to the transmission path proposed. If there is no evidence that such exception would cause possible harmful interference to an authorized satellite system, said transmission path may be authorized on waiver basis where the maximum value of the equivalent isotropically radiated power (EIRP) does not exceed +45 dBW for any antenna beam directed within 1.5 degrees of the stationary satellite orbit.

(d) Methods for calculating the azimuths to be avoided may be found in: CCIR Report No. 393 (Green Books), New Delhi, 1970; in ''Radio-Relay Antenna Pointing for controlled Interference With Geostationary-Satellites'' by C. W. Lundgren and A. S. May, Bell System Technical Journal, Vol. 48, No. 10, pp. 3387–3422, December 1969; and in ''Geostationary Orbit Avoidance Computer Program'' by Richard G. Gould, Common Carrier Bureau Report CC–7201, FCC, Washington, DC, 1972. This latter report is available through the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22151, in printed form (PB–211 500) or source card deck (PB–211 501).

[61 FR 26677, May 28, 1996, as amended at 65 FR 38330, June 20, 2000; 68 FR 12777, Mar. 17, 2003]

EFFECTIVE DATE NOTE: At 77 FR 54432, Sept. 5, 2012, §101.145 was amended by revising paragraphs (b) introductory text and (c), effective Oct. 5, 2012. For the convenience of the revised text is set forth as follows:

§ 101.145 Interference to geo-stationary-satellites.

* * * * *

(b) *2655 to 2690 MHz and 5925 to 7075 MHz.* No directional transmitting antenna utilized by a fixed station operating in these bands with EIRP greater than 35 dBW may be aimed within 2 degrees of the geostationary-satellite orbit, taking into account atmospheric refraction. However, exception may be made in unusual circumstances upon a showing that there is no reasonable alternative to the transmission path proposed. If there is no evidence that such exception would cause possible harmful interference to an authorized satellite system, said transmission path may be authorized on waiver basis where the maximum value of the equivalent isotropically radiated power (EIRP) does not exceed:

* * * * *

(c) *12.7 to 13.25 GHz.* No directional transmitting antenna utilized by a fixed station operating in this band with EIRP greater than 45 dBW may be aimed within 1.5 degrees of the geostationary-satellite orbit, taking into account atmospheric refraction.

* * * * *

§ 101.147 Frequency assignments.

(a) Frequencies in the following bands are available for assignment for fixed microwave services.

928.0–929.0 MHz (28)
932.0–932.5 MHz (27)
932.5–935 MHz (17)
941.0–941.5 MHz (27)
941.5–944 MHz (17) (18)
952.0–960.0 MHz (28)
1,850–1,990 MHz (20) (22)
2,110–2,130 MHz) (1) (3) (7) (20) (23)
2,130–2,150 MHz (20) (22)
2,160–2,180 MHz (1) (2) (20) (23)
2,180–2,200 MHz (20) (22)
2,450–2,500 MHz (12)
2,650–2,690 MHz
3,700–4,200 MHz (8) (14) (25)
5,925–6,425 MHz (6) (14) (25)
6,425–6,525 MHz (24)
6,525–6.875 MHz (14) (33)
6,875–7,125 MHz (10), (34)
10,550–10,680 MHz (19)
10,700–11,700 MHz (8) (9) (19) (25)
11,700–12,200 MHz (24)
12,200–12,700 MHz (31)
12,700–13,200 (22), (34)
13,200–13,250 MHz (4) (24) (25)
14,200–14,400 MHz (24)
17,700–18,820 MHz (5) (10) (15)
17,700–18,300 MHz (10) (15)
18,820–18,920 MHz (22)
18,300–18,580 MHz (5) (10) (15)
18,580–19,300 MHz (22) (30)
18,920–19,160 MHz (5 (10) (15)
19,160–19,260 MHz (22)
19,260–19,700 MHz (5) (10) (15)
19,300–19,700 MHz (5) (10) (15)
21,200–22,000 MHz (4) (11) (12) (13) (24) (25) (26)
22,000–23,600 MHz (4) (11) (12) (24) (25) (26)
24,250–25,250 MHz
27,500–28,350 MHz (16)
29,100–29,250 MHz (5), (16)
31,000–31,300 MHz (16)
37,000–40,000 MHz (4)(32)
42,000–42,500 MHz
71,000–76,000 MHz (5) (17)
81,000–86,000 MHz (5) (17)
92,000–94,000 MHz (17)
94,100–95,000 MHz (17)

Notes

(1) Frequencies in this band are shared with control and repeater stations in the Public Mobile Services and with stations in the International Fixed Public Radio communication Services located south of 25°30′ north latitude in the State of Florida and U. S. possessions in the Caribbean area. Additionally, the band 2160–2162 MHz is shared with stations in the Multipoint Distribution Service.

