the applicant, station location, the call sign or other identification of the station, and the file number of the application involved (if available).

(d) Except as otherwise specified, all applications, amendments, and correspondence shall be submitted in triplicate, including exhibits and attachments thereto. All matters relating to space station applications shall be submitted as an original and nine copies.

(e) The original copy of the application shall be signed as specified in §1.743 of this chapter, and shall supply the information prescribed by this Part for the particular authorization requested. All other copies may be conformed.

(f) Each application shall be accompanied by the appropriate fee, specified by, and submitted in accordance with, subpart G of part 1 of this Chapter.

[56 FR 24016, May 28, 1991, as amended at 60 FR 5333, Jan. 27, 1995; 61 FR 9951, Mar. 12, 1996]

§25.111 Additional information.

(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, permittees and licensees of radio stations governed by this part shall provide the Commission with all information it requires for the Advance Publication, coordination and notification of frequency assignments pursuant to the international Radio Regulations and consultations required by Article XIV of the INTELSAT Agreement and Article 8 of the INMARSAT Convention. This information includes, but is not limited to, that specified in appendices 3 and 4 of the Radio Regulations (Geneva 1979). No protection from interference caused by radio stations authorized by other Administrations is guaranteed unless coordination procedures are timely completed or, with respect to individual administrations, by successfully completing coordination agreements. Any radio station authorization for which coordination has not been completed may be subject to additional terms and conditions as required to effect coordination of the frequency assignments with other Administrations.

§25.112 Defective 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.

(b) Applications considered defective under paragraph (a) 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) If an applicant is requested by the Commission to file any additional information or any supplementary or explanatory information not specifically required in the prescribed application form or these rules, a failure to comply with the request within a specified time period will be deemed to render the application defective and will subject it to dismissal.

§ 25.113 Construction permits.

(a) Except as provided in paragraph (b) of this section or in § 25.131, construction permits must be obtained for all fixed or temporary fixed earth stations and for all space station facilities governed by this Part. Simultaneous application for a construction permit and station license may be made for all earth station and space station facilities governed by this Part.

(b) Construction permits are not required for satellite earth stations that operate with INTELSAT or INMARSAT space stations, or for earth stations that operate with U.S.-licensed space stations. Construction of such stations may commence prior to grant of a license at the applicant's own risk. Applicants must comply with the provisions of § 1.1312 of this chapter relating to environmental processing prior to commencing construction. A simultaneous application for a construction permit and station license may be made for all earth station and space station facilities governed by this part.

(c) *FAA notification.* Before the construction of new antenna structures or alteration in the height of existing antenna structures is authorized by the FCC, a Federal Aviation Administration (FAA) determination of ''no hazard'' may be required. To apply for this determination, the FAA must be notified of the planned construction. Criteria used to determine whether FAA notification is required for a particular antenna structure are contained in part 17 of this chapter. Applications proposing construction of one or more new antenna structures or alteration of the overall height of one or more existing antenna structures, where FAA notification prior to such construction or alteration is *not* required by part 17 of this chapter, must indicate such and, unless the reason is obvious (*e.g.* structure height is less than 6.10 meters AGL) must contain a statement explaining why FAA notification is not required.

(d) In addition to the construction permit required by paragraph (a) of this section, a launch authorization must be applied for and granted before a space station may be launched and operated in orbit. Request for launch and operation authorization and station license may be included in the application for space station construction permit. A launch authorization and station license may also be requested at any time for a space station constructed as an on-ground spare satellite. However, an application for authority to launch and operate an on-ground spare satellite will be considered to be a newly filed application for cut-off purposes, except where the space station to be launched is determined to be an emergency replacement for a previously authorized space station which has been lost as a result of a launch failure or a catastrophic in-orbit failure.

(e) *Antenna Structure Registration Number.* Applications proposing construction of one or more new antenna structures or alteration of the overall height of one or more existing 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 structure(s). If no such number has been assigned at the time the application is filed, the applicant must state in the application whether or not the antenna structure 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 for the antenna structure in question.

(f) In addition to the construction permit required by paragraph (a) of this section, a launch authorization must be applied for and granted before a space station may be launched and

operated in orbit. Request for launch authorization and station license may be included in the application for space station construction permit. A launch authorization and station license may also be requested at any time for a space station constructed as an on-ground spare satellite. However, an application for authority to launch and operate an on-ground spare domestic satellite will be considered to be a newly filed application for cut-off purposes, except where the space station to be launched is determined to be an emergency replacement for a previously authorized space station which has been lost as a result of a launch failure or a catastrophic in-orbit failure.

[56 FR 24016, May 28, 1991, as amended at 61 FR 4366, Feb. 6, 1996; 61 FR 9951, Mar. 12, 1996]

§25.114 Applications for space station authorizations.

(a) A comprehensive proposal shall be submitted for each proposed space station in narrative form with attached exhibits as described in paragraph (c) of this section. A separate application should be filed for each space station to be constructed. If an applicant is proposing more than one space station, information common to all space stations may be submitted in a consolidated system proposal. This information may be incorporated by reference in the individual space station applications.

(b) Each application for a new or modified space station authorization must constitute a concrete proposal for Commission evaluation, although the applicant may propose alternatives that increase flexibility in accommodating the satellite in orbit. Each application must also contain the formal waiver required by section 304 of the Communications Act, 47 CFR 304. The technical information for a proposed satellite radio system need not be filed on any prescribed form but should be complete in all pertinent details. Applications should be captioned in a manner that clearly distinguishes individual satellites within the applicant's system. The format of the applications should conform to the specifications of §1.49 of this chapter.

(c) The following information shall be contained in the separate applications:

(1) Name, post office 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., construction permit, launch authority, station license, modification of authorization).

(4) General description of overall system facilities, operations and services.

(5) Radio frequencies and polarization plan (including beacon, telemetry, and telecommand functions), center frequency and polarization of transponders (both receiving and transmitting frequencies), emission designators and allocated bandwidth of emission, final amplifier output power (identify any net losses between output of final amplifier and input of antenna and specify the maximum EIRP for each antenna beam), identification of which antenna beams are connected or switchable to each transponder and TT&C function, receiving system noise temperature, the relationship between satellite receive antenna gain pattern and gain-to-temperature ratio and saturation flux density for each antenna beam (may be indicated on antenna gain plot), the gain of each transponder channel (between output of receiving antenna and input of transmitting antenna) including any adjustable gain step capabilities, and predicted receiver and transmitter channel filter response characteristics.

(6)(i) For geostationary satellite orbit satellites, orbital location, or locations if alternatives are proposed, requested for the satellite, the factors which support such an orbital assignment, the range of orbital locations from which adequate service can be provided and the basis for determining that range of orbital locations, and a detailed explanation of all factors that would limit the orbital arc over which the satellite could adequately serve its expected users.

(ii) For non-geostationary satellite orbit satellites, the number of space stations and applicable information relating to the number of orbital planes,

the inclination of the orbital plane(s), the orbital period, the apogee, the perigee, the argument(s) of perigee, active service arc(s), and right ascension of the ascending node(s).

(7) Predicted space station antenna gain contour(s) for each transmit and each receive antenna beam and nominal orbital location requested. These contour(s) should be plotted on an area may at 2 dB intervals down to 10 dB below the peak value of the parameter and at 5 dB intervals between 10 dB and 20 dB below the peak values, with the peak value and sense of polarization clearly specified on each plotted contour.

(8) Estimated number and geographic distribution of earth stations, and description of proposed arrangements for access to the system between the premises of the users and the earth stations for domestic satellites only.

(9) A description of the types of services to be provided, the estimated demand for these services, and the areas and entities to be served, including a description of the transmission characteristics and performance objectives for each type of proposed service, details of the link noise budget, typical or baseline earth station parameters, modulation parameters and overall link performance analysis (including an analysis of the effects of each contributing noise and interference source). An estimate of transponder capacity under each of the proposed operating conditions must also be supplied.

(10) Accuracy with which the orbital inclination, the antenna axis attitude, and longitudinal drift will be maintained.

(11) Calculation of power flux density levels within each coverage area and of the energy dispersal, if any, needed for compliance with § 25.208.

(12) Launch vehicles and arrangements for procuring launch services.

(13) Arrangement for tracking, telemetry, and control.

(14) Physical characteristics of the space station including weight and dimensions of spacecraft, detailed mass (on ground and in-orbit) and power (beginning and end of life) budgets, and estimated operational lifetime and reliability of the space station and the basis for that estimate.

(15) A detailed description of the capabilities, if any, of each proposed domestic satellite to provide service to Alaska, Hawaii, and/or Puerto Rico/Virgin Islands.

(16) If the request is for additional or replacement satellites, detailed information on the historical use of the system transponder-by-transponder and on a year-by-year basis, together with a projection of the types and amount of services, including restoral or protection requirements, for each additional satellite on a year-by-year and transponder-by-transponder basis over the estimated lifetime of the satellite(s).

(17) A detailed schedule of the estimated investment costs and operating costs for the proposed system by year, including annual depreciation, maintenance and operating costs, and the basis on which such costs are calculated. Estimated annual revenue requirements should be provided in detail on a year-by-year basis over the estimated design lifetime of the satellites, including any pre-operational periods.

(18) Detailed information demonstrating the financial qualifications of the applicant to construct and launch the proposed satellites. Applications shall provide the financial information required by § 25.140 (b) through (e) or § 25.142(a)(4).

(19) Legal qualifications of applicant. FCC Form 430 (Licensee Qualification Report). If FCC Form 430 is already on file, indicate date, radio service and file number of most recent filing.

(20) A clear and detailed statement of whether the space station is to be operated on a common carrier basis, or whether noncommon carrier transactions are proposed. If noncommon carrier transactions are proposed, describe the nature of the transactions and specify the number of transponders to be offered on a noncommon carrier basis.

(21) Dates by which construction will be commenced and completed, launch date, and estimated date of placement into service.

(22) Public interest considerations in support of grant.

(23)–(24) [Reserved]

(25) Applications for authorizations in the Radiodetermination Satellite

Service shall also include the information specified in §25.141.

(26) 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, 52 FR 4017 (Feb. 9, 1987), 2 FCC Rcd 485 (1987).

(27) 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.

(28) Applications for authorizations in the 1.6/2.4 GHz Mobile-Satellite Service shall also provide all information specified in §25.143.

(d) Applicants requesting authority to construct and/or launch a system comprised of technically identical, non-geostationary satellite orbit mobile-satellite service space stations may file a single ''blanket'' application containing the information specified in paragraph (c) of this section for each representative space station.

[56 FR 24016, May 28, 1991, as amended at 57 FR 14798, Apr. 23, 1992; 58 FR 68059, Dec. 23, 1993; 59 FR 53326, Oct. 21, 1994; 61 FR 9945, 9952, Mar. 12, 1996]

§25.115 Application for earth station authorizations.

(a) Transmitting earth stations. Except as provided under §25.113(b), Commission authorization must be obtained for authority to construct and/or operate a transmitting earth station. Applications shall be filed on FCC Form 493 (Application for Authorization of Earth Station or for Modification of Station License) and include the information specified in §25.130.

(b) Receive-only earth stations. Applications to license or register receive-only earth stations shall be filed on FCC Form 493 and conform to the provisions of §25.131.

(c) Large Networks of Small Antennas operating in the 12/14 GHz bands with U.S. satellites for domestic services. Applications to license small antenna network systems operating in the 12/14 GHz frequency band under blanket operating authority shall include the following:

(1) A general narrative section describing the applicant and the overall system operation,

(2) A Form 430 (License Qualification Report),

(3) A Form 493 for each large (5 meters or larger) hub station operating with the network,

(4) A Form 493 for each representative type of small antenna (less than 5 meters), and

(5) A designation of a point of contact where records of location and frequency use will be maintained.

(d) User transceivers in the NVNG and 1.6/2.4 GHz Mobile-Satellite Service need not be individually licensed. Service vendors may file blanket applications for transceiver units using FCC Form 493 and specifying the number of units to be covered by the blanket license. Each application for a blanket license under this section shall include the following:

(1) A general narrative section describing the applicant and the overall system operation,

(2) A Form 430 (Licensee Qualification Report), if not already on file in conjunction with other facilities licensed under this subpart,

(3) A Form 493 for each representative type of user transceiver terminal unit,

(4) A designation of a point of contact where records of individual users will be maintained.

In addition, applicants in the NVNG MSS service shall provide the information described in §25.135. Applicants in the 1.6/2.4 GHz Mobile-Satellite Service shall demonstrate that the stations comply with the technical requirements specified in §25.213.

[56 FR 24016, May 28, 1991, as amended at 58 FR 68059, Dec. 23, 1993; 59 FR 53327, Oct. 21, 1994; 61 FR 9952, Mar. 12, 1996]

§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) If the amendment specifies a substantial change in beneficial ownership or control (*de jure* or *de facto*) of an applicant such that the change would require, in the case of an authorized station, the filing of a prior assignment or transfer of control application under section 310(d) of the Communications Act, provided however, that the change would not be considered major where it merely amends an application to reflect a change in ownership or control of the station that had been previously approved by the Commission.

(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.

(c) Any application 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 amendment to an application shall be signed and submitted in the same manner, and with the same number of copies, as was the original application.

§25.117 Modification of station license.

(a) Except as provided, 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. No license modification will be required if the licensee seeks to access another U.S.-licensed fixed satellite provided:

(1) Consultations pursuant to Article XIV(d) of the INTELSAT Agreement have been completed for the satellites, services and countries involved; and

(2) The operators of the U.S.-licensed systems have received specific authorization to provide the services to the proposed locations.

(b) Applications for modification of an earth station license to add, change or replace transmitters or antenna facilities conforming to §25.209 will be considered to be minor modifications if the particulars of operations remain unchanged and frequency coordination is not required, provided however, that the maximum power and power density delivered into any antenna at the earth station site shall not exceed the values calculated by subtracting the maximum antenna gain specified in the license from the maximum authorized e.i.r.p. and e.i.r.p. density values.

(c) Applications for modification of earth station authorizations shall be submitted on FCC Form 493 except as set forth in paragraph (e) of this section.

(d) Applications for modifications of space station authorizations shall be filed in accordance with §25.114, but only those items of information listed in §25.114(c) that change need to be

submitted provided the applicant certifies that the remaining information has not changed.

(e) Any application for modification of authorization to extend a required date of completion (e.g., begin construction, complete construction, launch, bring into operation) shall be filed on FCC Form 701 (Application for Additional Time to Construct). The application must include a verified statement from the applicant:

(1) That states 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.

[56 FR 24016, May 28, 1991, as amended at 61 FR 9952, Mar. 12, 1996]

§25.118 Assignment or transfer of control of station authorization.

(a) No station license, nor any rights thereunder, shall be transferred, assigned, or disposed of in any manner, voluntarily or involuntarily, directly or indirectly, or by transfer of control of any corporation or any other entity holding such license, to any person except upon application to the Commission and upon finding by the Commission that the pubic interest, convenience and necessity will be served thereby.

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

(c) Assignment of license. FCC Form 702 (Application for Consent to Assignment of Radio Station Construction Permit or License for Stations in Services Other than Broadcast) shall be submitted to assign voluntarily (as by, for example, contract or other agreement) or involuntarily (as by, for example, death, bankruptcy, or legal disability) the station authorization. In the case of involuntary assignment (or transfer of control), the applications should be filed within 10 days of the event causing the assignment (or transfer of control). FCC Form 702 shall also be used for non-substantial (*pro forma*) assignments. In addition, FCC Form 430 shall be submitted by the proposed assignee of a transmitting station unless the assignee has a current and substantially accurate report on file with the Commission.

(d) Transfer of control of corporation holding a license. FCC Form 704 (Application for Consent to Transfer of Control) shall be submitted in order to transfer voluntarily or involuntarily (*de jure* or *de facto*) control of a corporation holding any licenses. FCC Form 704 shall also be used for non-substantial (*pro forma*) transfers of control. In addition, FCC Form 430 shall be submitted by the proposed transferee of a transmitting station unless the transferee has a current and substantially accurate report on file with the Commission.

(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 60 days from the date of authorization. The Commission shall be notified by letter of the date of consummation and the file numbers of the applications involved in the transaction.

[56 FR 24016, May 20, 1991; 56 FR 29757, June 20, 1991]

§25.119 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 Laurel, Maryland Field Office.

(b) The Commission may grant a temporary authorization for a period not to exceed 180 days, with additional periods not exceeding 180 days, 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 of meeting scheduled customer in-service dates, will not be deemed sufficient for this purpose.

(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]

§ 25.120 License term and renewals.

(a) License term. Licenses for facilities governed by this Part will be issued for a period of 10 years, except developmental licenses which will be issued for period of 1 year.

(b) The Commission reserves the right to grant or renew station licenses for less than 10 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 satellite orbit satellites, the license term will begin at 3 a.m. EST on the date the licensee certifies to the Commission that the satellite has been successfully placed into orbit and that the operations of the satellite fully conform to the terms and conditions of the space station radio authorization.

(2) For non-geostationary satellite orbit satellites, the license term will begin at 3 a.m. EST on the date that the licensee certifies to the Commission that its initial space station has been successfully placed into orbit and that the operations of that satellite fully conform to the terms and conditions of the space station system authorization. All space stations launched and brought into service during the ten-year license term shall operate pursuant to the system authorization, and the operating authority for all space stations will terminate upon the expiration of the system license.

(e) *Renewal of licenses.* Applications for renewals of earth station licenses must be submitted on FCC Form 405 (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 license. Applications for space station system replacement authorization for non-geostationary orbit satellites

shall be filed no earlier than 90 days, and no later than 30 days, prior to the end of the seventh year of the existing license term.

[56 FR 24016, May 28, 1991, as amended at 58 FR 68059, Dec. 23, 1993; 59 FR 53327, Oct. 21, 1994]

EARTH STATIONS

§25.130 Filing requirements for transmitting earth stations.

(a) Applications for a new or modified transmitting earth station facility shall be submitted on FCC Form 493, accompanied by any required exhibits.

