

**§ 101.135 Shared use of radio stations and the offering of private carrier service.**

Licensees of Private Operational Fixed Point-to-Point Microwave radio stations may share the use of their facilities on a non-profit basis or may offer service on a for-profit private carrier basis, subject to the following conditions and limitations:

(a) Persons or governmental entities licensed to operate radio systems pursuant to subpart H of this part on any of the private radio frequencies set out in §101.101 may share such systems with, or provide private carrier service to, any eligible entity for licensing under this part, regardless of individual eligibility restrictions, provided that the communications being carried are permissible under §101.603.

(b) The licensee must maintain access to and control over all facilities authorized under its license;

(c) All sharing and private carrier arrangements must be conducted pursuant to a written agreement to be kept as part of the station records; and

(d) The licensee must keep an up-to-date list of system sharers and private carrier subscribers and the basis of their eligibility under this part. Such records must be kept current and must be made available upon request for inspection by the Commission.

(e) Applicants licensed in the MAS frequencies after June 2, 2000, shall not provide service to others on a for-profit private carrier basis in the 928–928.85/952–952.85/956.25–956.45 MHz bands and the 932.25–932.5/941.25–941.5 MHz bands.

[61 FR 26677, May 28, 1996, as amended at 65 FR 17449, Apr. 3, 2000; 65 FR 38330, June 20, 2000; 66 FR 35110, July 3, 2001; 68 FR 4958, Jan. 31, 2003]

**§ 101.137 Interconnection of private operational fixed point-to-point microwave stations.**

Private operational fixed point-to-point microwave stations may be interconnected with facilities of common carriers subject to applicable tariffs.

**§ 101.139 Authorization of transmitters.**

(a) Unless specified otherwise, transmitters used in the private operational fixed and common carrier fixed point-

to-point microwave and point-to-multipoint services under this part must be a type that has been approved for compliance under Supplier's Declaration of Conformity.

NOTE 1 TO PARAGRAPH (a): The verification procedure has been replaced by Supplier's Declaration of Conformity. Equipment previously authorized under subpart J of part 2 of this chapter may remain in use. See §2.950 of this chapter.

(b) Any transmitter to be produced for use under the rules of this part may be approved under the equipment authorization procedures set forth in part 2 of this chapter.

(c) Certification for an individual transmitter may also be requested by an applicant for a station authorization, pursuant to the procedures set forth in part 2 of this chapter.

(d) A transmitter presently shown on an instrument of authorization, which operates on an assigned frequency in the 890–940 MHz band and has not received a grant of certification, may continue to be used by the licensee without certification provided such transmitter continues otherwise to comply with the applicable requirements of this chapter.

(e) Certification or Supplier's Declaration of Conformity is not required for portable transmitters operating with peak output power not greater than 250 mW. If operation of such equipment causes harmful interference the FCC may, at its discretion, require the licensee to take such corrective action as is necessary to eliminate the interference.

(f) After July 15, 1996, the manufacturer (except for export) or importation of equipment employing digital modulation techniques in the 3700–4200, 5925–6425, 6525–6875, 10,550–10,680 and 10,700–11,700 MHz bands must meet the minimum payload capacity requirements of §101.141.

(g) After April 1, 2005, the manufacture (except for export) or importation of equipment for operation in the 21,200–23,600 MHz band must meet:

(1) The 0.001% frequency tolerance requirement for digital systems in §101.107(a) or the 0.03–0.003% frequency tolerance for analog systems; and

(2) For equipment employing digital modulation techniques, the minimum bit rate requirements of §101.141(a).

(h) 71,000–76,000 MHz; 81,000–86,000 MHz. For equipment employing digital modulation techniques, the minimum bit rate requirement is 0.125 bit per second per Hz.

(i) 92,000–94,000 MHz; 94,100–95,000 MHz. For equipment employing digital modulation techniques, the minimum bit rate requirement is 1.0 bit per second per Hz.

[63 FR 36611, July 7, 1998, as amended at 65 FR 59358, Oct. 5, 2000; 67 FR 43038, June 26, 2002; 68 FR 4958, Jan. 31, 2003; 70 FR 29998, May 25, 2005; 82 FR 50838, Nov. 2, 2017]

**§ 101.141 Microwave modulation.**

(a) Microwave transmitters employing digital modulation techniques and operating below 25.25 GHz (except for MVDDS stations in the 12,200–12,700 MHz band) must, with appropriate multiplex equipment, comply with the following additional requirements:

(1) The bit rate, in bits per second, must be equal to or greater than the bandwidth specified by the emission designator in Hertz (*e.g.*, to be acceptable, equipment transmitting at a 20 Mb/s rate must not require a bandwidth of greater than 20 MHz), except the bandwidth used to calculate the minimum rate may not include any authorized guard band.

(i) Stations authorized prior to December 1, 1988 may install equipment after that date with no minimum bit rate. Equipment applied for or authorized prior to April 1, 2005 in the 21.2–23.6 GHz band may be installed with no minimum bit rate.

(ii) However, any digital equipment applied for after April 1, 2005 and equipment replacing existing equipment in the 21.2–23.6 GHz band must meet the bit rate standard.

(2) Equipment to be used for voice transmission placed in service, authorized, or applied for on or before June 1, 1997 in the 2110 to 2130 and 2160 to 2180 MHz bands must be capable of satisfactory operation within the authorized bandwidth to encode at least 96 voice channels. Equipment placed in service, authorized, or applied for on or before June 1, 1997 in the 3700–4200, 5925–6425 (30 MHz bandwidth), and 10,700–11,700 MHz (30 and 40 MHz bandwidths) bands must be capable of satisfactory operation within the authorized bandwidth to encode at least 1152 voice channels. These required loading levels may be reduced by a factor of 1/N provided that N transmitters may be operated satisfactorily, over the same radio path, within an authorized bandwidth less than, or equal to, the maximum authorizable bandwidth (*e.g.*, the 1152 channel requirement may be reduced to 576 if two transmitters can be satisfactorily operated over the same path within the maximum bandwidth). Where certificated equipment is designed to operate on the same frequency in a cross polarized configuration to meet the above capacity requirements, the Commission will require, at the time additional transmitters are authorized, that both polarizations of a frequency be used before a new frequency assignment is made, unless a single transmitter installation was found to be justified by the Commission at the time it authorized the first transmitter.

(3)(i) Except as noted in paragraph (a)(7) of this section, the payload capacity of equipment shall meet the following minimum efficiency standards:

Frequency	Emission bandwidth ≤5 MHz	Emission bandwidth >5 MHz and ≤20 MHz	Emission bandwidth >20 MHz
3,700–10,550 MHz .....	2.4 bits/second/Hertz .....	4.4 bits/second/Hertz .....	4.4 bits/second/Hertz.
10,550–13,250 MHz .....	2.4 bits/second/Hertz .....	4.4 bits/second/Hertz .....	3.0 bits/second/Hertz.

(ii) Traffic loading payload shall exceed 50 percent of payload capacity within 30 months of licensing. During anomalous signal fading, licensees subject to the capacity and loading requirements may adjust to a modulation specified in their authorization if

such modulation is necessary to allow licensees to maintain communications, even if the modulation will not comply with the capacity and loading requirements specified in this paragraph. Links that must comply with the capacity and loading requirements that