(2) Except upon showing that no alternative frequencies are available, no new assignments will be made in the band 2160–2162 MHz for stations located within 80.5 kilometers (50 miles) of the coordinates of the cities listed in §21.901(c) of this chapter.

(3) Television transmission in this band is not authorized and radio frequency channel widths may not exceed 3.5 MHz.

(4) Frequencies in this band are shared with fixed and mobile stations licensed in other services.

(5) Frequencies in this band are shared with stations in the fixed-satellite service.

(6) These frequencies are not available for assignment to mobile earth stations.

(7) Frequencies in the band 2110–2120 MHz may be authorized on a case-by-case basis to Government or non-Government space research earth stations for telecommand purposes in connection with deep space research.

(8) This frequency band is shared with station(s) in the Local Television Transmission Service and, in the U.S. Possessions in the Caribbean area, with stations in the International Fixed Public Radiocommunications Services.

(9) The band segments 10.95–11.2 and 11.45–11.7 GHz are shared with space stations (space to earth) in the fixed-satellite service.

(10) This band is co-equally shared with stations in the fixed services under parts 74, 78 and 101 of this chapter.

(11) Frequencies in this band are shared with Government stations.

(12) Frequencies in this band are available for assignment to the common carrier and private-operational fixed point-to-point microwave services.

(13) Frequencies in this band are shared with stations in the earth exploration satellite service (space to earth).

(14) Frequencies in this band are shared with stations in the fixed-satellite service.

(15) Stations licensed as of September 9, 1983 to use frequencies in the 17.7–19.7 GHz band may, upon proper application, continue to be authorized for such operation.

(16) As of June 30, 1997, frequencies in these bands are available for assignment only to LMDS radio stations, except for non-LMDS radio stations authorized pursuant to applications refiled no later than June 26, 1998.

(17) Frequencies in these bands are shared with Government fixed stations and stations in the Private Operational Fixed Point-to-Point Microwave Service (part 101).

(18) Frequencies in the 942 to 944 MHz band are also shared with broadcast auxiliary stations.

(19) Frequencies in this band are shared with stations in the private-operational fixed point-to-point microwave service.

(20) New facilities in these bands will be licensed only on a secondary basis. Facilities licensed or applied for before January 16, 1992, are permitted to make minor modifications in accordance with §101.81 and retain their primary status.

(21) Any authorization of additional stations to use the 2160–2162 MHz band for Multipoint Distribution Service applied for after January 16, 1992, will be secondary to use of the band for emerging technology services.

(22) Frequencies in these bands are for the exclusive use of Private Operational Fixed Point-to-Point Microwave Service (part 101). Frequencies in the 12,700–13,200 MHz band, which were available only to stations authorized in the 12,200–12,700 MHz band as of September 9, 1983, are not available for new facilities.

(23) Frequencies in these bands are for the exclusive use of Common Carrier Fixed Point-to-Point Microwave Service (part 101).

(24) Frequencies in these bands are available for assignment to television pickup and television non-broadcast pickup stations. The maximum power for the local television transmission service in the 14.2–14.4 GHz band is +45 dBW except that operations are not permitted within 1.5 degrees of the geostationary orbit. Beginning March 1, 2005, no new LTTS operators will be licensed and no existing LTTS licenses shall be issued in the 11.7–12.2 and 14.2–14.4 GHz bands.

(25) Frequencies in these bands are available for assignment to television STL stations.

(26) Frequencies from 21.8–22.0 GHz and 23.0–23.2 GHz may be authorized for low power, limited coverage systems subject to the provisions of paragraph (s)(8) of this section.

(27) Frequencies in the 932 to 932.5 MHz and 941 to 941.5 MHz bands are shared with Government fixed point-to-multipoint stations. Frequencies in these bands are paired with one another and are available for flexible use for transmission of the licensee's products and information services, excluding video entertainment material. 932.00625/941.00625 MHz to 932.24375/941.24375 MHz is licensed by Economic Area. 932.25625/941.25625 MHz to 932.49375/941.49375 MHz is licensed on a site-by-site basis.