(b) A frequency coordination analysis in accordance with §25.203 shall be provided for earth stations transmitting in the frequency bands shared with equal rights between terrestrial and space services, except that applications for user transceiver units associated with the NVNG mobile-satellite service shall instead provide the information required by §25.135 and applications for user transceiver units associated with the 1.6/2.4 GHz Mobile-Satellite Service shall demonstrate that user transceiver operations comply with the requirements set forth in §25.213.

(c) 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.

(d) Transmission of signals or programming to non-U.S. satellites, or to 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.

(e) Each application 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 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 notification 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 58 FR 68059, Dec. 23, 1993; 59 FR 53327, Oct. 21, 1994; 61 FR 4367, Feb. 6, 1996; 61 FR 9952, Mar. 12, 1996]

§25.131 Filing requirements for receive-only earth stations.

(a) Except as provided in paragraphs (b) and (j) of this section, applications for a license for a receive-only earth station shall be submitted on FCC Form 493, accompanied by any required exhibits.

(b) Except as provided in paragraph (j) of this section, receive-only earth stations may be registered with the Commission in order to protect them from interference from terrestrial microwave stations in bands shared coequally with the fixed service in accordance with the procedures of §25.203 and §§25.251 through 25.256.

(c) 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.

(d) Applications for registration shall be filed on FCC Form 493 accompanied by the coordination exhibit required by §25.203, and any other required exhibits. Any application which is deficient or incomplete in any respect shall be immediately returned to the applicant without processing.

(e) 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.

(f) 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.

(g) 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.

(h) Registration term: Registrations for receive-only earth stations governed by this section will be issued for a period of 10 years from the date on which the application was filed. Applications for renewals of registrations must be submitted on FCC Form 405 (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.

(i) Applications for modification of license or registration of receive-only earth stations shall be made in conformance with §25.117 of this part. 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.

(j) Receive-only earth stations operating with INTELSAT space stations, or U.S.-licensed and non-U.S. space stations for reception of services from other countries, shall file an FCC Form 493 requesting a license for such station. Receive-only earth stations used to receive INTELNET I services from INTELSAT space stations need not file for licenses. *See* Deregulation of Receive-Only Satellite Earth Stations Operating with the INTELSAT Global Communications Satellite System, Declaratory Ruling, RM No. 4845, FCC 86–214 (released May 19, 1986).

[56 FR 24016, May 28, 1991, as amended at 61 FR 9952, Mar. 12, 1996]

§25.132 Verification of earth station antenna performance standards.

(a) All applications for transmitting earth stations in the C and Ku-bands must be accompanied by a certificate pursuant to §2.902 of the chapter from the manufacturer of each antenna that the results of a series of radiation pattern tests performed on representative equipment in representative configurations by the manufacturer which demonstrates that the equipment complies with the performance standards set forth in §25.209. The licensee must be prepared to demonstrate the measurements to the Commission on request in the course of an investigation of a harmful interference incident.

(b)(1) In order to demonstrate compliance with §25.209 (a) and (b), the following measurements on a production antenna performed on calibrated antenna range, as a minimum, shall be made at the bottom, middle and top of each allocated frequency band and submitted to the Commission:

(i) Co-polarized patterns for each of two orthogonal senses of polarizations in two orthogonal cuts of the antenna.

(A) In the azimuth plane, plus and minus 7 degrees and plus and minus 180 degrees.

(B) In the elevation plane, zero to forty-five degrees.

(ii) Cross-polarization patterns in the E- and H-planes, plus and minus 9 degrees.

(iii) Main beam gain.

(2) The FCC envelope specified in §25.209 shall be superimposed on each pattern. The minimum tests specified above are recognized as representative of the performance of the antenna in most planes although some increase in sidelobe levels should be expected in the spar planes and orthogonal spar planes.

(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]

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

(a) Each license for an earth station governed by this part shall 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 regular operation within 12 months from the date of the construction permit and/or license grant except as may be otherwise determined by the Commission for any particular application.

(b) Each license for a transmitting earth station included in this part shall also specify as a condition therein that upon the completion of construction, each licensee must file with the Commission a certification containing the following information: The name of the licensee; file number of the application; call sign of the antenna; date of the license; a certification that the facility as authorized has been completed and that each antenna facility has been tested and is within 2 dB of the pattern specified in §25.209, §25.135 (NVNG MSS earth stations), or §25.213 (1.6/2.4 GHz Mobile-Satellite Service earth stations); the date on which the station became operational; and a statement that the station will remain operational during the license period unless the license is submitted for cancellation. For stations authorized under §25.115(c) of this part (Large Networks of Small Antennas operating in the 12/14 GHz bands) and §25.115(d) of this part (User Transceivers in the Mobile-Satellite Service), a certificate must be filed when the network is put into operation.

(c) If the facility does not meet the technical parameters set forth in §25.209, a request for a waiver must be submitted and approved by the Commission before operations may commence.

(d) Each receiving earth station licensed or registered pursuant to §25.131 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]

§ 25.134 Licensing Provisions of Very Small Aperture Terminal (VSAT) Networks.

(a) All applications for digital VSAT networks with maximum outbound downlink power densities of +6.0 dBW/4 kHz per carrier and maximum antenna input power densities of −14 dbw/4 kHz will be processed routinely pursuant to Declaratory Order in the Matter of Routine Licensing of Large Networks of Small Antenna Earth Stations Operating in the 12/14 GHz Frequency Bands, 51 FR 15067 (April 22, 1986) (VSAT Order). All applications for analog VSAT networks with maximum outbound downlink power densities of +13.0 dBW/4 kHz per carrier and maximum antenna input power densities of −8.0 dBW/4 kHz shall be processed routinely in accordance with Declaratory Order in the Matter of Routine Licensing of Earth Stations in the 6 GHz and 14 GHz Bands Using Antennas Less than 9 Meters and 5 Meters in Diameter, Respectively, for Both Full Transponder and Narrowband Transmissions, 2 FCC Rcd 2149 (1987) (Declaratory Order).

(b) Each applicant for digital and/or analog VSAT network authorization proposing to use transmitted satellite carrier power densities in excess of +6.0 dBW/4 kHz per carrier and +13.0 dBW/4 kHz, respectively, and/or maximum antenna input power densities of −14.0 dBW/4 kHz and −8.0 dBW/4 kHz, respectively, shall conduct an engineering analysis using the Sharp, Adjacent Satellite Interference Analysis (ASIA) program. Applicants shall submit a complete description of those baseline parameters they use in conducting their analysis and tabular summaries of the ASIA program's output detailing potential interference shortfalls. Applicants shall also submit a narrative summary which must indicate whether there are margin shortfalls in any of the current baseline services as a result of the addition of the new applicant's high power service, and if so, how the applicant intends to resolve those margin shortfalls. Applicants shall submit link budget analyses of the operations proposed along with a detailed written explanation of how each uplink and each transmitted satellite carrier density figure is derived. Applicants shall provide proof by affidavit that all potentially affected parties acknowledge and do not object to the use of the applicant's higher power density.

(c) Licensees authorized pursuant to paragraph (b) of this section shall bear the burden of coordinating with any future applicants or licensees whose proposed compliant VSAT operations, as defined by paragraph (a) of this section, is potentially or actually adversely affected by the operation of the non-compliant licensee. If no good faith agreement can be reached, however, the non-compliant licensee shall reduce its power density levels to those compliant with the VSAT Order or the Declaratory Order, whichever is applicable.

[56 FR 66001, Dec. 20, 1991]

§ 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) Transceiver units associated with the non-voice, non-geostationary mobile-satellite service may not be operated on civil aircraft. All portable or hand-held transceiver units (including transceiver units installed in other devices that are themselves portable or hand-held) having a receiver operating in the 137–138 MHz band shall bear the following statement in a conspicuous location on the device: ''This device may not be operated while on board a civil aircraft. It must be turned off at all times while on board such an aircraft.'' This subsection shall not apply

to transceiver units whose receivers are incapable of radiating in the 108–137 MHz frequency bands.

(c) Transceiver units in this service are authorized to communicate with and through U.S. authorized space stations only. No person shall transmit to a space station unless the specific transmission is first authorized by the space station licensee or by a service vendor authorized by that licensee.

(d) Any transceiver unit associated with this service will be deemed, when communicating with a particular non-voice, non-geostationary mobile-satellite service system pursuant to paragraph (c) of this section, to be temporarily associated with and licensed to the system operator or service vendor holding the blanket earth station license awarded pursuant to §25.115(d). The domestic earth station licensee shall, for such temporary period, assume the same licensee responsibility for such transceiver as if such transceiver were regularly licensed to it.

[58 FR 68059, Dec. 23, 1993]

§25.136 Operating provisions for earth station networks in the 1.6/2.4 GHz mobile-satellite service.

In addition to the technical requirements specified in §25.213, earth stations operating in the 1.6/2.4 GHz Mobile-Satellite Service are subject to the following operating conditions:

(a) User transceiver units associated with the 1.6/2.4 Mobil-Satellite service may not be operated on civil aircraft unless the earth station has a direct physical connection to the aircraft Cabin Communication system.

(b) User transceiver units in this service are authorized to communicate with and through U.S. authorized space stations only. No person shall transmit to a space station unless the user transceiver is first authorized by the space station licensee or by a service vendor authorized by that licensee, and the specific transmission is conducted in accordance with the operating protocol specified by the system operator.

(c) Any user transceiver unit associated with this service will be deemed, when communicating with a particular 1.6/2.4 GHz Mobile-Satellite Service system pursuant to paragraph (b) of this section, to be temporarily associated with and licensed to the system operator or service vendor holding the blanket earth station license awarded pursuant to Section 25.115(d). The domestic earth station licensee shall, for this temporary period, assume the same licensee responsibility for the user transceiver as if the user transceiver were regularly licensed to it.

[59 FR 53327, Oct. 21, 1994, as amended at 61 FR 9945, Mar. 12, 1996]

SPACE STATIONS

§25.140 Qualifications of fixed-satellite space station licensees.

(a) New fixed-satellites shall comply with the requirements established in Report and Order in CC Docket No. 81–704. The requirements for radio station applications for new fixed-satellites are specified in Appendix B to the Commission's 1983 Processing Order (93 FCC2d 1260 (1983)). Applications must also meet the requirements in paragraphs (b) through (e) of this section. The Commission may require additional or different information in the case of any individual application. Applications will be unacceptable for filing and will be returned to the applicant if they do not meet the requirements referred to in this paragraph.

(b) Each applicant for a space station authorization in the fixed-satellite service must demonstrate, on the basis of the documentation contained in its application, that it is legally, financially, technically, and otherwise qualified to proceed expeditiously with the construction, launch and/or operation of each proposed space station facility immediately upon grant of the requested authorization. Each applicant must provide the following information:

(1) The information specified in §25.114.

(2) Financial qualifications should be demonstrated in the form specified below. Failure to make such a showing shall result in the dismissal of the application.

(3) An interference analysis to demonstrate the compatibility of its proposed system 2° from any authorized space station. Applicants should provide details of their proposed r.f. carriers which they believe should be

taken into account in these analyses. At a minimum, the applicant must include, for each type of r.f. carrier, the link noise budget, modulation parameters, and overall like performance analysis. (*See, e.g.*, appendices B and C to Licensing of Space Stations in the Domestic Fixed-Satellite Service, 48 FR 40233 (September 6, 1983).)

(c) Each application for authority to construct and/or to launch and operate a space station in this service shall include a detailed statement of estimated investment and operating costs for the expected lifetime of the facility, and shall demonstrate in accordance with paragraph (d) of this section the applicant's current financial ability to meet the:

(1) Estimated costs of proposed construction and/or launch, and any other initial expenses for the space station(s); and

(2) Estimated operating expenses for one year after launch of the proposed space station(s).

(d) Each application for authority to construct and/or launch a space station shall demonstrate an applicant's current financial ability to meet the costs specified in paragraph (c) of this section by submitting the following financial information verified by affidavit:

(1) A balance sheet current for the latest fiscal year and documentation of any financial commitments reflected in the balance sheet (such as, for example, loan agreements and service contracts) together with an exhibit demonstrating that the applicant has current assets and operating income sufficient to satisfy the requirements of paragraph (c) of this section. If the applicant is owned by more than one corporate parent, it must submit evidence of a commitment to the proposed satellite program by management of the corporate parent upon whom it is relying for financial resources;

(2) If the submissions of paragraph (d)(1) of this section do not satisfy paragraph (c) of this section, the applicant shall submit additional information as listed below to satisfy paragraph (c) of this section.

(i) The terms of any fully negotiated loan or other form of credit arrangement intended to be used to finance the proposed construction, acquisition, or operation of the requested facilities including such information as the identity of the creditor (or creditors), the amount committed, letters of commitment, detailed terms of the transaction, including the details of any contingencies, and a statement that paragraph (e) of this section is complied with;

(ii) The terms of any fully negotiated sale or placement of any equity or other form of ownership interest, including the sale, or long-term lease for the lifetime of the satellite, of proposed satellite transponder capacity in the level of detail as specified in paragraph (d)(2)(i) of this section;

(iii) The terms of any grant, or other external funding commitment intended to be used to finance the proposed construction, acquisition or operation of the requested facilities including such information as the identity of the grantor(s), the amount committed, letters of commitment, and detailed terms of the transaction, including the details of any contingencies;

(iv) Any financing arrangements contingent on further performance by either party, such as marketing of satellite capacity or raising additional financing, will not satisfy the requirements of paragraph (c) of this section.

(3) Whatever other information or details the Commission may require with regard to a specific application or applicant;

(e) Any loan or other credit arrangement providing for a chattel mortgage or secured interest in any proposed facility must include a provision for a minimum of ten (10) days prior written notification to the licensee or permittee, and to the Commission, before any such equipment may be repossessed under default provision of the agreement.

(f) An applicant found to be qualified pursuant to paragraph (b) of this section may be initially assigned up to two orbital locations in each pair of frequency bands proposed. Authorizations to construct ground spares are at the applicant's risk that launch authorization will not be granted by the Commission.

(g) Each applicant found to be qualified pursuant to paragraph (b) of this section may be assigned no more than

one additional orbital location beyond its current authorizations in each frequency band in which it is authorized to operate, provided that its in-orbit satellites are essentially filled and that it has no more than two unused orbital locations for previously authorized but unlaunched satellites in that band.

(h) In the event that one or more applications satisfying the requirements of this section are ready for grant, any orbital location occupied by a satellite that is determined to be a part of a system that is not essentially filled may be cancelled and colocation of in-orbit satellites may be required. The Commission may take this action if, in so doing, it would allow the grant of pending applications that satisfy the requirements of this section. If a cancellation is made, the licensee will be afforded a period of 30 days to notify the Commission which of its assigned locations should be cancelled.

[56 FR 24016, May 28, 1991, as amended at 58 FR 68060, Dec. 23, 1993; 61 FR 9952, Mar. 12, 1996]

§25.141 Licensing provisions for the radiodetermination satellite service.

(a) *Space station application requirements.* Each application for a space station license in the radiodetermination satellite service shall describe in detail the proposed radiodetermination satellite system, setting forth all pertinent technical and operational aspects of the system, including its capability for providing and controlling radiodetermination service on a geographic basis, and the technical, legal and financial qualifications of the applicant. In particular, each application shall include the information specified in Appendix B of Space Station Application Filing Procedures, 93 FCC 2d 1260, 1265 (1983), except that in lieu of demonstrating compliance with item II.F (two degree spacing), applicants are required to demonstrate compatibility with licensed satellite systems in the same frequency band. Applicants must also file information demonstrating compliance with all requirements of this section, specifically including information demonstrating how the applicant has complied or plans to comply with the requirements of paragraph (f) of this section.

(b) Space station application procedures. Each application for a space station in the radiodetermination satellite service shall be placed on public notice for 60 days, during which time interested parties may file comments and petitions related to the application. A 60 day cut-off period shall also be established for the filing of applications to be considered in conjunction with an original application.

(c) User transceivers. Individual user transceivers will not be licensed. Service vendors may file blanket applications for transceiver units using FCC Form 493 and specifying the number of units to be covered by the blanket license. FCC Form 430 should be submitted if not already on file in conjunction with other facilities licensed under this subpart. Each application must demonstrate that transceiver operations will not cause interference to other users of the spectrum.

(d) Permissible communications. Stations in this service are authorized to render radiodetermination service, and may not render other services except as ancillary to the radiodetermination service.

(e) Frequency allocation policies. Each radiodetermination satellite service licensee will be assigned the entire allocated frequency bands on a non-exclusive basis. Coding techniques and power limits as set forth in paragraph (f) of this section and orbital spacing shall be employed to avoid harmful interference with other radiodetermination satellite service systems.

(f) *Radiodetermination satellite service.* Licenses shall coordinate with radiodetermination satellite system licensees to avoid harmful interference to other radiodetermination satellite systems through:

(1) Power flux density limits;

(2) Use of pseudorandom-noise codes (for both the satellite-to-user link and for the user-to-satellite link); and

(3) Random access, time division multiplex techniques.

Licensees shall coordinate with 1.6/2.4 GHz Mobile-Satellite Service system licensees to avoid interference to 1.6/2.4 GHz Mobile-Satellite Service systems.

(g) License conditions. All authorizations in the radiodetermination satellite service shall be subject to the policies set forth in the Report and Order, including compliance with appendix D, and the Second Report and Order in General Docket Nos. 84–689 and 84–690 and to any policies and rules the Commission may adopt at the later date.

[56 FR 24016, May 28, 1991, as amended at 59 FR 53327, Oct. 21, 1994]

§ 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, legal, and financial qualifications of the applicant. In particular, each application shall include the information specified in §25.114, except that in lieu of the information concerning orbital locations requested in §25.114(c)(6), the applicant shall specify the number of space stations and applicable information relating to the altitude(s), argument(s) of perigee, service arc(s), right ascension of ascending node(s), eccentricity, and inclination of the space stations (all referenced to the same time) that will comprise its system. 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 must identify the power flux density produced at the Earth's surface by each space station of their system in the frequency bands 137–138 MHz and 400.15–401 MHz, to allow determination of whether coordination with terrestrial services is required under international footnotes 599A and 647B of §2.106 of the Commission's Rules. 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) Financial qualifications. Each applicant for space station system authorization in the non-voice, non-geostationary mobile-satellite service must demonstrate, on the basis of the documentation contained in its application, that it is financially qualified to proceed expeditiously with the construction, launch and operation for one year of the first two space stations of its proposed system immediately upon grant of the requested authorization. Failure to make such a showing will result in the dismissal of the application. This showing shall include all information described in §25.140 (c), (d) and (e).