(28) Licensees that obtain authorizations in the 928/952/956 MHz MAS bands subsequent to July 1, 1999 are limited to private internal

services, as defined in §101.1305. Incumbent operations in the 928/952/956 MHz MAS bands, as defined in §101.1331(a), are subject to grandfather rights pursuant to §101.1331. The 928.85–929.0 MHz and 959.85–960.0 MHz bands are licensed on a geographic area basis with no eligibility restrictions. The 928.0–928.85 MHz band paired with the 952.0–952.85 MHz band, in addition to unpaired frequencies in the 956.25–956.45 MHz band, are licensed on a site-by-site basis and used for terrestrial point-to-point and point-to-multipoint fixed and limited mobile operations. The 928.85–929.0 MHz band paired with the 959.85–960.0 MHz band is licensed by Economic Area and used for terrestrial point-to-point and point-to-multipoint fixed operations.

(29) Frequencies in this band are shared with stations in the Multipoint Distribution Service (part 21). These frequencies may be used for the transmission of the licensee's products and information services, excluding video entertainment material to the licensee's customers.

(30) The frequency band 18,580–19,300 GHz is not available for new licensees after June 8, 2000, except for low power indoor stations in the band 18,820–18,870 MHz and 19,160–19,210 MHz.

(31) This frequency band can be used for Multichannel Video Distribution and Data Service (MVDDS) shared with Direct Broadcast Satellite (DBS) Services on a co-primary non-harmful interference basis and on a co-primary basis with NGSO FSS satellite earth stations. Incumbent private operational fixed point-to-point licensees can also use these frequencies on a site by site basis.

(32) Frequencies in this band are shared with stations in the fixed-satellite service, subject to the conditions specified in footnote 15 of §25.202(a)(1) of this chapter, see 47 CFR 47 25.202(a)(1) n.16.

(33) The coordination of a new 30 megahertz link in the 6,525–6,875 MHz band should be attempted only if it cannot be accommodated in the 5,925–6,425 MHz band.

(34) In the bands 6,875–7,125 MHz and 12,700–13,150 MHz, links shall not intersect with the service areas of television pickup stations.

(b) Frequencies normally available for assignment in this service are set forth with applicable limitations in the following tables: 928–960 MHz Multiple address system (MAS) frequencies are available for the point-to-multipoint and point-to-point transmission of a licensee's products or services, excluding video entertainment material, to a licensee's customer or for its own internal communications. The paired frequencies listed in this section are used for two-way communications between a master station and remote stations. Ancillary one-way communications on paired frequencies are permitted on a case-by-case basis. Ancillary communications between interrelated master stations are permitted on a secondary basis. The normal channel bandwidth assigned will be 12.5 kHz. EA licensees, however, may combine contiguous channels without limit or justification. Site-based licensees may combine contiguous channels up to 50 kHz, and more than 50 kHz only upon a showing of adequate justification. Any bandwidth (12.5 kHz, 25 kHz or greater) authorized in accordance with this section may be subdivided into narrower bandwidths to create additional (or sub) frequencies without the need to specify each discrete frequency within the specific bandwidth. Equipment that is used to create additional frequencies by narrowing bandwidth (whether authorized for a 12.5 kHz, 25 kHz or greater bandwidth) will be required to meet, at a minimum, the ±0.00015 percent tolerance requirement so that all subfrequencies will be within the emission mask. Systems licensed for frequencies in these MAS bands prior to August 1, 1975, may continue to operate as authorized until June 11, 1996, at which time they must comply with current MAS operations based on the 12.5 kHz channelization set forth in this paragraph. Systems licensed between August 1, 1975, and January 1, 1981, inclusive, are required to comply with the grandfathered 25 kHz standard bandwidth and channelization requirements set forth in this paragraph. Systems originally licensed after January 1, 1981, and on or before May 11, 1988, with bandwidths of 25 kHz and above, will be grandfathered indefinitely.

NOTE TO PARAGRAPH (b) INTRODUCTORY TEXT: Paragraphs (b)(1) through (b)(5) and Tables 1 through 7 of this section pertain to Multiple Address System (MAS) frequencies and paragraph (b)(6) and Tables 8 through 11 of this section pertain to Point-To-Point frequencies.

(1) Frequencies listed in this paragraph are designated for private internal use and are subject to site-based licensing.

TABLE 1—PAIRED FREQUENCIES (MHz)

[12.5 kHz bandwidth]

Remote transmit	Master transmit
928.00625	952.00625
928.01875	952.01875
928.03125	952.03125
928.04375	952.04375
928.05625	952.05625
928.06875	952.06875
928.08125	952.08125
928.09375	952.09375
928.10625	952.10625
928.11875	952.11875
928.13125	952.13125
928.14375	952.14375
928.15625	952.15625
928.16875	952.16875
928.18125	952.18125
928.19375	952.19375
928.20625	952.20625
928.21875	952.21875
928.23125	952.23125
928.24375	952.24375
928.25625	952.25625
928.26875	952.26875
928.28125	952.28125
928.29375	952.29375
928.30625	952.30625
928.31875	952.31875
928.33125	952.33125
928.34375	952.34375

UNPAIRED FREQUENCIES (MHz)

[12.5 kHz bandwidth]

956.25625	956.33125	956.39375
956.26875	956.34375	956.40625
956.28125	956.35625	956.41875
956.29375	956.36875	956.43125
956.30625	956.38125	956.44375
956.31875		

TABLE 2—PAIRED FREQUENCIES (MHz)

[25 kHz bandwidth]

Remote transmit	Master transmit
928.0125	952.0125
928.0375	952.0375
928.0625	952.0625
928.0875	952.0875
928.1125	952.1125
928.1375	952.1375
928.1625	952.1625
928.1875	952.1875
928.2125	952.2125
928.2375	952.2375
928.2625	952.2625
928.2875	952.2875
928.3125	952.3125
928.3375	952.3375

UNPAIRED FREQUENCIES (MHz)

[25 kHz bandwidth]

956.2625	956.3375	956.4125

UNPAIRED FREQUENCIES (MHz)—Continued

[25 kHz bandwidth]

956.2875	956.3625	956.4375
956.3125	956.3875	

(2) Frequencies listed in this paragraph are designated for private internal use and are subject to site-based licensing.

TABLE 3—PAIRED FREQUENCIES (MHz)

[12.5 kHz bandwidth]

Remote transmit	Master transmit
928.35625	952.35625
928.36875	952.36872
928.38125	952.38125
928.39375	952.39375
928.40625	952.40625
928.41875	952.41875
928.43125	952.43125
928.44375	952.44375
928.45625	952.45625
928.46875	952.46875
928.48125	952.48125
928.49375	952.49375
928.50625	952.50625
928.51875	952.51875
928.53125	952.53125
928.54375	952.54375
928.55625	952.55625
928.56875	952.56875
928.58125	952.58125
928.59375	952.59375
928.60625	952.60625
928.61875	952.61875
928.63125	952.63125
928.64375	952.64375
928.65625	952.65625
928.66875	952.66875
928.68125	952.68125
928.69375	952.69375
928.70625	952.70625
928.71875	952.71875
928.73125	952.73125
928.74375	952.74375
928.75625	952.75625
928.76875	952.76875
928.78125	952.78125
928.79375	952.79375
928.80625	952.80625
928.81875	952.81875
928.83125	952.83125
928.84375	952.84375

TABLE 4—PAIRED FREQUENCIES (MHz)

[25 kHz bandwidth]

Remote transmit	Master transmit
928.3625	952.3625
928.3875	952.3875
928.4125	952.4125
928.4375	952.4375
928.4625	952.4625
928.4875	952.4875
928.5125	952.5125
928.5375	952.5375
928.5625	952.5625

TABLE 4—PAIRED FREQUENCIES (MHz)—Continued

[25 kHz bandwidth]

Remote transmit	Master transmit
928.5875	952.5875
928.6125	952.6125
928.6375	952.6375
928.6625	952.6625
928.6875	952.6875
928.7125	952.7125
928.7375	952.7375
928.7625	952.7625
928.7875	952.7875
928.8125	952.8125
928.8375	952.8375

(3) Frequencies listed in this paragraph are not restricted to private internal use and are licensed by geographic area. Incumbent facilities must be protected.

TABLE 5—PAIRED FREQUENCIES (MHz)

[12.5 kHz bandwidth]

Remote transmit	Master transmit
928.85625	959.85625
928.86875	959.86875
928.88125	959.88125
928.89375	959.89375
928.90625	959.90625
928.91875	959.91875
928.93125	959.93125
928.94375	959.94375
928.95625	959.95625
928.96875	959.96875
928.98125	959.98125
928.99375	959.99375

TABLE 6—PAIRED FREQUENCIES (MHz)

[25 kHz bandwidth]

Remote transmit	Master transmit
928.8625	959.8625
928.8875	959.8875
928.9125	959.9125
928.9375	959.9375
928.9625	959.9625
928.9875	959.9875

(4) Frequencies listed in this paragraph are licensed by either economic area or on a site-by-site basis.