(5) Replacement of space stations within the system license term. The licensee need not file separate applications to construct, launch and operate technically identical replacement satellites within the term of the system authorization. However, the licensee shall certify to the Commission, at least thirty days prior to launch of such replacement(s) that:

(i) The licensee intends to launch a space station that is technically identical to those authorized in its system license, and

(ii) Launch of this space station will not cause the licensee to exceed the total number of operating space stations authorized by the Commission.

(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 construction 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) *Reporting requirements.* All operators of non-voice, non-geostationary mobile-satellite service systems shall, on June 30 of each year, file a report

with the Common Carrier Bureau and the Commission's Laurel, Maryland field office containing the following information:

(1) A listing of any non-scheduled space station outages for more than thirty minutes and the cause(s) of such outages;

(2) A detailed description of the utilization made of the in-orbit satellite system. That description should identify the percentage of time that the system is actually used for domestic transmission, the amount of capacity (if any) sold but not in service, and the amount of unused system capacity; and

(3) Identification of any space stations not available for service or otherwise not performing to specifications, the cause(s) of these difficulties, and the date any space station was taken out of service or the malfunction identified.

[58 FR 68060, Dec. 23, 1993]

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

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

(b) *Qualification Requirements.*

(1) *General Requirements:* Each application for a space station system authorization in the 1.6/2.4 GHz mobile-satellite service shall describe in detail the proposed satellite system, setting forth all pertinent technical and operational aspects of the system, and the technical, legal, and financial qualifications of the applicant. In particular, each application shall include the information specified in § 25.114.

(2) *Technical Qualifications:* In addition to providing the information specified in paragraph (b)(1) of this section, each applicant shall demonstrate the following:

(i) That the proposed system employs a non-geostationary constellation or constellations of satellites;

(ii) That the proposed system be capable of providing mobile satellite services to all locations as far north as 70° latitude and as far south as 55° 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 the proposed system is capable of providing mobile satellite services on a continuous basis throughout the fifty states, Puerto Rico and the U.S. Virgin Islands, U.S., *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;

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

(3) *Financial Qualifications:* Each applicant for a space station system authorization in the 1.6/2.4 GHz mobile-satellite service must demonstrate, on the basis of the documentation contained in its application, that it is financially qualified to meet the estimated costs of the construction and launch of all proposed space stations in the system and the estimated operating expenses for one year after the launch of the initial space station. Financial qualifications must be demonstrated in the form specified in §§ 25.140(c) and (d). In addition, applicants relying on current assets or operating income must submit evidence of a management commitment to the proposed satellite system. Failure to make such a showing will result in the dismissal of the application.

(c) *Replacement of Space Stations Within the System License Term.* Licensees of 1.6/2.4 GHz mobile-satellite systems authorized through a blanket license pursuant to paragraph (a) of this section need not file separate applications to construct, launch and operate technically identical replacement satellites within the term of the system authorization. However, the licensee shall certify to the Commission, at least thirty days prior to launch of such replacement(s) that:

(1) The licensee intends to launch a space station that is technically identical to those authorized in its system authorization, and

(2) Launch of this space station will not cause the licensee to exceed the total number of operating space stations authorized by the Commission.

(d) *In-Orbit Spares.* Licensees need not file separate applications to operate technically identical in-orbit spares authorized as part of the blanket license pursuant to paragraph (a) of this section. However, the licensee shall certify to the Commission, within 10 days of bringing the in-orbit spare into operation, that operation of this space station did not cause the licensee to exceed the total number of operating space stations authorized by the Commission.

(e) *Reporting requirements.*

(1) All operators of 1.6/2.4 GHz mobile-satellite systems shall, on June 30 of each year, file with the International Bureau and the Field Office in Laurel, Maryland a report containing the following information:

(i) Status of satellite construction and anticipated launch dates, including any major problems or delays encountered;

(ii) A listing of any non-scheduled space station outages for more than 30 minutes and the cause or causes of the outage;

(iii) A detailed description of the utilization made of the in-orbit satellite system. That description should identify the percentage of time that the system is actually used for U.S. domestic or transborder transmission, the amount of capacity (if any) sold but not in service within U.S. territorial geographic areas, and the amount of unused system capacity; and

(iv) Identification of any space stations not available for service or otherwise not performing to specifications, the cause or causes of these difficulties, and the date any space station was taken out of service or the malfunction identified.

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

(f) *Safety and distress communications.*

(1) Stations operating in the 1.6/2.4 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.

(g) *Considerations involving transfer or assignment applications.*

(1) ''Trafficking'' in bare licenses issued pursuant to paragraph (a) of this section is prohibited, except with respect to licenses obtained through a competitive bidding procedure.

(2) The Commission will review a proposed transaction to determine if the circumstances indicate trafficking in licenses whenever applications (except those involving *pro forma* assignment or transfer of control) for consent to assignment of a license, or for transfer of control of a licensee, involve facilities licensed pursuant to paragraph (a) of this section. At its discretion, the Commission may require the submission of an affirmative, factual showing (supported by affidavits of a person or persons with personal knowledge thereof) to demonstrate that no trafficking has occurred.

(3) If a proposed transfer of radio facilities is incidental to a sale of other facilities or merger of interests, any showing requested under paragraph (g)(2) of this section shall include an additional exhibit which:

(i) Discloses complete details as to the sale of facilities or merger of interests;

(ii) Segregates clearly by an itemized accounting, the amount of consideration involved in the sale of facilities or merger of interest; and

(iii) Demonstrates that the amount of consideration assignable to the facilities or business interests involved represents their fair market value at the time of the transaction.

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

[59 FR 53328, Oct. 21, 1994, as amended at 61 FR 9945, Mar. 12, 1996]

PROCESSING OF APPLICATIONS

§ 25.150 Receipt of applications.

Applications received by the Commission are given a file number and (domestic only) 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 the subsequent return or dismissal of the application if it is found to be defective or not in accordance with the Commission's rules.

§ 25.151 Public notice period.

(a) At regular intervals, the Commission will issue public notices listing:

(1) The receipt of applications for new station authorizations;

(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 which the Commission in its discretion believes to be of public significance; and

(8) Special environmental considerations as required by part 1 of this chapter.

(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 § 25.119;

(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) 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.

[56 FR 24016, May 28, 1991, as amended at 58 FR 68061, Dec. 23, 1993]

§25.152 Dismissal and return of applications.

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

(b) 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.

§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. The Commission may, for good cause shown, waive the requirements of this section.

(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.

§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;

(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) 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.

(d) Reply comments by the party that filed the original petition may be filed with respect to pleadings filed pursuant to paragraph (c) of this section within 5 days after the time for filing oppositions has expired unless the Commission otherwise extends the

filing deadline and must be in accordance with other applicable provisions of §§ 1.41 through 1.52 of this chapter.

§ 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 electrical interference, or other practical reason, the grant of one or more other applications.

(b) An application will be entitled to comparative consideration with one or more conflicting applications only if:

(1) The application is mutually exclusive with another application; and

(2) The application is received by the Commission in a condition acceptable for filing

(i) By the ''cut-off'' date specified in a public notice; or

(ii) If no ''cut-off'' date is specified, within 30 days after the date of the public notice listing the first of the conflicting applications as acceptable for filing.

§ 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) Whenever the Commission grants any application in part, or subject to any terms or conditions other than those routinely applied to applications of the same type, the grant shall be considered final unless the Commission should revise its action (either by granting the application as originally requested, or by designating the application for hearing) in response to a petition for reconsideration which:

(1) Is filed by the applicant within thirty (30) days from the release date of the conditioned grant; and

(2) Rejects the grant as made and explains the reasons why the application should be granted as originally requested.

(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.

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) The expiration of the required date of completion of construction or

other required action specified in the authorization, or after any additional time authorized by the Commission, if a certification of completion of the required action has not been filed with the Commission unless a request for an extension of time has been filed with the Commission but has not been acted on;

(b) The expiration of the license period, unless an application for renewal of the license has been filed with the Commission pursuant to §25.120(e); 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.

§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 which have been established to insure 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.

Subpart C—Technical Standards

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

§25.201 Definitions.

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

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)

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.

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.

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)

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)

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.

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.

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

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)

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

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.

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]

§ 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 will be assigned on a case-by-case basis.

Space-to-Earth	Earth-to-space
3700–4200 MHz[1][1]	5925–6425 MHz.[1][1]
10.95–11.2 GHz[2][2]	14.0–14.5 GHz.[3][3]
11.45–11.7 GHz[2][2]	27.5–29.5 GHz.[1][1]
11.7–12.2 GHz	29.5–30.0 GHz.
17.7–19.7 GHz[1]	
19.7–20.0 GHz	

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

[2] Use of this band by the fixed-satellite service is limited to international systems, i.e. other than domestic systems. These bands are also shared on a co-equal basis with terrestrial radiocommunication services.

[3] The band 14.0–14.3 GHz is shared coequally with the radionavigation service, and the band 14.4–14.5 GHz is shared with Government terrestrial radiocommunication services in accordance with the provisions of footnote US234 in the Table of Frequency Allocations.

(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

(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]

§ 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),

(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 satellites at which antenna may be pointed,

(vi) Horizon elevation plot,

(vii) Antenna horizon gain plot(s) determined in accordance with §25.253(b) for satellite longitude range specified in paragraph (c)(2)(v) of this section, taking into account the provisions of §25.253(a)(2) for earth stations operating with non-geostationary satellites.

(viii) Minimum elevation angle,

(ix) Maximum effective isotropically radiated power (EIRP) in any 4 kHz band in the main beam, (dBW/4 kHz),

(x) Maximum available RF transmit power 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 §25.252 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 §§25.253 and 25.254.

(3) The coordination procedure specified in §21.100(d) of this chapter 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 §§251.251 through 25.256, showing that

harmful interference is not likely to result from the proposed operation.

(d) An applicant for an earth station authorization shall also ascertain whether the great circle coordination distance contours and rain scatter coordination distance contours, computed for those values of parameters indicated in table 1 of § 25.252 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/m²)
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 located 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 a station authorization other than mobile, temporary base, temporary fixed, Personal Radio,

Civil Air Patrol, or amateur seeking a station license for a new station, a construction permit to construct a new station or to modify an existing station license in a manner which would change either the frequency, power, antenna height or directivity, or location of such a 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 shall, at the time of filing such 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 in the vicinity of an FCC monitoring station for a radio station authorization to operate new transmitting facilities or changed transmitting facilities which would increase the field strength produced over the monitoring station over that previously authorized are advised to give consideration, prior to filing applications, to the possible need to protect the FCC stations from harmful interference. Geographical coordinates of the facilities which require protection are listed in §0.121(c) of the Commission's Rules. Applications for stations (except mobile stations) which will produce on any frequency a direct wave fundamental field strength of *greater than 10 mV/m* in the authorized bandwidth of service (-65.8 dBW/m^2 power flux density assuming a free space characteristic impedance of 120 ohms) at the referenced coordinates, may be examined to determine 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 indicated coordinates, a clause protecting the monitoring station may be added to the station authorization.

(2) In the event that calculated value of expected field 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. Prospective applicants may communicate with: Chief, Compliance and Information Bureau, Federal Communications Commission, Washington, DC 20554, Telephone (202) 632–6980.

(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 the Commission's Rules and also meets the

criteria outlined in paragraphs (h)(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) [Reserved]

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

(k) An applicant for an earth station 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.

[30 FR 7176, May 28, 1965, as amended at 36 FR 2562, Feb. 6, 1971; 38 FR 8573, Apr. 4, 1973; 42 FR 8329, Feb. 9, 1977; 44 FR 77167, Dec. 31, 1979; 50 FR 40862, Oct. 7, 1985; 58 FR 13419, Mar. 11, 1993; 58 FR 44904, Aug. 25, 1993; 59 FR 53329, Oct. 21, 1994; 61 FR 8477, Mar. 5, 1996; 61 FR 9945, Mar. 12, 1996; 61 FR 44181, Aug. 28, 1996]

EFFECTIVE DATE NOTE: At 61 FR 44181, Aug. 28, 1996, § 25.203 was amended by adding paragraph (h), effective Oct. 28, 1996.

§ 25.204 Power limits.

(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 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 $\theta \leqq 0°$
$+40+3\ \theta$ dBW in any 4 KHz band for $\theta < 0° \leqq 05°$

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 radio-communication 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 $\theta < 0°$
$+64+3\ \theta$ dBW in any 1 MHz band for $0° < \theta < 5°$

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) For operations at frequencies above 10 GHz, earth station operators may exceed the uplink e.i.r.p. and e.i.r.p. density limits specified in the station authorization under the 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. The e.i.r.p. levels shall be returned to normal as soon as the attenuating weather pattern subsides. The maximum power level for power control purposes shall be coordinated between and among adjacent satellite operators.

[48 FR 40255, Sept. 6, 1983, as amended at 58 FR 13420, Mar. 11, 1993]

§25.205 Minimum angle of antenna elevation.

Earth station antennas shall not normally be authorized for transmission at angles less than 5° measured from the horizontal plane to the direction of maximum radiation. However, upon a showing that the transmission path will be seaward and away from land masses or upon special showing of need for lower angles by the applicant, the Commission will consider authorizing transmissions at angles between 3° and 5° in the pertinent directions. In certain instances, it may be necessary to specify minimum angles greater than 5° because of interference considerations.

[48 FR 40255, Sept. 6, 1983]

§25.206 Station identification.

The requirement for transmission of station identification is waived for all radio stations licensed under this part with the exception of satellite uplinks carrying broadband video information which are required to incorporate ATIS in accordance with the provisions set forth under §25.308 of these rules.

[55 FR 21551, May 25, 1990]

§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 limits.

(a) In the band 3700–4200 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, 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:

- -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

These limits relate to the power flux density which would be obtained under assumed free-space propagation conditions.

(c) In the 17.7–19.7 GHz, 22.55–23.00 GHz, 23.00–23.55 GHz, and 24.45–24.75 GHz frequency bands, 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:

(1) 115 dB (W/m^2) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane.

(2) 115+0.5 (d–5) dB (W/m^2) 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/m^2) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

[48 FR 40255, Sept. 6, 1983, as amended at 52 FR 45636, Dec. 1, 1987; 59 FR 53329, Oct. 21, 1994]

§ 25.209 Antenna performance standards.

(a) The gain of any antenna to be employed in transmission from an earth station in the fixed-satellite service shall lie below the envelope defined below:

(1) In the plane of the geostationary satellite orbit as it appears at the particular earth station location:

29–25 $\log_{10}$ (Theta) dBi	1° </= Theta </=7°
+8 dBi	7° < Theta </=9.2°
32–25 $\log_{10}$ (Theta) dBi	9.2° < Theta </=48°
−10 dBi	48° < Theta </=180°

where Theta is the angle in degrees from the axis of the main lobe, and dBi refers to dB relative to an isotropic radiator. For the purposes of this section, the peak gain of an individual sidelobe may not exceed the envelope defined above for Theta between 1.0 and 7.0 degrees. For Theta greater than 7.0 degrees, the envelope may be exceeded by no more than 10% of the sidelobes, provided no individual sidelobe exceeds the gain envelope given above by more than 3 dB.

(2) In all other directions, or in the plane of the horizon including any out-of-plane potential terrestrial interference paths:

Outside the main beam, the gain of the antenna shall lie below the envelope defined by:

32–25 $\log_{10}$ (Theta) dBi	1° </= Theta </=48°
−10 dBi	48° < Theta </=180°

where Theta and dBi are defined above. For the purposes of this section, the envelope may be exceeded by no more than 10% of the sidelobes provided no individual sidelobe exceeds the gain envelope given above by more than 6 dB. The region of the main reflector spillover energy is to be interpreted as a single lobe and shall not exceed the envelope by more than 6 dB.

(b) The off-axis cross-polarization gain of any antenna to be employed in transmission from an earth station to a space station in the domestic fixed-satellite service shall be defined by:

19–25 log10 (Theta) dBi	1.8° < Theta </= 7°
−2 dBi	7 °<Theta </= 9.2°

(c) Earth station antennas licensed for reception of radio transmissions from a space station in the fixed-satellite service are protected from radio interference caused by other space stations only to the degree to which harmful interference would not be expected to be caused to an earth station employing an antenna conforming to the referenced patterns defined in paragraphs (a) and (b) of this section, and protected from radio interference caused by terrestrial radio transmitters identified by the frequency coordination process only to the degree to which harmful interference would not be expected to be caused to an earth station conforming to the reference pattern defined in paragraph (a)(2) of this section.

(d) The patterns specified in paragraphs (a) and (b) of this section shall apply to all new earth station antennas initially authorized after February 15, 1985 and shall apply to all earth station antennas after March 11, 1994.

(e) The operations of any earth station with an antenna not conforming to the standards of paragraphs (a) and (b) of this section shall impose no limitations upon the operation, location or design of any terrestrial station, any other earth station, or any space station beyond those limitations that would be expected to be imposed by an earth station employing an antenna conforming to the reference patterns defined in paragraphs (a) and (b) of this section.

(f) An earth station with an antenna not conforming to the standards of paragraphs (a) and (b) of this section will be routinely authorized after February 15, 1985 upon a finding by the Commission that unacceptable levels of interference will not be caused under conditions of uniform 2° orbital

spacings. An earth station antenna initially authorized on or before Feburary 15, 1985 will be authorized by the Commission to continue to operate as long as such operations are found not to cause any unacceptable levels of adjacent satellite interference. In either case, the Commission will impose appropriate terms and conditions in its authorization of such facilities and operations.

(g) The antenna performance standards of small antennas operating in the 12/14 GHz band with diameters as small as 1.2 meters starts at 1.25° instead of 1° as stipulated in paragraph (a) of this section.

[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]

§25.210 Technical requirements for space stations in the Fixed-Satellite Service.

(a) All space stations in the Fixed-Satellite Service used for domestic service in the 4/6 GHz frequency band shall:

(1) Use orthogonal linear polarization with one of the planes defined by the equatorial plane;

(2) Be designed so that the polarization sense of uplink transmissions is opposite to that of downlink transmissions on the same transponder; and

(3) Shall be capable of switching polarization sense upon ground command.

(b) All space stations in the Fixed-Satellite Service shall have a minimum capability to change transponder saturation flux densities by ground command in 4 dB steps over a range of 12 dB.

(c) All space stations in the Fixed-Satellite Service shall be designed to derive the maximum capacity feasible from the assigned orbital location. In particular, space stations in the Fixed-Satellite Service are required to employ state-of-the-art full frequency reuse using both horizontal and vertical polarization.

(d) For fixed-satellite space stations providing domestic service, full frequency re-use is defined as re-use of the frequency bands by polarization discrimination in both the uplink and downlink directions using state-of-the-art equipment and techniques.

(e) For fixed-satellite space stations providing international service, full frequency re-use is defined as follows:

(1) Satellites must employ polarization discrimination so that, through the use of dual polarization, they shall be able to reuse both the uplink and downlink frequency band assignments.

(2) Satellites must be configured so that all assigned frequencies (in both polarizations) could be reused in beams serving widely separate areas.

(f) [Reserved]

(g) Space station antennas in the Fixed-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 shall be at least 30 dB within its primary coverage area.

(h) Space stations to be operated in the geostationary satellite orbit must be:

(1) Designed with the capability of being maintained in orbit within 0.05° of their assigned orbital longitude,

(2) Maintained in orbit at their assigned orbital longitude within the longitudinal tolerance specified by the Commission, and

(3) The Commission may authorize operations at assigned orbital longitudes offset by 0.05° or multiples thereof from the nominal orbital location specified in the station authorizations.

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

(j) All operators of space stations shall file a semi-annual report with the International Bureau and the Commission's Laurel, Maryland field office containing the following information:

(1) Status of satellite construction and anticipated launch dates, including

any major problems or delays encountered;

(2) A listing of any non-scheduled transponder outages for more than thirty minutes and the cause(s) of such outages;

(3) A detailed description of the utilization made or anticipated to be made of each transponder on each of the in-orbit satellites. That description should identify the total capacity or the percentage of time each transponder is actually used for transmission, the amount of capacity (if any) sold but not in service and the amount of unused capacity in the transponder. If the transponder is reserved as a spare, the operating transponder being protected should be identified. If the transponder is used for preemptible or occasional services, the nature of these services and amount of time preemptible or occasional services that are provided over the transponder should also be identified; and

(4) Identification of any transponders not available for service or otherwise not performing to specifications, the cause of these difficulties, and the date any transponder was taken out of service or the malfunction identified.

[58 FR 13420, Mar. 11, 1993, as amended at 61 FR 9952, Mar. 12, 1996]

§ 25.211 Video Transmissions in the Domestic Fixed—Satellite Service.

(a) Downlink analog video transmissions in the band 3700–4200 MHz shall be transmitted only on a center frequency of 3700+20N MHz, where N=1 to 24. The corresponding uplink frequency shall be 2225 MHz higher.

(b) All 4/6 GHz analog video transmissions shall 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. Further, all transmissions operating in frequency bands described in §25.208(b) and (c) shall 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. The transmission of an unmodulated carrier at a power level sufficient to saturate a transponder is prohibited, except by the space station licensee to determine transponder performance characteristics. All 12/14 GHz video transmissions for TV/FM shall identify the particular carrier frequencies for necessary coordination with adjacent U.S. satellite systems and affected satellite systems of other administrations.

(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.

[58 FR 13421, Mar. 11, 1993, as amended at 61 FR 9952, Mar. 12, 1996]

§ 25.212 Narrowband transmissions in the Fixed-Satellite Service.

(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).

[58 FR 13421, Mar. 11, 1993]

§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. During periods of radio astronomy observations, land mobile earth stations shall not operate when located within geographic protection zones defined by the radio observatory coordinates and separation distances as follows:

(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
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 terminals 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 terminal either prior to transmission or, based upon its location within the protection zone at the time of initial transmission of the mobile earth terminal. Once the mobile-satellite system determines that a mobile earth terminal is located within an RAS protection zone, the mobile-satellite system shall immediately initiate procedures to relocate the mobile earth terminal 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) Protection of the radionavigation-satellite service. Mobile earth stations operating in the 1610–1626.5 MHz band shall limit out-of-band emissions in the 1574.397–1576.443 MHz band so as not to exceed an e.i.r.p. density level of −70 dB (W/MHz) averaged over any 20 ms period. The e.i.r.p. of any discrete spurious emission (*i.e.*, bandwidth less than 600 Hz) in the 1574.397–1576.443 MHz band shall not exceed −80 dBW.

[59 FR 53329, Oct. 21, 1994, as amended at 61 FR 9945, Mar. 12, 1996]

§ 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]

EFFECTIVE DATE NOTE: At 61 FR 44181, Aug. 28, 1996, §25.250 was added, effective Oct. 28, 1996.

§ 25.251 Special requirements for coordination.

(a) The administrative aspects of the coordination process are set forth in §§21.100(d) and 21.706 (c) and (d) 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. The technical aspects of the coordination process are set forth in §§25.252 through 25.256.

(b) The technical aspects of coordination are based on appendix 28 of the international radio regulations and certain recommendations and reports of the CCIR. Applicants and operators will find it helpful to be aware of the latest revision of these documents, in particular reports 244, 382, and 448.

(c) Although two types of interference paths have to be considered, i.e., from an earth station transmitter into terrestrial receivers, and from a terrestrial transmitter into earth station receivers, the use of different frequency bands for transmission and reception by the communication-satellite service limit the consideration to only one type of interference path in each frequency band, namely:

(1) In those shared frequency bands limited to transmission by an earth station, only the possibility of interference from earth station transmitters into terrestrial receivers needs to be considered;

(2) In those shared frequency bands limited to reception by an earth station, only the possibility of interference from terrestrial transmitters into the earth station receivers needs to be considered.

(d) For the purposes of effecting coordination between terrestrial and earth station in frequency bands shared with equal rights by these services, the following assumptions should be made, absent specific information:

(1) That the earth station antenna may be directed towards any point on that portion of the geostationary arc visible at the earth station location at which the corresponding elevation angle exceeds or is equal to the limits specified in §25.205;

(2) That any terrestrial station and any earth station within 100 kilometers of each other must be coordinated whether or not a lesser coordination distance results from any calculation;

(3) That the terrestrial antenna meets an antenna pattern based on the maximum antenna gain from table 1 of §25.252 and the sidelobe suppression standard B set forth in §21.108(c) of this chapter;

(4) That for coordination, the earth station antenna sidelobe gain level is defined by the following formula:

$32 - 25 \log_{10} \theta$ dBi $\quad 1° \leqq \theta \leqq 48°$
-10 dBi $\quad 48° < \theta \leqq 180°$

where θ is the off-axis angle to the direction of the terrestrial station in question. If the actual antenna gain performance is better than that defined by this formula, the actual gain may be used to effect coordination.

(5) That both systems occupy all frequencies allocated to the particular service in the band to which they are assigned.

(e) The assumption of paragraph (d)(3) of this section, that the terrestrial station antenna only meets the sidelobe suppression standard B of §21.108(c) of this chapter is to be made only for computational convenience and simplicity, and to insure that all terrestrial stations that could likely cause or receive interference are taken into account. If interference will likely result to or from a terrestrial station actually employing an antenna meeting only standard B, but would be eliminated if an antenna meeting standard A were to be employed, then the provisions of §§21.108(c) and 21.109(c) of this chapter apply.

(f) In lieu of the assumptions of paragraph (d)(1) and/or paragraph (d)(5) of this section, an applicant for an earth station authorization may effect coordination for a limited portion of the geostationary arc visible at the earth station location and/or a limited portion of the frequency band: *Provided, however,* That the operation of the earth station shall be limited to that portion of the geostationary arc and/or that portion of the frequency band for which coordination has been effected.

(g) The authorization of a developmental earth station under §25.390 and the authorization of a transportable earth station for operation at a given location for a limited period of time shall be so conditioned that the operations of such an earth station shall not place any limitations upon the operations, location, or design of any terrestrial station. For this reason, the interference analyses performed in the coordination of these earth stations may be undertaken for specific frequency assignments and therefore may take advantage of any offset in frequency calculated in accordance with applicable CCIR Reports and Recommendations (for example Report 388–1).

[38 FR 8575, Apr. 4, 1973, as amended at 48 FR 40256, Sept. 6, 1983]

§25.252 Maximum permissible interference power.

(a) The maximum permissible interference power $P_{max}(p)$ in dBW in the reference bandwidth of the potentially interfered-with station, not to be exceeded for all but a short term percentage of the time, p, from each source of interference, is given by the general formula

$$P_{max}(p) = 10 \log_{10}(kT_rB) + J + M(p) - W$$

where:

$$M(p) = M(p_o/n) = M_o(p)$$

with:

k=Boltzmann's constant ($1.38 \cdot 10^{-23}$ joules per °K),

T_r=Thermal noise temperature of the receiving system (degrees Kelvin),

B=Reference bandwidth (in Hz) (bandwidth over which the interference power can be averaged),

J=Ratio (in dB) of the maximum permissible long-term interfering power to the long-term thermal noise power in the receiving system (where long-term refers to 20 percent of the time),[1]

n=Number of expected entries of interference, assumed to be uncorrelated,

p=Percentage of the time during which the interference from one source may exceed the allowable maximum value,

p_o=Percentage of the time during which the interference from all sources may exceed the allowable maximum value; since the entries of interference are not likely to occur simultaneously:

$$p_o = np,$$

$M(p)$=Ratio (in dB) between the maximum permissible interference power during p percent of the time for one entry of interference, and during 20 percent of the time for all entries of interference, respectively,

$M_o(p_o)$=Ratio (in dB) between the maximum permissible interference power during p_o percent and 20 percent of the time respectively, for all entries of interference,[2]

W=Equivalence factor (in dB) relating the effect of interference to that of thermal noise of equal power in the reference bandwidth.[3]

When the wanted signal uses FM modulation with rms modulation indices which are greater than unity, W is approximately 4 dB, regardless of the characteristics of the interfering signal. For low index terrestrial FDM/FM systems a very small reference bandwidth (4 kHz) should be assumed in order to avoid the necessity of dealing with a large range of characteristics of both wanted and unwanted signals upon which, for greater reference bandwidths, the value of W would depend. With this assumption, W=0 dB as shown in table 1, of this section. When the wanted signal is digital, W is usually equal to or less than 0 dB, regardless of the characteristics of the interfering signal.

(b) For purposes of performing interference analyses, the maximum permissible interference power $P_{max}(20\%)$ in dBW in the reference bandwidth of the potentially interfered-with station, not to be exceeded for all but 20 percent of the time from each source of interference, is given by the general formula and with the remaining parameters defined in paragraph (a) of this section.

$$P_{max}(20 \text{ percent}) = 10 \log_{10}(n_{20}) + (kT_rB) + J - W - 10$$

where

n_{20}=number of assumed simultaneous interference entries of equal power level,

(c) The values of the parameters contained in the appropriate column of table 1 of this section which enter into the formulas of paragraphs (a) and (b)

[1] The factor J (in dB) is defined as the ratio of total permissible long-term (20 percent of the time) interference power in the system, to the long-term thermal noise power in a single receiver. For example, in a 50–hop terrestrial hypothetical reference circuit, the total allowable additive interference power is 1,000 pWOp (C.C.I.R. Recommendation 357–1) and the mean thermal noise power in a single hop may be assumed to be 25 *pWOp*. Therefore, since in a FDM/FM system the ratio of the interference noise power to the thermal noise power in a 4kHz band is the same before and after demodulation. J=16 dB. In a fixed-service satellite system, the total allowable interference power is also 1,000 pWOp (C.C.I.R. Recommendation 356–2), but the thermal noise contribution of the down path is not likely to exceed 7,000 pWOp, hence J≥8.5 dB. In digital systems it may be necessary to protect each communication path individually, and in that case, long-term interference power may be of the same order of magnitude as long-term thermal noise, hence J=0 dB.

[2] $M_o(p_o)$ (in dB) is the ''interference margin'' between the long-term (20 percent) and the short term (p_o percent) allowable interference powers. For analogue radio-relay and fixed-satellite systems in bands between 1 and 15 GHz, this is the ratio (in dB) between 50,000 and 1,000 pWOp (17 dB). In the case of digital systems, $M_o(p_o)$ may tentatively be set equal to the fading margin for a percentage of the time $(1–p_o)$ percent, which depends, inter alia, on the local rain climate.

[3] The factor W (in dB) is the ratio of RF thermal noise power to RF interference power, in the reference bandwith, producting the same interference effect after demodulation (e.g. in FDM/FM system it would be expressed for equal voice channel performance; in a digital system it would be expressed for equal bit error probabilities). For FM signals, it is defined as follows:

W=10 $\log_{10}$ [(Interfering power in the receiving system after demodulation/Thermal noise power in receiving system after demodulation) × (Thermal noise power at the receiver input in the reference bandwidth/ Interfering power at radio frequency in the reference bandwidth)]

of this section shall be used to compute the maximum permissible interference power level in all cases, unless the applicant demonstrates to the Commission that a different set of values for these parameters is more appropriate for his particular case. Where a symbol appears in table 1 of this section, the actual value of the parameter represented by the symbol is to be used.

Section 25.252 Table 1. Parameters to be used in the calculation of the maximum permissible interference power level and minimum permissible basic transmission loss

Frequency band (MHz)	3,700–4,200	5,925–6,425	6,625–7,125	10,950–11,200	11,450–12,200	12,500–12,750	14,000–14,500
Interference path	T→E	E→T	T→E	T→E	T→E	E→T	E→T
p_o (percent)	0.03	0.01	0.03	0.03	0.03	0.01	0.01
n	3	[1] 2 [2] 4	3	2	2	[1] 2 [2] 4	[1] 2 [2] 4
n_{20}	3	[1] 2 [2] 4	3	2	2	[1] 2 [2] 4	[1] 2 [2] 5
Interference parameters and criteria							
p (percent)	0.01	[1] 0.005 [2] 0.0025	0.01	0.015	0.015	[1] 0.005 [2] 0.0025	[1] 0.004 [2] 0.0025
J(dB)	8.5	16.0	8.5	8.5	8.5	16.0	16.0
$M_o(p_o)$	17.0	17.0	17.0	17.0	17.0	17.0	17.0
W(dB)	4.0	0.0	4.0	4.0	4.0	0.0	0.0

NOTE 1: This value should be used for international systems.
NOTE 2: This value should be used for domestic systems.
E=Earth Station.
T=Terrestrial Station.

Frequency band	3,700–4,200	5,925–6,425	6,625–7,125	10,950–11,200	11,450–12,200	12,500–12,750	14,000–14,500
Interference path	T→E	E→T	T→E	T→E	T→E	E→T	E→T
Reference bandwidth, B (Hz)	10^6	4×10^3	10^6	10^6	10^6	4×10^3	4×10^3
System noise temperature, T_r (°K)	T_r	750	T_r	T_r	T_r	1,500	1,500
P_t (dBW)	13	*PE*	9	5	5	*PE*	*PE*
G_t [3] (dBi)	42	*GE*(α)	46	50	50	*GE*(α)	*GE*(α)
G_r [3] (dBi)	*GE*(α)	45.0	*GE*(α)	*GE*(α)	*GE*(α)	50.0	50.0
$P_{max}(\pi)$(dBW)	10 $\log_{10}$ (T_r)	−131	10 $\log_{10}$ (T_r)	10 $\log_{10}$ (T_r)	10 $\log_{10}$ (T_r) − 164	−128	−128
L_w(dB)	0	[4] L_w	0	0	0	[4] L_w	[4] L_w
S (dBW)	.....	173	.....	.....	.....	175	175
E (dBW)	55	.....	55	55	55	.....	.....

NOTE 3=*GE* (α) is the gain of the earth station antenna toward the horizon at the azimuth of interest α, and can be derived using the methods of § 25.253 (b).
NOTE 4=For interference analysis, actual line loss should be used, if known, if not known, assume 0 dB.

(d) In cases where an earth station or a terrestrial station may employ more than one type of emission, the parameters chosen for analysis should correspond to that pair of emissions which results in the greatest coordination distance.

[38 FR 8575, Apr. 4, 1973, as amended at 39 FR 33527, Sept. 18, 1974; 57 FR 21214, May 19, 1992]

§ 25.253 Determination of coordination distance for near great circle propagation mechanisms.