TABLE 7—PAIRED FREQUENCIES

Remote transmit	Master transmit
Licensed by Economic Area	
(12.5 kHz bandwidth):	
932.00625	941.00625
932.01875	941.01875
932.03125	941.03125
932.04375	941.04375
932.05625	941.05625
932.06875	941.06875
932.08125	941.08125
932.09375	941.09375
(50 kHz bandwidth):	
932.12500	941.12500
(12.5 kHz bandwidth):	
932.15625	941.15625
932.16875	941.16875
932.18125	941.18125
932.19375	941.19375
932.20625	941.20625
932.21875	941.21875
932.23125	941.23125
932.24375	941.24375
Reserved for public safety and private internal use. Licensed on site-by-site basis.	
(12.5 kHz bandwidth):	
932.25625	941.25625
932.26875	941.26875
932.28125	941.28125
932.29375	941.29375
932.30625	941.30625
932.31875	941.31875
932.33125	941.33125
932.34375	941.34375
932.35625	941.35625
932.36875	941.36875
932.38125	941.38125
932.39375	941.39375
932.40625	941.40625
932.41875	941.41875
932.43125	941.43125
Reserved for Public Safety and Federal Government Use. Licensed on site-by-site basis.	
(12.5 kHz bandwidth):	
932.44375	941.44375
932.45625	941.45625
932.46875	941.46875
932.48125	941.48125
932.49375	941.49375

(5) Equivalent power and antenna heights for multiple address master stations:

Antenna height (AAT) in meters	Maximum effective radiated power	
	Watts	dBm
Above 305	200	53
Above 274 to 305	250	54
Above 244 to 274	315	55
Above 213 to 244	400	56
Above 182 to 213	500	57
Above 152.5 to 182	630	58
152.5 and below	1,000	60

For mobile operations the maximum ERP is 25 watts (44 dBm).

(6) Fixed point-to-point frequencies.

TABLE 8—PAIRED FREQUENCIES

[All frequencies may be used by Common Carrier Fixed Point-to-Point and Private Operational Fixed Point-to-Point Microwave Service licensees; 25 kHz bandwidth]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
932.5125	941.5125
932.5375	941.5375
932.5625	941.5625
932.5875	941.5875
932.6125	941.6125
932.6375	941.6375
932.6625	941.6625
934.8375	943.8375
934.8625	943.8625
934.8875	943.8875
934.9125	943.9125
934.9375	943.9375
934.9625	943.9625
934.9875	943.9875

TABLE 9—PAIRED FREQUENCIES

[Frequencies may be used only by Private Operational Fixed Point-to-Point Microwave Service licensees, unless otherwise noted; 50 kHz bandwidth]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
932.70 [1]	[1] 941.70
932.75 [1]	[1] 941.75
934.80 [1]	[1] 943.80
956.65	953.05
956.75	953.15
956.85	953.25
956.95	953.35
957.05	953.45
957.25	953.65
957.35	953.75
957.45	953.85
957.65	954.05
957.75	954.15
957.85	954.25
958.05	954.45
958.15	954.55
958.25	954.65
958.45	954.85
958.55	954.95
958.65	955.05
958.85	955.25
958.95	955.35
959.05	955.45
959.25	955.65
959.35	955.75
959.45	955.85
959.55	955.95
959.65	956.05

[1] These frequencies also may be used by Common Carrier Fixed Point-to-Point Microwave licensees.