(a) The requirement that the interference power at the input to the receiver of the potentially interfered-with station be less than the maximum permissible interference power level $P_{max}(p)$ for all but p percent of the time (as determined in § 25.252), is equivalent to the requirement that a minimum permissible basic transmission loss between the two stations be exceeded for all but p percent of the time. For uniformity and convenience, this minimum permissible basic transmission loss is determined for each azimuth for p=0.01 percent of the time, at a frequency of 4 GHz. This value is termed the normalized basic transmission loss L_o (0.01), and can be calculated from the formula:

$$L_o(0.01)=P_t+G_i+G_r-P_{max}(p)-F(p)-20\log_{10}(f/4)-L_w$$

where:

P_t=maximum available transmitting power (in dBW) in the reference bandwidth B, at the input to the antenna of the potentially interfering station. The representative value contained in the appropriate column of table 1 of §25.252 should be used;

G_t=gain (in dB relative to an isotropic radiator) of the transmitting antenna of the potentially interfering station;

G_r=gain (in dB relative to an isotropic radiator) of the receiving antenna of the potentially interfered-with station;

$P_{max}(p)$=maximum permissible interference power (in dBW) in the reference bandwidth B of the potentially interfered-with station not to be exceeded for all but p percent of the time as determined from §25.252;

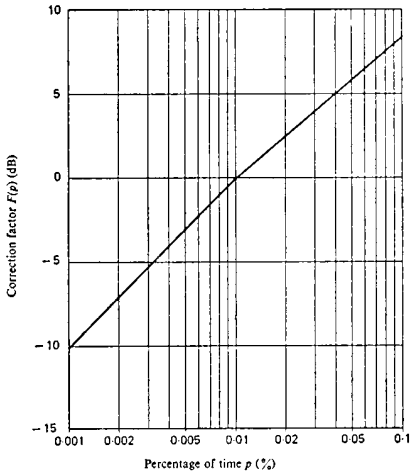
$F(p)$=correction factor (in dB) to relate the effective percentage of the time p to 0.01 percent of the time, for great circle propagation mechanisms, as determined from figure 1 of this section;

f=frequency (in GHz);

L_w=receiving system transmission line loss (in dB); none to be assumed in calculation of coordination distance;

CORRECTION FACTOR $F(p)$ FOR PERCENTAGES OF THE TIME p OTHER THAN 0.01%

CORRECTION FACTOR $F(p)$ FOR PERCENTAGES OF THE TIME p OTHER THAN 0.01%



FCC §25.253, Figure 1.

The following considerations apply to the selection of values for the parameters in this formula:

(1) The maximum gain of terrestrial antenna, either G_t or G_r, is to be used in the formula above. The representative value contained in the appropriate column of table 1 of §25.252 should be used.

(2) For an earth station communicating with geostationary satellites, the gain of the earth station antenna, either G_r or G_t, is generally taken as the gain in the direction toward the physical horizon at the azimuth under consideration, except that in certain cases, as described in paragraph (f) of this section, where the elevation angle of the earth station antenna is below 12°, the main beam gain is used instead of the horizon gain. In the case of an earth station communicating with non-geostationary satellites, an equivalent time invariant gain should be used. This time invariant gain is taken as the greater of the maximum horizon gain minus 10 dB and the horizon gain not exceeded for more than 10 percent of the time.

(3) In those frequency bands where the potential for interference is from an earth station transmitter into a terrestrial receiver, a sensitivity factor S in dBW may be defined in terms of the terrestrial antenna gain G_m in dBi and the maximum permissible interference power P_{max} (p) in dBW at the terrestrial receiver by

$$S=G_m-P_{max}(p)-L_w$$

With this definition, the formula for the normalized basic transmission loss may be rewritten as

$$L_o(0.01)=P_t+G_t+S-F(p)-20\log_{10}(f/4)$$

in terms of the parameters defined above. In this way, auxiliary contours, generated for sensitivity factor values of 5, 10, 15, 20 dB, etc. below the value corresponding to the main contour, may be convenient in performing preliminary interference analyses.

(4) In those frequency bands where the potential for interference is from a terrestrial transmitter into an earth station receiver, an equivalent isotropically radiated power E in dBW may be defined in terms of the terrestrial transmitter power P_m in dBW and

the terrestrial antenna gain G_m in dBi by

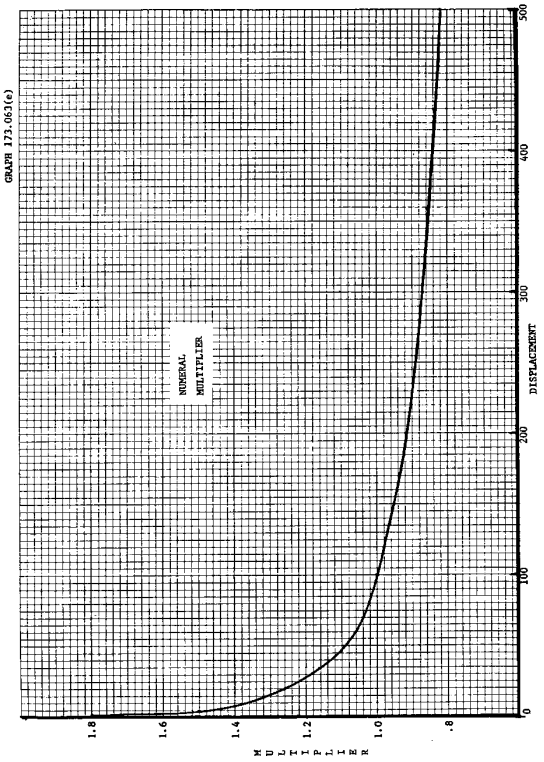
$$E=P_m+G_m$$

With this definition, the formula for the normalized basic transmission loss may be rewritten as

$$L_o(0.01)=E+G_r-P_{max}(p)-F(p)-20\log_{10}(f/4)-L_w$$

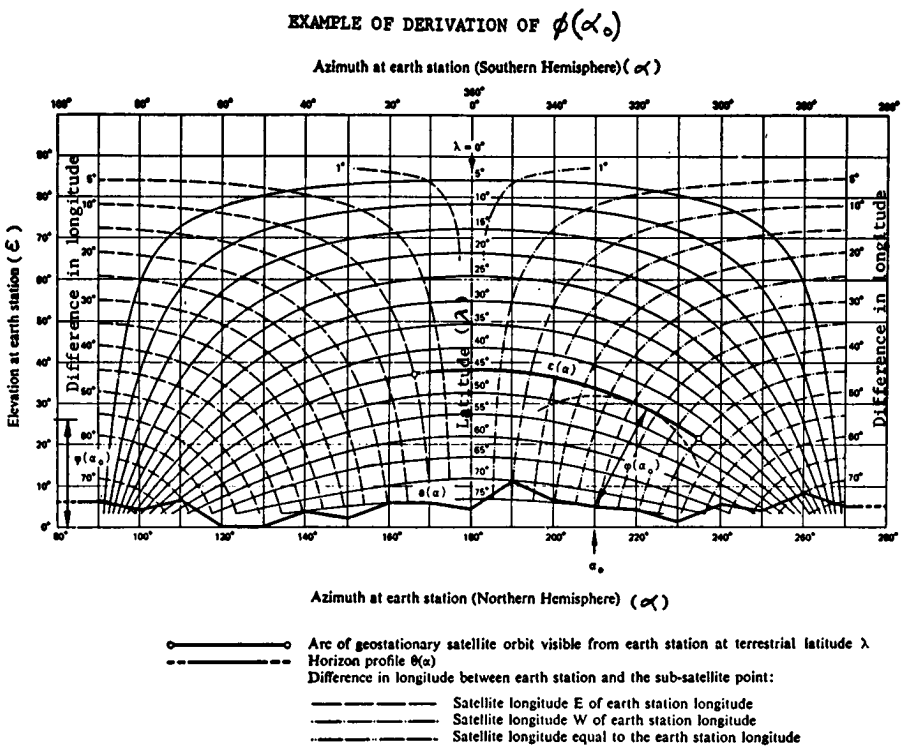
in terms of the parameters defined above. In this way, auxiliary contours, generated for equivalent isotropically radiated powers of 5, 10, 15, 20 dB, etc., below the value corresponding to the main contour, may be convenient in performing preliminary interference analyses.

(b) The gain of the earth station antenna in the direction of the physical horizon around the earth station may be computed by the following method with the aid of figure 2 in the case of an earth station communicating with geostationary satellites. An example of this method is illustrated in figure 3 in the particular case of an earth station location at 45° north latitude for an azimuth of 210°



(1) Figure 2 shows the permissible location arcs of geostationary satellites in a rectangular azimuth-elevation plot (α, ε_3), each arc corresponding to a particular earth station latitude, λ. For the latitude of the given earth station, that portion of the geostationary arc visible at the earth station for which coordination is to be effected is marked off between the appropriate limits. The example of figure 3 shows that portion of the arc of the geostationary orbit visible from an earth station at a latitude of 45° N. for the case of satellites located between 10° E. and 45° W. of the earth station.

(2) The horizon profile $\theta(\alpha)$ as a function of the azimuth α is then plotted along the bottom of figure 2 as illustrated in the example of figure 3.



FCC § 25.253, FIGURE 3.

(3) At each azimuth interval (e.g. for each 5° of azimuth), the minimum angular distance $\phi(\alpha_o)$ (between the physical horizon at azimuth α_o and the plotted portion of the geostationary arc) is determined graphically, as illustrated in figure 3, using the elevation scale at the far left of the figure.

(4) The earth station gain toward the horizon at azimuth α_o may now be determined by evaluating either the actual earth station antenna pattern, if known, or the reference antenna pattern, if known, or the reference antenna pattern of §25.209 at the minimum angular distance $\phi(\alpha_o)$.

(c) The dependence of basic transmission loss on climate is reflected in the definition of three radio-climatic zones:

Zone A: Land;

Zone B: Sea at latitudes greater than 23.5° N. and 23.5° S.;

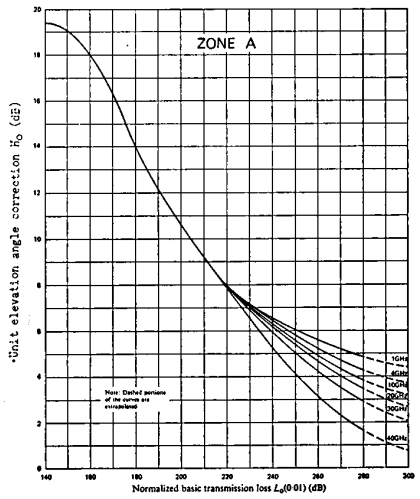
Zone C: Sea, at latitudes between 23.5° N. and 23.5° S., inclusive.

In addition, zones B and C are taken to extend inland, either to the distance at which the height of the terrain is 100 m above sea level, or 50 km inland, whichever is less.

(d) The coordination distance due to near great circle propagation mechanisms in a particular direction is calculated from the normalized basic transmission loss L_o (0.01) computed from the formula of paragraph (a) of this section in the following manner:

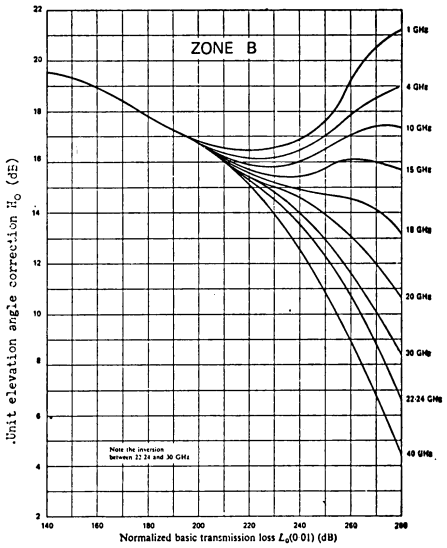
(1) Using the normalized basic transmission loss L_o (0.01), a unit elevation correction H_o (in dB) is obtained for the frequency under consideration from figure 4 for the appropriate radio-climatic zone. Linear interpolation between the curves of figure 4 is used for frequencies not shown.

UNIT ELEVATION ANGLE CORRECTION AS A FUNCTION OF NORMALIZED BASIC TRANSMISSION LOSS AND FREQUENCY, ZONE A



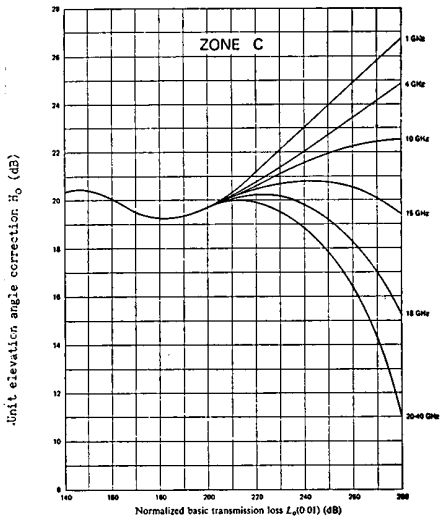
FCC § 25.253, FIGURE 4(a).

UNIT ELEVATION ANGLE CORRECTION AS A FUNCTION OF NORMALIZED BASIC TRANSMISSION LOSS AND FREQUENCY, ZONE B



FCC § 25.253, FIGURE 4(b).

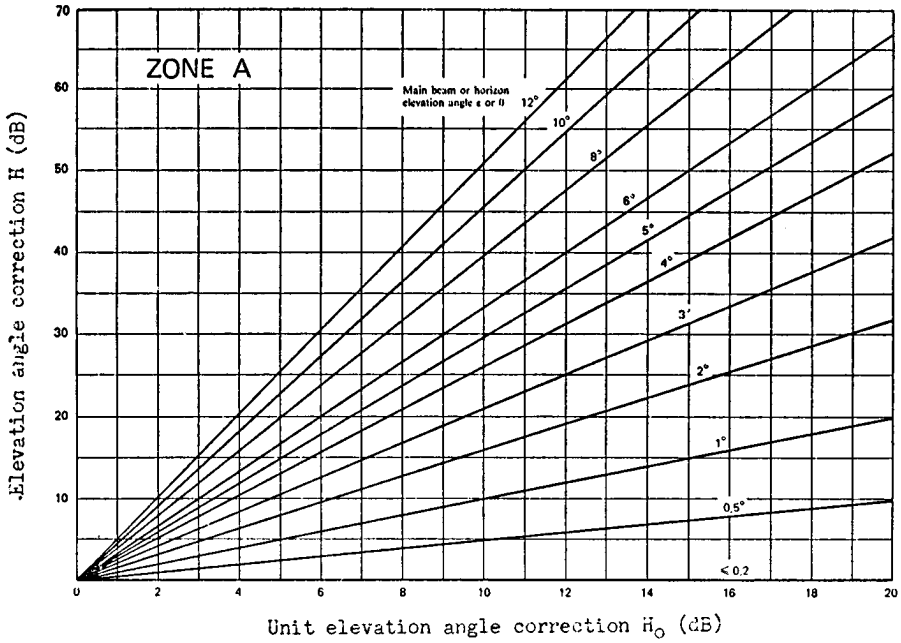
UNIT ELEVATION ANGLE CORRECTION AS A FUNCTION OF NORMALIZED BASIC TRANSMISSION LOSS AND FREQUENCY, ZONE C



FCC § 25.253, FIGURE 4(c).

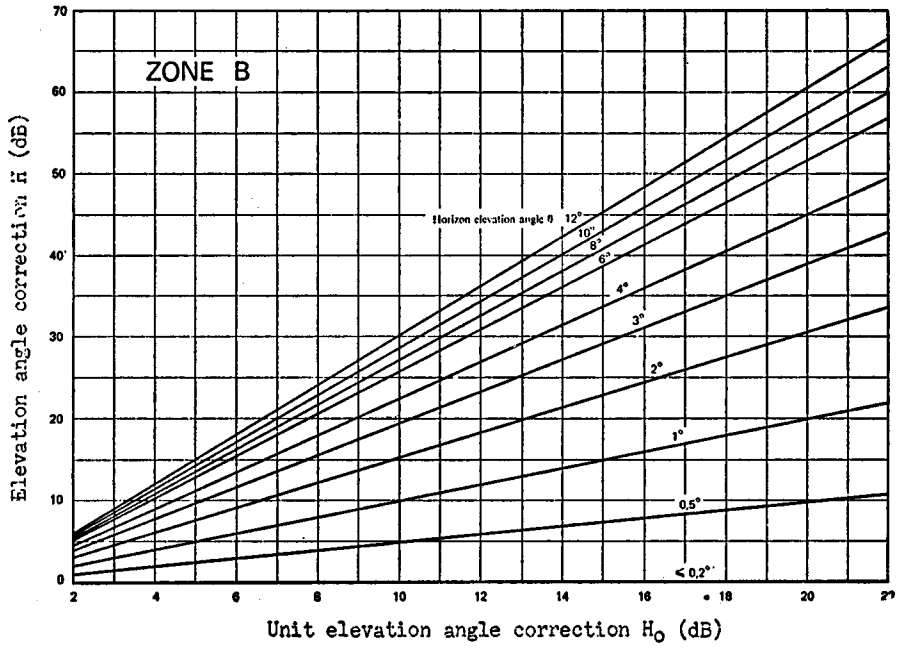
(2) This unit elevation correction H_o together with the elevation angle of the physical horizon in the direction of azimuth under consideration is then used with figure 5 for the appropriate radio-climatic zone to obtain the total horizon correction H (in dB). If the horizon elevation is less than 0.2°, the value of 0 dB is used for H.

ELEVATION ANGLE CORRECTION, ZONE A

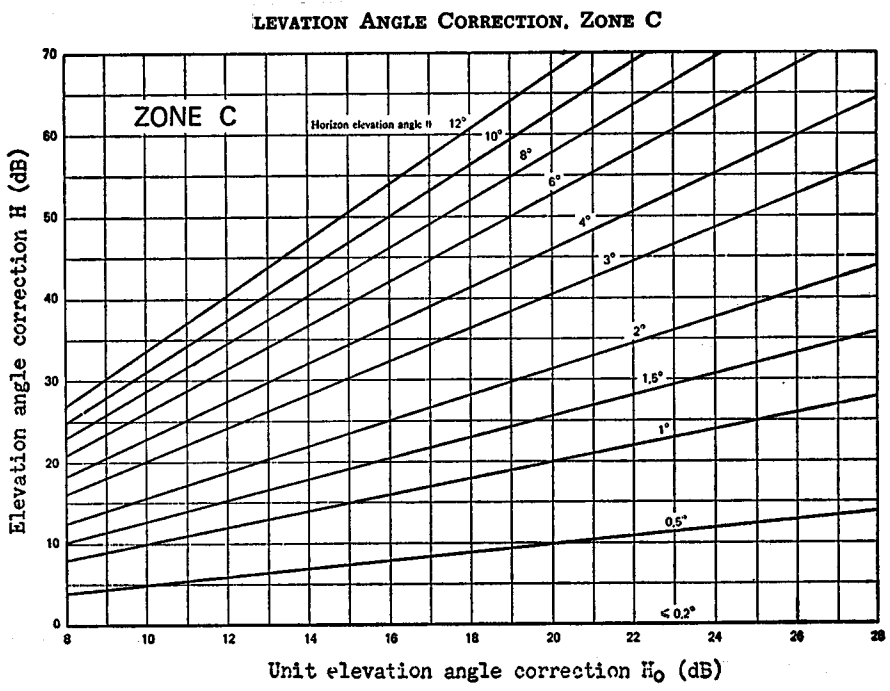


FCC § 25.253, FIGURE 5(a).

ELEVATION ANGLE CORRECTION, ZONE B



FCC § 25.253, FIGURE 5(b).



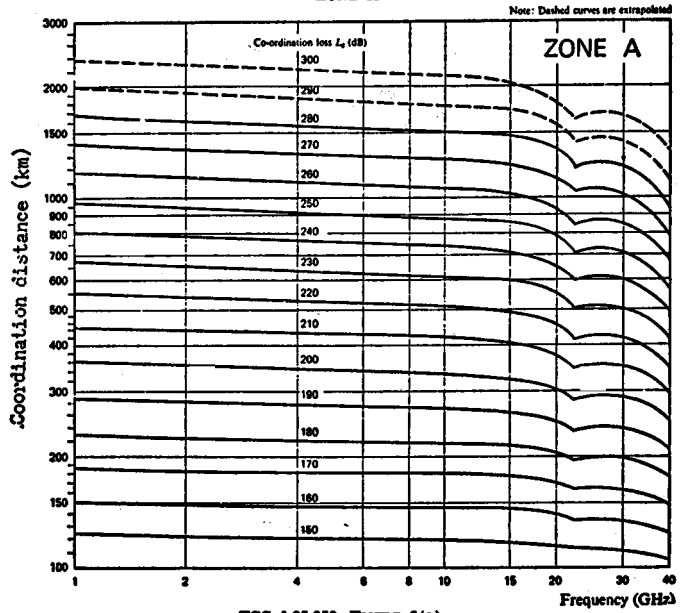
FCC § 25.253, FIGURE 5(c).

(3) The required coordination loss L_c (in dB) is then calculated by subtracting the total horizon correction H from the normalized basic transmission loss L_o (0.01)

$$L_c = L_o(0.01) - H$$

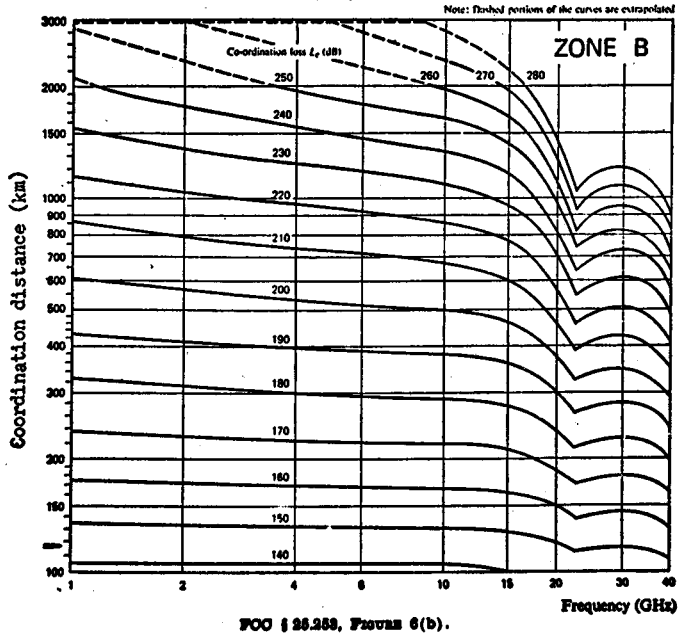
(4) The coordination distance for the radio-climatic zone in which the earth station is located can now be determined from figure 6 for the appropriate radio-climatic zone together with the required coordination loss L_c and the frequency f.

COORDINATION DISTANCE AS A FUNCTION OF FREQUENCY AND COORDINATION LOSS, ZONE A



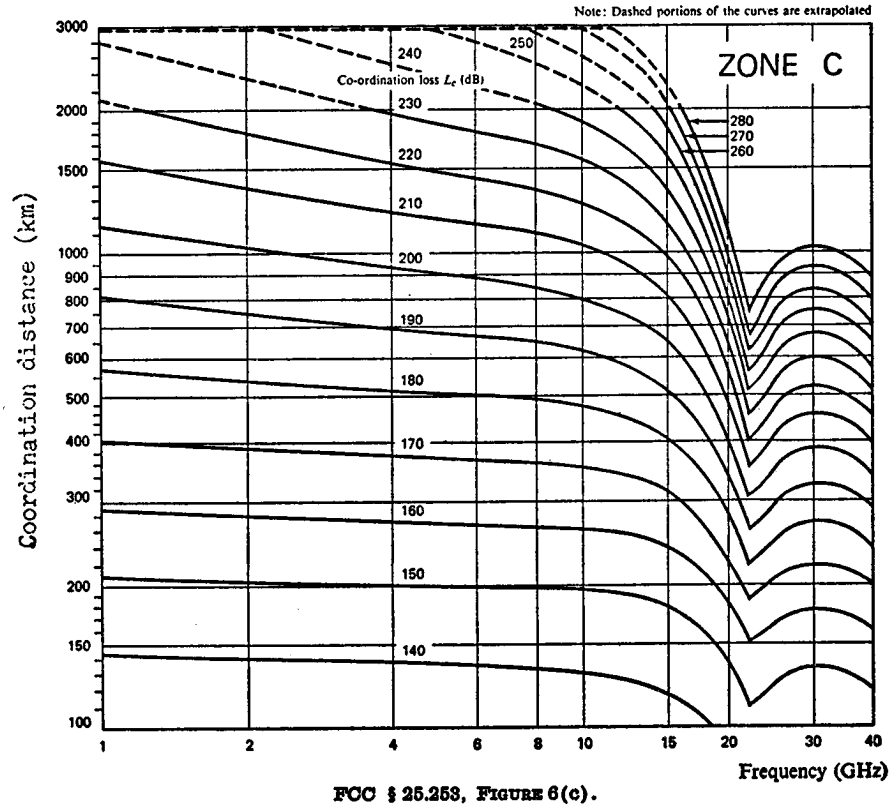
FCC § 25.253, FIGURE 6(a).

COORDINATION DISTANCE AS A FUNCTION OF FREQUENCY AND COORDINATION LOSS, ZONE B



FCC § 25.253, FIGURE 6(b).

COORDINATION DISTANCE AS A FUNCTION OF FREQUENCY AND COORDINATION LOSS, ZONE C



FCC § 25.253, FIGURE 6(c).

(5) For those azimuths for which the earth station antenna elevation angle is less than 12°, the coordination distance calculated in this manner may have to be adjusted in accordance with the procedure set forth in paragraph (f) of this section.

(e) When the coordination distance, calculated for the radio-climatic zone in which the earth station is located, extends into another radio-climatic zone, the effective multizone coordination distance is the sum of the distances x_A, x_B, and x_C traversed by the radio path in zones A, B, and C, respectively, which are determined from the relationship

$$(x_A/D_A)+(x_B/D_B)+(x_C/D_C)=1$$

where D_A, D_B, and D_C are the coordination distances in zones A, B, and C, respectively, calculated under the assumption that the radio path lies entirely in zones A, B, and C, respectively. The use of this relationship is illustrated by the following examples.

(1) Assume that the earth station is located in zone A and that a coordination distance D_A=345 km has been calculated assuming that the radio path lies only in zone A. However, in the particular direction being considered, the radio path crosses over into zone B at a distance of 290 km from the earth station. Assume further, that if the station were located in zone B, a coordination distance of D_B=530 km

would be required. Setting x_C=0, the relationship above can be solved for the unknown distance x_B in zone B:

$$x_B = D_B\,[1-(x_A/D_A)]$$

By substituting the known values x_A=290 km, D_A=345 km and D_B=530 km, the required distance in zone *B* is found to be x_B=85 km. The effective coordination distance d_c is then found to be

$$d_c = x_A + x_B = 290 + 85 = 375 \text{ km}.$$

(2) Taking this same example one step further, assume that the radio path reenters zone *A* at a distance of 340 km from the earth station. In this case, the distance initially traversed by the radio path in zone *A* is know to be x_A'=290 km, and distance in zone *B* is $x_B = 340 - x_A' = 50$ km. Therefore, it is necessary to solve for the remaining distance x_A'' in zone *A* by

$$x_A'' = D_A[1-(x_B/D_B)] - x_A'.$$

Substituting the values for D_A, x_B, D_B, and x_A', x_A'' is found to be

$$x_A'' = 345[1-(50/530)] - 290 = 21 \text{ km}$$

so that the total lengths of the two segments of the radio path lying in zone A is

$$x_A = x_A' + x_A'' = 290 + 21 = 311 \text{ km}$$

and the effective coordination distance is

$$d_c = x_A + x_B = 311 + 50 = 361 \text{ km}.$$

(f) The coordination distance calculated in paragraphs (d) and (e) of this section may be too small for those azimuths at which the elevation of the antenna of an earth station communicating with a geostationary satellite is below 12°. In these cases the following procedure is to be used to determine whether the regular coordination distance contour for each of these azimuths should be increased:

(1) A coordination distance d' is calculated for such an azimuth in the same manner as for the regular coordination distance d_o from paragraph (d) of this section, except that:

(i) The main beam gain of the earth station antenna is used instead of the horizon gain,

(ii) The earth station antenna elevation angle for this azimuth is used instead of the horizon elevation angle,

(iii) The zone A curves of figures 4, 5, and 6 are used irrespective of the actual radio-climatic zone.

(2) If the coordination distance d' calculated in this manner is greater than the regular coordination distance d_o, the effective coordination distance d_c for this azimuth is then taken as

$$d_c = d_o + [(d' - d_o)(12\text{-}\Sigma)/7] \text{ km } 5° \le \Sigma \le 12°$$

where Σ is the earth station antenna elevation angle.

[38 FR 8577, Apr. 4, 1973, as amended at 39 FR 33527, Sept. 18, 1974]

§ 25.254 Computation of coordination distance contours for propagation modes associated with precipitation scatter.

(a) For a given pointing azimuth and elevation angle of an earth station antenna, a rain scatter coordination distance contour, calculated in accordance with the procedure set forth below takes the form of a circle of radius d_{cr}, the rain scatter coordination distance, centered at a point offset from the earth station location by a distance D_r in the direction of azimuth of the main beam of the earth station antenna. This offset distance D_r is a function of both the rain scatter distance d_{cr} and the earth station antenna elevation angle. In the case of an earth station designed for operation with communication-satellites located at any point along a specified portion of the geostationary arc, this functional dependence entails the generation of rain scatter coordination distance contours for each azimuth direction in which the earth station antenna may point. The effective rain scatter coordination distance contour is then taken as the envelope defined by all these individual contours. It may be convenient to eliminate the need to consider multiple contours by taking an effective rain scatter coordination distance contour as a circle centered at the earth station location with a radius equal to the sum of the rain scatter distance d_{cr} and the maximum offset distance D_r at the minimum elevation angle. Such a procedure is conservative, since the resulting contour will always be larger than necessary, but for earth stations having minimum elevation angles above 20°, the increase in area inside the contour will be small.

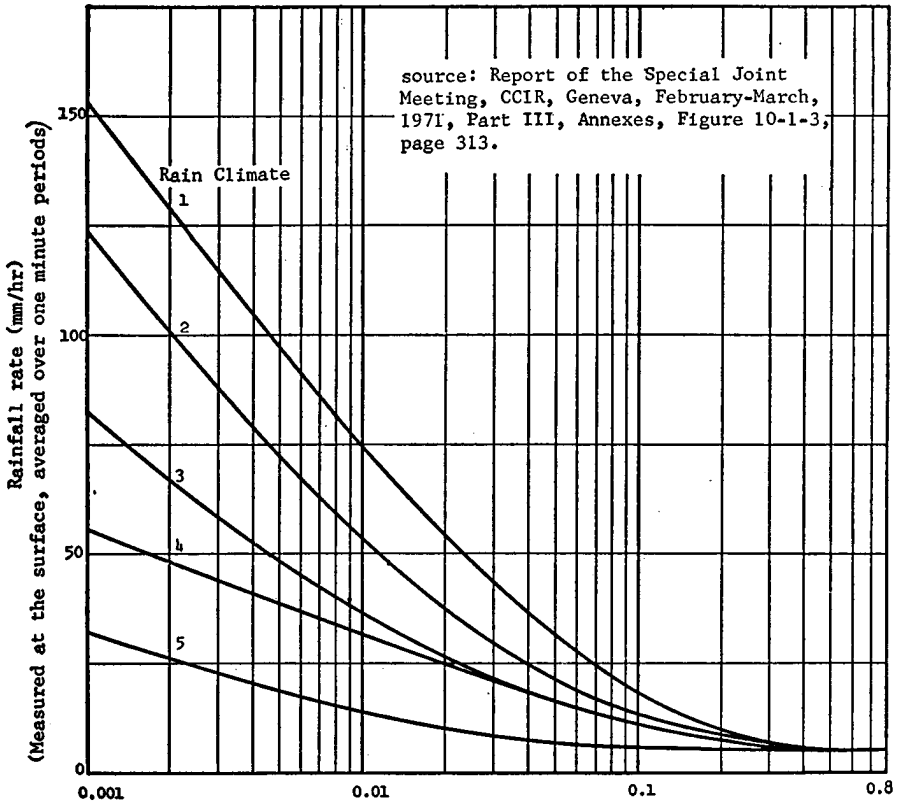
(b) For the purposes of computing rain scatter coordination distance contours and to establish maximum scattering heights, below which main-beam intersections will not generally be permitted, the 48 contiguous United States have been divided into five rain climates. These rain climates are listed in table 1 of this paragraph. The five climates are distinguished by the statistical distribution of their instantaneous rainfall rates throughout the year. These defining distributions, taken from the CCIR literature, are shown graphically in figure 1 of this paragraph. In the absence of specific information on the rainfall statistics at a proposed station location, the map shown in figure 2 of this paragraph may be used. This map shows boundaries approximating the actual rain climates. (This map also takes into account the effect of scatter from hail by moving the boundary of rain climate 2 farther west in Colorado and several nearby States than would be dictated considering rain only.) In the case of Alaska, Hawaii and in the off-shore U.S. possessions and territories, applicants should select the most appropriate rain climate based on rainfall statistics, pending the adoption of rules setting forth maps and/or other information for these areas.

TABLE 1

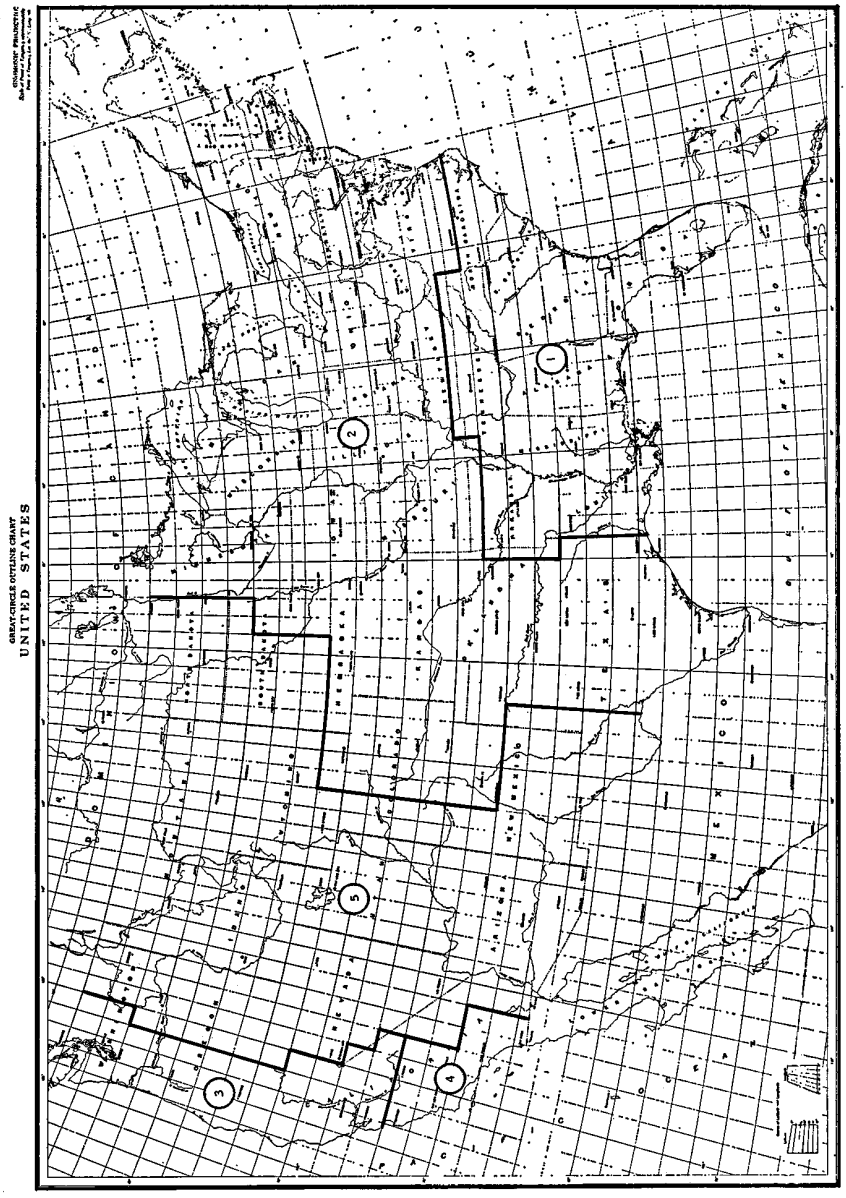
Rain climate	Description	Maximum scattering height (km)
1	Maritime sub-tropical	15
2	Continental temperate	11
3	Maritime temperate	7
4	Mediterranean	7
5	Mid-latitude interior	7

NOTE: Maximum heights shown here are based on values given in Table 8.2–III, Report of the Special Joint Meeting of the CCIR, Geneva, Feb.–March 1971, page 99.

DISTRIBUTION OF RAINFALL RATES FOR SEVERAL RAIN CLIMATES



FCC § 25.254, FIGURE 1.