TABLE 10—PAIRED FREQUENCIES

[Frequencies may be used only by Private Operational Fixed Point-to-Point Microwave licensees, unless otherwise noted; 100 kHz bandwidth]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
932.8250 [1]	[1] 941.8250
932.9250 [1]	[1] 941.9250

TABLE 10—PAIRED FREQUENCIES—Continued

[Frequencies may be used only by Private Operational Fixed Point-to-Point Microwave licensees, unless otherwise noted; 100 kHz bandwidth]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
933.0250 [1]	[1] 942.0250
934.5250 [1]	[1] 943.5250
934.6250 [1]	[1] 943.6250
934.7250 [1]	[1] 943.7250
956.6	953.0
956.7	953.1
956.8	953.2
956.9	953.3
957.0	953.4
957.1	953.5
957.2	953.6
957.3	953.7
957.4	953.8
957.5	953.9
957.6	954.0
957.7	954.1
957.8	954.2
957.9	954.3
958.0	954.4
958.1	954.5
958.2	954.6
958.3	954.7
958.4	954.8
958.5	954.9
958.6	955.0
958.7	955.1
958.8	955.2
958.9	955.3
959.0	955.4
959.1	955.5
959.2	955.6
959.3	955.7
959.4	955.8
959.5	955.9
959.6	956.0
959.7	956.1

[1] These frequencies also may be used by Common Carrier Fixed Point-to-Point Microwave licensees.

TABLE 11—PAIRED FREQUENCIES

[Frequencies may be used only by Private Operational Fixed Point-to-Point Microwave licensees, unless otherwise noted; (200 kHz bandwidth)]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
933.1750 [1]	[1] 942.1750
933.3750 [1]	[1] 942.3750
933.5750 [1]	[1] 942.5750
933.7750 [1]	[1] 942.7750
933.9750 [1]	[1] 942.9750
934.1750 [1]	[1] 943.1750
934.3750 [1]	[1] 943.3750
957.15	953.55
957.55	953.95
957.95	954.35
958.35	954.75
958.75	955.15
959.15	955.55

[1] These frequencies also may be used by Common Carrier Fixed Point-to-Point Microwave licensees.

(c) *1850–1990 MHz.* (1) 10 MHz maximum bandwidth.

PAIRED FREQUENCIES

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1855	1935
1865	1945
1875	1955
1885	1965
1895	1975
1905	1985

UNPAIRED FREQUENCIES

1915 [1]
1925 [1]

[1] Available for systems employing one-way transmission.

(2) 5 MHz maximum bandwidth.

PAIRED FREQUENCIES

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1860	1940
1870	1950
1880	1960
1890	1970
1900	1980

(d) *2130–2150 MHz; 2180–2200 MHz*. 800 kHz maximum bandwidth, unless noted.

PAIRED FREQUENCIES

2130–2150	2180–2200
Transmit (receive) (MHz)	Receive (transmit) (MHz)
2130.8	2180.8
2131.6	[1] 2181.6
2132.4	2182.4
2133.2	[1] 2183.2
2134.0	2184.0
2134.8	[1] 2184.8
2135.6	2185.6
2136.4	[1] 2186.4
2137.2	2187.2
2138.0	[1] 2188.0
2139.6	[1] 2189.6
2138.8	2188.8
2140.4	2190.4
2141.2	[1] 2191.2
2142.0	2192.0
2142.8	[1] 2192.8
2143.6	2193.6
2144.4	[1] 2194.4
2145.2	2195.2
2146.0	[1] 2196.0
2146.8	2196.8
2147.6	[1] 2197.6
2148.4	2198.4
2149.2	2199.2

[1] Consideration will be given on a case-by-case basis to assigning these frequency pairs to systems employing 1600 KHz bandwidth transmissions.

(e) [Reserved]

(f) *2450–2500 MHz*. (1) This band is shared with other communications services and is not subject to protection from interference from industrial, scientific, and medical devices operating on 2450 MHz.

(2) Stations licensed in this band under this part prior to March 1, 1996, are grandfathered and may continue their authorized operations. Stations licensed in the 2483.5–2500 MHz portion of the band as of July 25, 1985, and licensees whose initial applications were filed on or before July 25, 1985, are grandfathered, and may continue operations, subject only to license renewal, on a co-primary basis with with the mobile-satellite and radiodetermination-satellite services, and in the segment 2495–2500 MHz, their operations are also on a co-primary basis with part 27 fixed and mobile except aeronautical mobile service operations.

(3) 625 KHz bandwidth channels. The normal bandwidth authorized will be 625 KHz. Upon adequate justification, additional contiguous channels may be authorized to provide up to a 2500 KHz bandwidth.

PAIRED FREQUENCIES

Transmit (receive) (MHz)	Receive (transmit) (MHz)
2450.3125	2467.5625
2450.9375	2468.1875
2451.5625	2468.8125
2452.1875	2469.4375
2452.8125	2470.0625
2453.4375	2470.6875
2454.0625	2471.3125
2454.6875	2471.9375
2455.3125	2472.5625
2455.9375	2473.1875
2456.5625	2473.8125
2457.1875	2474.4375
2457.8125	2475.0625
2458.4375	2475.6875
2459.0625	2476.3125
2459.6875	2476.9375
2460.3125	2477.5625
2460.9375	2478.1875
2461.5625	2478.8125
2462.1875	2479.4375
2462.8125	2480.0625
2463.4375	2480.6875
2464.0625	2481.3125
2464.6875	2481.9375
2465.3125	2482.5625
2465.9375	2483.1875

(g) [Reserved]

(h) *3,700 to 4,200 MHz*. 20 MHz maximum authorized bandwidth.

20 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
3710	3750
3730	3770
3790	3830
3810	3850
3870	3910
3890	3930
3950	3990
3970	4010
4030	4070
4050	4090
4110	4150
4130	4170
N/A	[1] 4190

[1] This frequency may be assigned for unpaired use.

(i) *5,925 to 6,425 MHz*. 30 MHz authorized bandwidth.

(1) 400 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5925.225	6177.100
5925.625	6177.500
5926.050	6177.925
5926.450	6178.325
5926.875	6178.750
5927.275	6179.150
5927.725	6179.600
5928.125	6180.000
5928.550	6180.425
5928.950	6180.825
5929.375	6181.250
5929.775	6181.650
6168.350	6420.225
6168.750	6420.625
6169.175	6421.050
6169.575	6421.450
6170.000	6421.875
6170.400	6422.275
6170.850	6422.725
6171.250	6423.125
6171.675	6423.550
6172.075	6423.950
6172.500	6424.375
6172.900	6424.775

(2) 800 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5925.425	6177.300
5926.250	6178.125
5927.075	6178.950
5927.925	6179.800
5928.750	6180.625
5929.575	6181.450
6168.550	6420.425
6169.375	6421.250
6170.200	6422.075
6171.050	6422.925
6171.875	6423.750
6172.700	6424.575

(3) 1.25 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5925.625	6177.500
5926.875	6178.750
5928.125	6180.000
5929.375	6181.250
6108.893	6360.933
6110.128	6362.168
6111.364	6363.404
6112.599	6364.639
6113.834	6365.874
6115.070	6367.110
6116.305	6368.345
6117.541	6369.581
6118.776	6370.816
6120.011	6372.051
6121.247	6373.287
6122.482	6374.522
6123.718	6375.758
6124.953	6376.993
6126.189	6378.229
6127.424	6379.464
6128.659	6380.699
6129.895	6381.935
6131.130	6383.170
6132.366	6384.406
6133.601	6385.641
6134.836	6386.876
6136.072	6388.112
6137.307	6389.347
6138.543	6390.583
6139.778	6391.818
6141.014	6393.054
6142.249	6394.289
6143.484	6395.524
6144.720	6396.760
6145.955	6397.995
6147.191	6399.231
6148.426	6400.466
6149.661	6401.701
6150.897	6402.937
6152.132	6404.172
6153.368	6405.408
6154.603	6406.643
6155.839	6407.879
6157.074	6409.114
6158.309	6410.349
6159.545	6411.585
6160.780	6412.820
6162.016	6414.056
6163.251	6415.291
6164.486	6416.526
6165.722	6417.762
6166.957	6418.997
6168.750	6420.625
6170.000	6421.875
6171.250	6423.125
6172.500	6424.375
6173.750 [1]	N/A
6175.000 [1]	N/A
6176.250 [1]	N/A

[1] These frequencies may be assigned for unpaired use.

(4) 2.5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5926.250	6178.125
5928.750	6180.625
6109.510	6361.550
6111.981	6364.021
6114.452	6366.492

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6116.923	6368.963
6119.394	6371.434
6121.865	6373.905
6124.335	6376.375
6126.806	6378.846
6129.277	6381.317
6131.748	6383.788
6134.219	6386.259
6136.690	6388.730
6139.160	6391.200
6141.631	6393.671
6144.102	6396.142
6146.573	6398.613
6149.044	6401.084
6151.515	6403.555
6153.985	6406.025
6156.456	6408.496
6158.927	6410.967
6161.398	6413.438
6163.869	6415.909
6166.340	6418.380
6169.375	6421.250
6171.875	6423.750
6175.625 [1]	N/A

[1] This frequency may be assigned for unpaired use.