RAIN CLIMATES OF THE UNITED STATES

FCC § 25.254 Figure 2

(c) To determine the rain scatter coordination distance d_{cr}, it is first necessary to calculate the normalized rain scatter coordination loss L_r (0.01) from the formula

$$L_r(0.01)=P_t+D_G-P_{max}(p)-F_r(p,f)-L_w$$

where:

P_t=power (in dBW) available at the antenna input of the interfering earth station from table 1 of § 25.252;

D_G=difference (in dB) between the maximum gain of the terrestrial station antenna in the frequency band under consideration and the value of 45 dBi. This value may be determined from the appropriate column of table 1 of § 25.252;

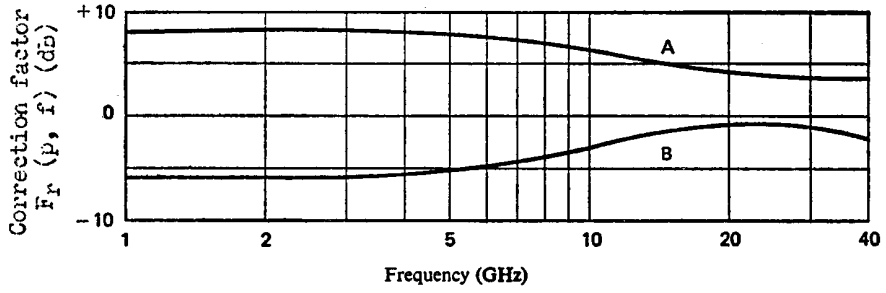
$P_{max}(p)$=maximum permissible interference power (in dBW) to the interfered-with station not to be exceeded for all but the short-term percentage of the time p from § 25.252;

$F_r(p,f)$=correction factor (in dB) to relate the effective short-term percentage of the time p to 0.01 percent of the time, for precipitation scatter propagation mechanisms, as determined from figure 3 of this section;

f=frequency (in GHz);

L_w=receiving system transmission line loss (in dB); assumed to be zero in calculation of rain scatter contour.

CORRECTION FACTOR TO RELATE THE EFFECTIVE PERCENTAGE OF TIME TO 0.01 PERCENT, AS A FUNCTION OF FREQUENCY FOR PROPAGATION MODES ASSOCIATED WITH PRECIPITATION SCATTER

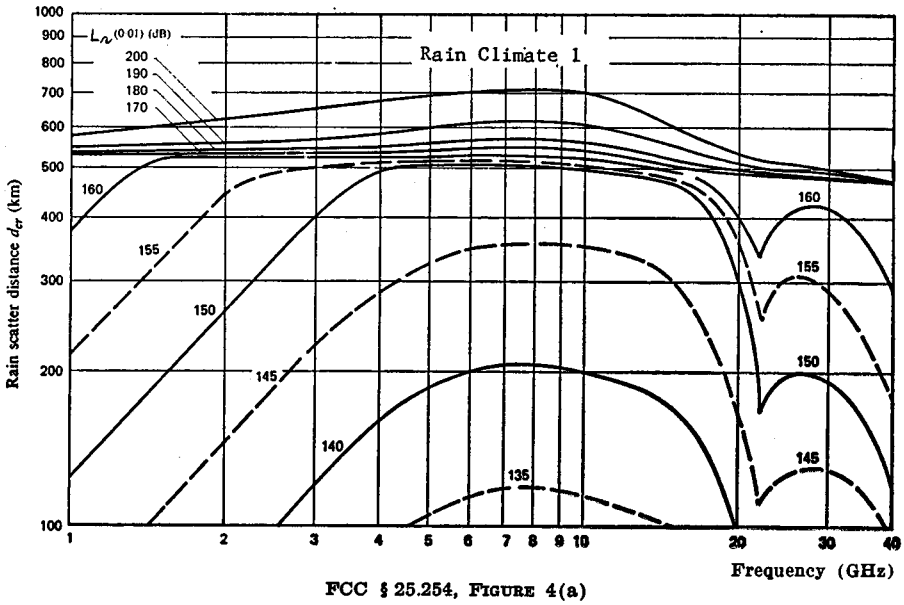


A: Correction for 0·1% of the time
B: Correction for 0·001% of the time
} for all rain climate zones

FCC § 25.254, FIGURE 3.

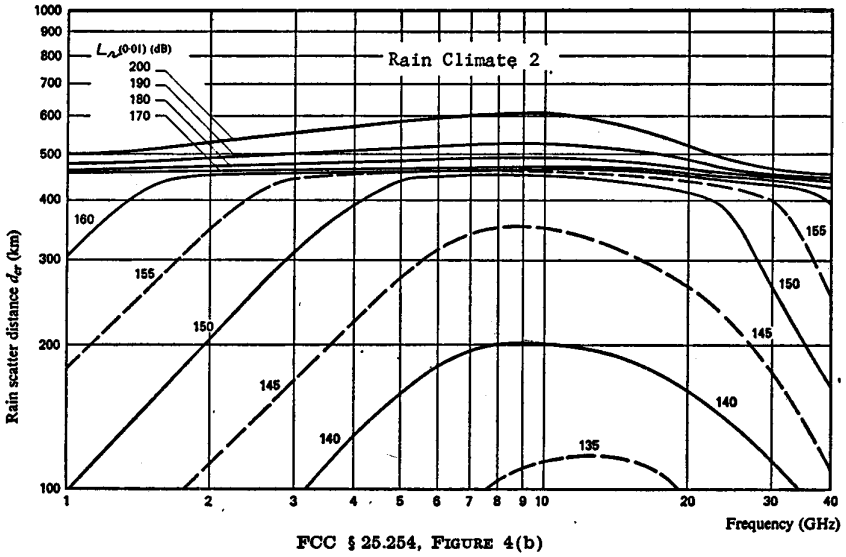
This normalized rain scatter coordination loss L_r (0.01) is then used with the appropriate figure 4 and the frequency f to determine the rain scatter coordination distance d_{cr}.

RAIN SCATTER DISTANCE AS A FUNCTION OF FREQUENCY
AND NORMALIZED TRANSMISSION LOSS
RAIN CLIMATE 1



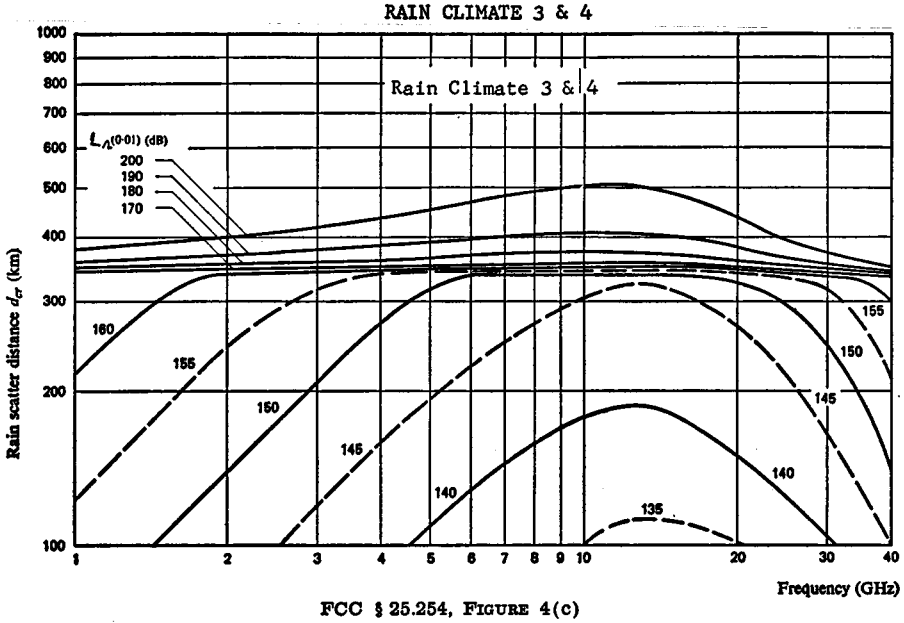
FCC § 25.254, FIGURE 4(a)

RAIN SCATTER DISTANCE AS A FUNCTION OF FREQUENCY
AND NORMALIZED TRANSMISSION LOSS
RAIN CLIMATE 2



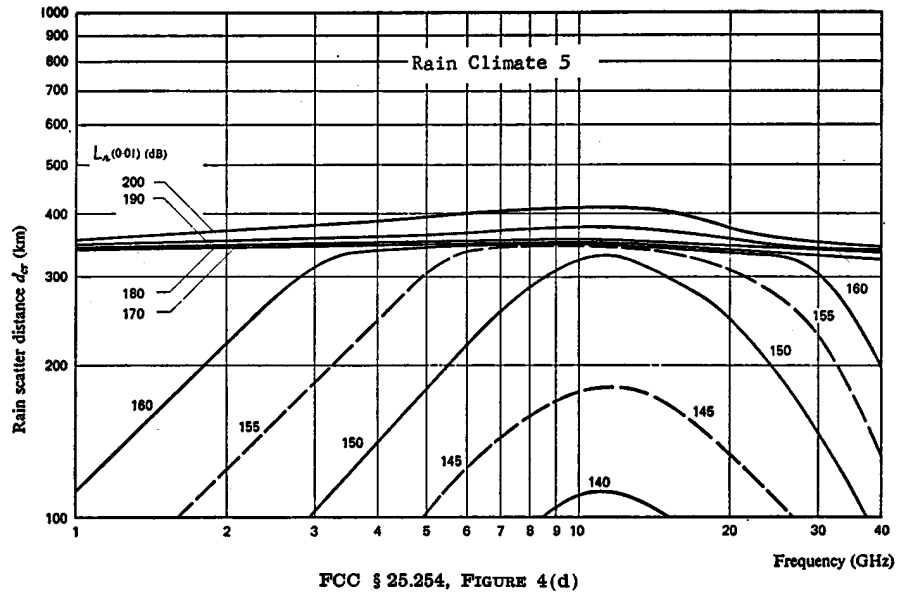
FCC § 25.254, FIGURE 4(b)

RAIN SCATTER DISTANCE AS A FUNCTION OF FREQUENCY
AND NORMALIZED TRANSMISSION LOSS
RAIN CLIMATE 3 & 4



FCC § 25.254, FIGURE 4(c)

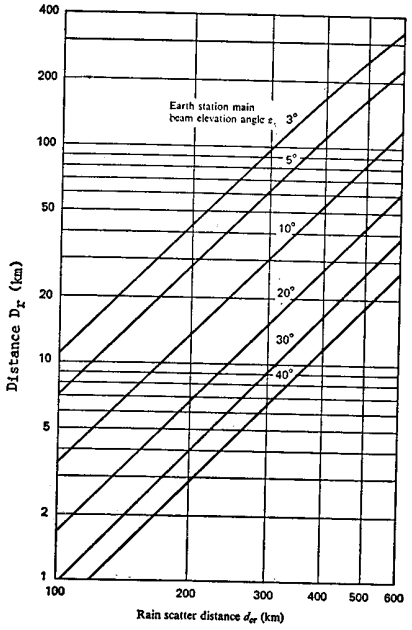
RAIN SCATTER DISTANCE AS A FUNCTION OF FREQUENCY
AND NORMALIZED TRANSMISSION LOSS
RAIN CLIMATE 5



FCC § 25.254, FIGURE 4(d)

(d) The rain scatter coordination distance d_{cr} is then used together with the earth station antenna elevation angle Σ with figure 5 to determine the offset distance D_r.

DISTANCE D_r as a Function of Rain Scatter Distance d_{cr} and Earth Station Main Beam Elevation Angle Σ



FCC § 25.254, FIGURE 5

[38 FR 8578, Apr. 4, 1973]

§ 25.255 Guidelines for performing interference analyses for near great circle propagation mechanisms.

(a) Once a great circle coordination distance contour has been computed a proposed earth station in accordance with § 25.253, it is necessary to determine the likelihood of harmful interference between the proposed earth station and each existing or proposed terrestrial station located within that contour sharing the same frequency band(s). Before performing the detailed interference analyses described in paragraphs (b) through (d) of this section, the earth station applicant may perform a preliminary interference analysis that will usually eliminate a significant number of terrestrial stations from further consideration. (This same type of preliminary analysis may also be employed by terrestrial station applicants effecting coordination with existing or proposed earth stations.) This preliminary interference analysis takes the form of a refinement of the coordination distance calculation of § 25.253 using the antenna gain of each terrestrial station in the direction of the earth station, determined in accordance with paragraph (d)(3) of this section, instead of the maximum terrestrial antenna gain.

(b) A detailed interference analysis must be performed for each possible interference path which cannot be eliminated from further consideration in regard to harmful interference by means of a preliminary analysis of the type described in paragraph (a) of this section. In order that a uniform procedure be employed by all applicants to assess the likelihood of interference between specific terrestrial stations and specific earth stations, a detailed interference analysis for near great-circle propagation mechanisms shall be performed by calculating the interference margin, $P_{mar}(p)$ in dB that is available for all but p percent of the time at the input to the receiver of the potentially interfered-with station from the formula

$$P_{mar}(p)=P_{max}(p)-P_{rec}(p)$$

where:

$P_{max}(p)$=maximum permissible interference power (in dBW) in the reference bandwidth at the receiver input of the potentially interfered-with station not to be exceeded for all but p percent of the time, as calculated in § 25.252;

$P_{rec}(p)$=interference power (in dBW) in the reference bandwidth at the receiver input of the potentially interfered-with station not exceeded for all but p percent of the time, for near great circle propagation mechanisms, as calculated in paragraph (c) of this section.

Because of the different tropospheric propagation modes that may occur, it is necessary to calculate an interference margin $P_{mar}(p)$ for both: A short-term percentage of the time, for example, p=0.01 percent; and a long-term percentage of the time, specifically p=20 percent. If the interference margins calculated for both the short-

term and the long-term percentages of the time are greater than zero, it may then be assumed that harmful interference will not be caused to the potentially interfered-with station by the potentially interfering station. Values of $P_{max}(p)$, for both the short-term and the long-term percentages of the time, are to be determined in accordance with the formulas of § 25.252 and the appropriate values from table 1 of § 25.252, unless it is demonstrated to the Commission that another choice of values is more appropriate for the stations for which coordination is being effected.

(c) The interference power $P_{rec}(p)$ in dBW in the reference bandwidth at the receiver input of the potentially interfered-with station not exceeded for all but p percent of the time is calculated from

$$P_{rec}(p)=P_t+G_t+G_r-L_w-L(p)$$

where:

P_t=maximum available transmitting power (in dBW) in the reference bandwidth at the input to the transmitting antenna of the potentially interfering station,

G_t=gain (in dB with respect to isotropic) of the transmitting antenna, of the potentially interfering station in the pertinent direction,

G_r=gain (in dB with respect to isotropic) of the receiving antenna of the potentially interfered-with station in the pertinent direction,

$L(p)$=basic transmission loss (in dB) present between the two stations for all but p percent of the time,

L_w=receiving system transmission line loss (in dB)

(d) The following considerations apply to the selection of values assigned to the parameters of the formula of paragraph (c) of this section.

(1) The transmitting power P_t of the potentially interfering station is to be taken from the appropriate column of table 1 of § 25.252, except that in cases where the actual power available at the antenna input of the potentially interfering station is known, this actual power should be used, subject to adjustment for any change in power expected in the foreseeable future for effective spectrum utilization and system performance. The values of the transmitting power P_t for terrestrial stations set forth in table 1 of § 25.252 are expressed in terms of total power and may be subject to adjustment to relate this total power to power in the reference bandwidth.

(2) The gain of an earth station antenna, either G_t or G_r, is to be taken as the gain of the earth station antenna toward the horizon in the direction of the potentially interfered-with or interfering terrestrial station. For earth stations communicating with geostationary satellites, this gain is calculated by the procedure of § 25.253(b).

(3) The gain of a terrestrial station antenna, either G_t or G_r, is to be taken as the gain of the terrestrial antenna evaluated at an off-axis discrimination angle equal to the acute angle between the direction to the potentially interfering or interfered-with earth station and the direction to the adjacent terrestrial station in the radio relay system. Initially, it should be assumed that the sidelobe pattern of the terrestrial antenna meets only standard B of § 21.108(c) of this chapter. If the results of this calculation indicates the likelihood of interference, the pattern of standard A should then be used. If such an antenna would eliminate the likelihood of interference, then the provisions of § 21.109(c) of this chapter apply.

(4) If the actual receiving system line loss, L_w, of the potentially interfered-with station is known, it may be used in calculating the interference power. If unknown, zero dB must be assumed.

(5) The calculation of the basic transmission loss L(p) available for all but p percent of the time, is to be done in accordance with the methods of NBS Technote 101, 1966 (Revised) judiciously applied and interpreted, taking into account the appropriate terrain characteristics and the appropriate tropospheric propagation mechanisms. Extrapolation of the methods and values given in Technote 101 to percentages of time less than 0.01 percent should be made cautiously.

(e) Appendix 28 of the international radio regulations and certain reports and recommendations of the CCIR may provide additional information and serve as useful references. In particular, applicants and operators should be aware of the latest revisions of reports 244, 382, and 448.

[38 FR 8579, Apr. 4, 1973]

§ 25.256 Guidelines for performing interference analyses for precipitation scatter modes.

(a) Once rain scatter coordination distance contours have been determined, it is necessary to determine the likelihood of impermissible levels of interference between the proposed earth station and each existing or proposed terrestrial station located within the rain scatter coordination distance.

(b) It may be presumed that any interference caused by precipitation scatter propagation mechanisms will be acceptable and that the interference paths may be eliminated from interference if the interference margin Pmar (p) defined in § 25.255(b) is greater than zero when the received interference power Prec (p) is computed on the basis of the available transmission loss between the earth station and terrestrial station due to scattering from precipitation.

(c) Additional information is provided by the reports and recommendations of the CCIR which serve as useful references. In particular, applicants and operators should be aware of the latest revisions of reports 382, 388, 448 and 569, XVIIth Plenary Assembly, Dusseldorf, 1990.

[58 FR 13421, Mar. 11, 1993]

§ 25.257 Special requirements for operations in the band 29.1–29.25 GHz between NGSO MSS and 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 connection, any single NGSO MSS operator shall only identify one feeder link earth station complex protection zone in each category identified in § 101.147(c)(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]

EFFECTIVE DATE NOTE: At 61 FR 44181, Aug. 28, 1996, § 25.257 was added, effective Oct. 28, 1996.

§ 25.258 Sharing between NGSO MSS Feeder links Stations and GSO FSS services in the 29.25–29.5 GHz Bands.

(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 systems shall, to the maximum extent possible, operate with frequency/polarization selections, in the vicinity of operational or planned NGSO MSS feeder link earth station complexes, that will minimize instances of unacceptable interference to the GSO FSS space stations.

(c) NGSO MSS satellites operating in this frequency band shall compensate for nodal regression due to the oblate shape of the Earth, and thus maintain

constant successive sub-satellite ground tracks on the surface of the Earth.

(d) NGSO MSS systems applying to use the 29.25–29.5 GHz band, for feeder link earth station uplink, will have to demonstrate that their system can share with the authorized U.S. GSO/FSS systems operating in this band.

[61 FR 44181, Aug. 28, 1996]

EFFECTIVE DATE NOTE: At 61 FR 44181, Aug. 28, 1996, §25.258 was added, effective Oct. 28, 1996.

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 insure that the operations of the remote station(s) are at 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 license, 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.

(d) The licensee shall insure that the licensed facilities are properly secured against unauthorized access or use whenever an operator is not present at the transmitter.

§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 monitor space-to-Earth transmissions in its system. This would indirectly monitor uplink earth station transmissions in its system and to 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) Each space station licensee shall maintain on file with the Commission and with its Laurel, Maryland field office a current listing of the names, titles, addresses and telephone numbers of the points of contact for resolution of interference problems. 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.

(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.

§ 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 by the satellite licensee or the satellite licensee's successor in interest to transmit at that time; 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.

§ 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 the licensee's earth stations are the source of the interference and to verify that the source of 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 eliminate the interference.

(f) At any point, the system control center operator may contact the Commission's Laurel, Maryland office 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.

(g) Where the earth station suspected of causing 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 undue 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.

§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.

§25.276 Points of communication.

(a) Unless otherwise specified in the station authorization, an earth station is authorized to transmit to any space station in the same radio service provided that permission has been received from the space station operator to access that space station.

(b) Space stations licensed under this part are authorized to provide service to earth stations located within the specified service area. Coastal waters within the outer continental shelf shall be considered to be included within the service area specified by the named land mass.

(c) Transmission to or from foreign points over space stations in the Fixed-Satellite Service, other than those operated by the International Telecommunications Satellite Organization

and Inmarsat, are subject to the policies set forth in the Report and Order, adopted January 19, 1996 in IB Docket No. 95–41.

[58 FR 13421, Mar. 11, 1993, as amended at 61 FR 9953, Mar. 12, 1996]

§ 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, 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 which is authorized to conduct temporary fixed operations in bands shared co-equally with terrestrial fixed stations shall provide the following information 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) 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.

§ 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]

§ 25.279 Inter-satellite service.

(a) Any non-geostationary satellite communicating with other space stations may use frequencies in the inter-satellite service as indicated in § 2.106. 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]

Subpart E—Developmental Operations

§25.300 Developmental operation.

(a) *Scope of service:* Communication-Satellite developmental stations will be permitted to conduct the following types of operations:

(1) The development of new techniques which give promise of improvement in the space radiocommunication service;

(2) The development and testing of equipment intended for use in the space radiocommunication service;

(3) Path loss tests necessary to the location of newly proposed earth stations in the space radiocommunication service.

(b) *Eligibility:* An authorization for developmental operation of a station in the space radiocommunication service may be issued only to qualified parties who make a showing that they may be reasonably expected to contribute to the development of the space radiocommunication service.

(c) Forms to be used: A separate application for construction permit shall be submitted on FCC Form 493 for each earth station. No form is used for space stations. See §25.114 for information to be supplied in space station applications.

(d) *Showing required:* Each application for developmental operation shall be accompanied by a showing that:

(1) The applicant has an organized plan leading to a specific objective in the development of the space radiocommunication service.

(2) A point has been reached in the program where transmission by radio will be essential to the further progress thereof.

(3) The public interest, convenience, or necessity will be served by the proposed operation.

(4) In the event that the applicant seeks authority to construct and operate a space station, capable of being placed in earth orbit and communicating with earth stations, the Commission may require a statement which discloses that arrangements have been made between the applicant and an entity authorized to operate an earth station for transmission of communications signals to or reception of communications signals from such earth station.

(5) In the event that the applicant seeks authority to construct and operate an earth station capable of operating with a space station, the Commission may require a statement which discloses that arrangements have been

made between the applicant and an entity authorized to operate a space station for transmission of communications signals to or reception of communications signals from such space station.

(e) *Supplementary statement required:* Every application for authority to engage in developmental operation shall be accompanied by a statement signed by the applicant in which it is agreed that any authorization issued pursuant thereto will be accepted with the express understanding of the applicant that it is subject to change in any of its terms or to cancellation in its entirety at any time, upon reasonable notice but without hearing, if, in the opinion of the Commission, circumstances should so require.

(f) *Frequencies available for assignment:* Stations engaged in developmental operations may be authorized to use frequencies allocated to the space radiocommunication service. When development earth stations propose to operate in bands shared with terrestrial stations, the applicant for a developmental earth station authorization shall comply with the coordination requirements of § 25.203. Applications proposing the operation or performance testing of communication-satellite space stations on the ground must include a showing that harmful interference will not be caused to the operation of licensed terrestrial stations. Requests for frequencies other than those allocated to the space radiocommunication service must be supported by a showing that the allocated frequencies are unsuitable. Such applications must be accompanied by a petition requesting the allocation of frequencies for the use proposed to be made by the applicant, and setting forth the reasons in support of such use.

(g) *Interference:* The operation of any station engaged in developmental operations shall be subject to the condition that no harmful interference is caused to the operation of stations authorized on a regular basis under the provisions of this chapter.

(h) Each application for developmental operation 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 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 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 none or more existing earth station antennas, where FAA notification prior to such construction or notification 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.

(i) *Limitations on use:* Stations used for developmental operation shall be constructed and used in such a manner as to conform with all of the technical and operating requirements of this part unless deviation therefrom is specifically provided in the instrument of authorization. The rendition of communication service for hire is not permitted under any developmental authorization unless specifically authorized by this Commission.

(j) *Special provisions:* Where some phases of the developmental programs are not covered by the provisions of this chapter, the Commission may specify supplemental or additional requirements or conditions in each case, as deemed necessary in the public interest, convenience or necessity. The Commission may from time to time require a station engaged in developmental work to conduct such special tests as it finds are reasonable or desirable in connection with the authorized developmental program.

(k) *Term of authorization:* Licenses for developmental operation shall be issued for a term of 1 year, renewable

upon request, pursuant to the provisions of paragraph (o) of this section.

(l) *Report of operation:* A report on the result of the developmental program shall be filed within 60 days of the expiration of the authorization. A licensee may request that its reports and associated material not be made public and the Commission will determine whether, in the light of applicable provisions of law and the requirements of the public interest, such request will be granted. The report shall include comprehensive and detailed information on the following:

(1) The final objective.

(2) Analysis of the results of operation obtained to date.

(3) Number of hours of operation on each frequency.

(4) Copies of any published reports.

(m) *Renewal of license:* If the developmental program cannot be concluded during the license term an application for renewal of license should be submitted on FCC Form 405 within 90 days but not later than 30 days prior to the end of the license term. The report of operation as provided in paragraph (n) of this section and in addition, a statement in which the need for continuation of the program is clearly explained, should be attached. In any case in which the licensee has in accordance with the provisions of the chapter, made timely and sufficient application for renewal of license, no license with reference to any activity of continuing nature shall expire until the disposition of such application shall have been finally determined.

[32 FR 321, Jan. 12, 1967, as amended at 38 FR 8580, Apr. 4, 1973; 55 FR 20397, May 16, 1990; Redesignated and amended at 56 FR 24024, May 28, 1991; 61 FR 4367, Feb. 6, 1996]

§ 25.308 Automatic Transmitter Identification System (ATIS).

All satellite uplink transmissions carrying broadband video information shall be identified through the use of an automatic transmitter identification system as specified below.

(a) Effective March 1, 1991, all satellite video uplink facilities shall be equipped with an ATIS encoder meeting the specifications set forth in paragraph (d) of this section.

(b) All video uplink facilities utilizing a transmitter manufactured on or after March 1, 1991 shall be equipped with an ATIS encoder meeting the performance specifications set forth in paragraph (d) of this section and the encoder shall be integrated into the uplink transmitter chain in a method that cannot easily be defeated.

(c) The ATIS signal shall be a separate subcarrier which is automatically activated whenever any RF emissions occur. The ATIS information shall continuously repeat.

(d) The ATIS signal shall consist of the following:

(1) A subcarrier signal generated at a frequency of 7.1 MHz +/− 25 KHz and injected at a level no less than −26 dB (referenced to the unmodulated carrier). The subcarrier deviation shall not exceed 25 kHz peak deviation.

(2) The protocol shall 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 shall frequency modulate the subcarrier signal.

(3) The ATIS signal as a minimum shall consist of the following:

(i) The FCC assigned earth station call sign;

(ii) A telephone number providing immediate access to personnel capable of resolving ongoing interference or coordination problems with the station;

(iii) A unique ten digit serial number of random number code programmed into the ATIS device in a permanent manner such that it cannot be readily changed by the operator on duty;

(iv) Additional information may be included within the ATIS data stream provided the total message length, including ATIS, does not exceed 30 seconds.

[55 FR 21551, May 25, 1990]

Subparts F–G [Reserved]

Subpart H—Authorization To Own Stock in the Communications Satellite Corporation

SOURCE: 28 FR 13037, Dec. 5, 1963, unless otherwise noted.

§ 25.501 Scope of this subpart.

The provisions of this subpart govern the administration of section 304 of the Communications Satellite Act of 1962. These rules provide the procedure by which Commission authorization may be obtained for the purchase of stock in the corporation, the form and content of the application, and the scope of the authorization which may be granted.

§ 25.502 Definitions.

(a) *Communications common carrier.* See § 25.103(a).

(b) *Authorized carrier.* For the purposes of this subpart, the term ''authorized carrier'' means a communications common carrier which is specifically authorized or which is a member of a class of carriers authorized by the Commission to own shares of stock in the corporation.

§§ 25.503—25.504 [Reserved]

§ 25.505 Persons requiring authorization.

(a) No communications common carrier, as defined in § 25.103(a), shall purchase, obtain, own, or otherwise hold at any time, either directly or indirectly through a subsidiary or affiliated company, nominee, person or other entity subject to its control or direction, shares of stock in the corporation created pursuant to the Communications Satellite Act of 1962 unless authorized to do so by the Commission.

(b) No individual, partnership, association, joint-stock company, trust, corporation, or other entity which owns or controls, directly or indirectly, or is under direct or indirect common control with, any such carrier, shall purchase, obtain, own, or otherwise hold, at any time, shares of stock in the corporation in its own name or right unless authorization previously shall have been obtained from the Commission by such entity or on behalf of such entity.

§§ 25.506—25.514 [Reserved]

§ 25.515 Method of securing authorization.

Any person, corporation, or other entity, described in § 25.505, desiring authorization to purchase, obtain, own, or otherwise hold shares of stock in the corporation, shall file an application therefor with the Commission in accordance with §§ 25.520–25.525.

§§ 25.516—25.519 [Reserved]

§ 25.520 Contents of application.

Every request for authorization submitted under this subpart shall contain or incorporate the following information:

(a) If applicant is a corporation:

(1) The name and address of the applicant.

(2) Place of incorporation.

(3) Names and addresses of directors of applicant.

(4) Names and addresses of applicant's ten principal stockholders and percentages of stock of applicant owned by each.

(5) Names and addresses of principal officers of applicant and percentage of stock of applicant owned by each.

(6) A copy of applicant's annual report to stockholders for the last full year of its operations covered by such report.

(7) A copy of applicant's corporate charter. (If such charter is already on file with the Commission, applicant may so state.)

(8) Names and addresses of all companies in which applicant has financial interests, the nature and extent of such interests, and a description of the principal business and activities of such companies.

(9) Description of the intrastate, interstate, and foreign communication services rendered by applicant itself or jointly with other carriers, and the state or states or other political subdivisions in which applicant's operations are conducted.

(10) Statement of why applicant believes a grant of its application will be consistent with the public interest, convenience, and necessity.

(b) If applicant is an individual or business organization other than a corporation:

(1) Name and address of the applicant.

(2) Name and address of each person having a financial interest in the entity and a description of the nature and extent of such interest.

(3) Principal place of business of applicant.

(4) Copy of applicant's balance sheet and income statement for the last full year of applicant's operations.

(5) Description of the intrastate, interstate, and foreign communications services rendered by applicant itself or jointly with other carriers and the state or states or other political subdivisions in which applicant's operations are conducted.

(6) Statement of why applicant believes a grant of its application will be consistent with the public interest, convenience, and necessity.

(c) If application is made on behalf of any entity other than the applicant itself, the application shall so state and shall include or incorporate the information for said entity specified in paragraph (a) or (b) of this section as appropriate.

§25.521 Who may sign applications.

(a) Except as provided in paragraph (b) of this section, every application or amendment thereto shall be personally signed by the applicant, if the applicant is an individual; by one of the partners, if the applicant is a partnership; by an officer if the applicant is a corporation; or by a member who is an officer, if the applicant is an unincorporated association.

(b) Applications and amendments thereto may be signed by the applicant's attorney in case of the applicant's physical disability, or in case the applicant does not reside in any of the contiguous 48 states of the United States or in the District of Columbia. The attorney shall in that event separately set forth the reason why the application is not signed by the applicant. In addition, if any matter is stated on the basis of the attorney's belief only (rather than his knowledge), he shall separately set forth his reasons for believing that such statements are true.

(c) Only the original of applications and amendments thereto need be signed; copies may be conformed.

(d) Applications and amendments thereto need not be signed under oath; however, willful false statements made therein, are punishable by fine and imprisonment, U.S. Code, Title 18, section 1001, and by appropriate administrative sanctions, including refusal or revocation of authorization to purchase, obtain, own, or otherwise hold shares of stock in the corporation.

§25.522 Full disclosures.

Each application shall contain full and complete disclosures with regard to the real party or parties in interest and as to all matters and things required to be disclosed in the application.

§25.523 Form of application, number of copies, fees, etc.

(a) The original application and five copies thereof shall be filed with the Commission. Each copy shall bear the dates and signatures that appear on the original and shall be complete in itself.

(b) All applications shall be on paper 8 by 10½ inches with left hand margin not less than 1½ inches wide. The impression shall be on one side of the paper only and shall be double spaced. All applications and accompanying papers, except charts, shall be typewritten or prepared by mechanical processing methods. All copies must be clearly legible.

[28 FR 13037, Dec. 5, 1963, as amended at 52 FR 5294, Feb. 20, 1987]

§25.524 [Reserved]

§25.525 Action upon applications.

No application filed under this subpart will be granted by the Commission earlier than 20 days following issuance of public notice by the Commission of the acceptance for filing of such application or any substantial amendment thereto. Any interested party may file comments with respect to the application (or amendment thereto) within this 20-day period. Such comments must also be served on the applicant who shall be afforded 10 days in which to file reply comments. If upon examination of any such application (or amendment thereto) together with any comments filed with respect thereto

the Commission is unable to make a finding that a grant of authorization will be consistent with the public interest, convenience, and necessity, it will deny the application or institute such further proceedings as in its discretion appear appropriate.

§ 25.526 Amendments.

The Commission may at any time order or require the applicant to amend his application so as to make it more definite and certain or to submit such additional documents, or statements, as in the judgment of the Commission may be necessary.

§ 25.527 Defective applications.

(a) Applications not in accordance with the applicable rules in this chapter may be deemed defective and returned by the Commission without acceptance of such applications for filing and consideration.

(b) The assignment of a file number, if any, to an application is for the administrative convenience of the Commission and does not indicate the acceptance of the application for filing and consideration.

§§ 25.528—25.529 [Reserved]

§ 25.530 Scope of authorization.

(a) In order to effectuate the purpose of the Communications Satellite Act of 1962 of promoting the widest possible distribution of stock among the authorized carriers, each authorization issued pursuant to this subpart by the Commission shall be so conditioned that in the event any voting stock authorized to be issued by the corporation, which is reserved and available for purchase by authorized carriers, is oversubscribed, the Commission may specify the dollar amount or percentage of such stock which may be purchased pursuant to such authorization.

(b) All authorizations shall be issued to, or on behalf of the named applicant and shall not be transferable.

(c) The Commission may attach such other conditions to the authorization as it determines to be consistent with the public interest, convenience, and necessity.

§ 25.531 Revocation of authorization.

Where any person to whom an authorization has been issued pursuant to this subpart has willfully failed to make a complete disclosure with regard to the real party or parties in interest or as to all matters and things required to be disclosed in the application, the Commission at any time may order such person to show cause why such authorization should not be revoked. Such person will be given reasonable opportunity to respond in writing to the order to show cause. Upon consideration of the response, the Commission will determine whether an order of revocation should issue or whether further proceedings, as may be appropriate, should be instituted. If an order of revocation is issued, immediate disposition shall be made of the shares of stock purchased or otherwise obtained pursuant to said authorization.

Subpart I—Equal Employment Opportunities

§ 25.601 Equal employment opportunity requirement.

Notwithstanding other EEO provisions within §1.815 of this chapter, an entity that uses an owned or leased fixed satellite service facility (operating under this part) to provide more than one channel of video programming directly to the public 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.

[58 FR 42249, Aug. 9, 1993]

PART 26—GENERAL WIRELESS COMMUNICATIONS SERVICE

Subpart A—General Information

Sec.

Subpart B—Applications and Licenses