(5) 3.75 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6111.364	6363.404
6116.305	6368.345
6121.247	6373.287
6126.189	6378.229
6131.130	6383.170
6136.072	6388.112
6141.014	6393.054
6145.955	6397.995
6150.897	6402.937
6155.839	6407.879
6160.780	6412.820
6165.722	6417.762
6175.000 [1]	N/A

[1] This frequency may be assigned for unpaired use.

(6) 5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6110.75	6362.79
6115.69	6367.73
6120.63	6372.67
6125.57	6377.61
6130.51	6382.55
6135.45	6387.49
6140.40	6392.44
6145.34	6397.38
6150.28	6402.32
6155.22	6407.26
6160.16	6412.20
6165.10	6417.14

(7) 10 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5935.32	6187.36
5945.20	6197.24
5955.08	6207.12
5964.97	6217.01
5974.85	6226.89
5984.73	6236.77
5994.62	6246.66
6004.50	6256.54
6014.38	6266.42
6024.27	6276.31
6034.15	6286.19
6044.03	6296.07
6053.92	6305.96
6063.80	6315.84
6073.68	6325.72
6083.57	6335.61
6093.45	6345.49
6103.33	6355.37
6113.22 [1]	[1] 6365.26
6123.10 [1]	[1] 6375.14
6132.98 [1]	[1] 6385.02
6142.87 [1]	[1] 6394.91
6152.75 [1]	[1] 6404.79
6162.63 [1]	[1] 6414.67

[1] Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

(8) 30 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5945.20	6197.24
5974.85	6226.89
6004.50	6256.54
6034.15	6286.19
6063.80	6315.84
6093.45	6345.49
6123.10 [1]	[1] 6375.14
6152.75 [1]	[1] 6404.79

[1] Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

(j) *6,425 to 6,525 MHz: Mobile.* Paired and un-paired operations permitted. Use of this spectrum for direct delivery of video programs to the general public or multi-channel cable distribution is not permitted. This band is co-equally shared with mobile stations licensed pursuant to parts 74 and 78 of the Commission's Rules. Stations not intended to be operated while in motion will be licensed under the provision of §101.31. The following channel plans apply.

(1) 1 MHz maximum authorized bandwidth channels:

Transmit (or receive) (MHz)	Receive (or transmit) (MHz)
6425.5	6475.5
6450.5	6500.5

(2) 8 MHz maximum authorized bandwidth channels:

Transmit (or receive) (MHz)	Receive (or transmit) (MHz)
6430.0	6480.0
6438.0	6488.0
6446.0	6596.0
6455.0	6505.0
6463.0	6513.0
6471.0	6521.0

(3) 25 MHz maximum authorized bandwidth channels:

Transmit (or receive) (MHz)	Receive (or transmit) (MHz)
6437.5	6487.5
6462.5	6512.5

(k) *6,525 to 6,875 MHz.* 10 MHz authorized bandwidth.

(1) 400 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6525.225	6870.225
6525.625	6870.625
6526.050	6871.050
6526.450	6871.450
6526.875	6871.875
6527.275	6872.275
6527.725	6872.725
6528.125	6873.125
6528.550	6873.550
6528.950	6873.950
6529.375	6874.375
6529.775	6874.775

(2) 800 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6525.425	6870.425
6526.250	6871.250
6527.075	6872.075
6527.925	6872.925
6528.750	6873.750
6529.575	6874.575

(3) 1.25 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6525.625	6870.625
6526.875	6871.875
6528.125	6873.125
6529.375	6874.375
6540.625 [1]	[1] 6718.125
6541.875 [1]	[1] 6719.375
6543.125 [1]	[1] 6713.125
6544.375 [1]	[1] 6714.375
6545.625 [1]	[1] 6715.625
6546.875 [1]	[1] 6716.875
6548.125	6728.125
6549.375	6729.375
6550.625	6730.625
6551.875	6731.875
6553.125 [1]	[1] 6723.125
6554.375 [1]	[1] 6724.375
6555.625 [1]	[1] 6725.625
6556.875 [1]	[1] 6726.875
6558.125	6738.125
6559.375	6739.375
6560.625	6740.625
6561.875	6741.875
6563.125	6733.125
6564.375	6734.375
6565.625	6735.625
6566.875	6736.875
6568.125 [1]	[1] 6720.625
6569.375 [1]	[1] 6721.875
6580.625 [1]	[1] 6868.125
6581.875 [1]	[1] 6869.375
6583.125	6743.125
6584.375	6744.375
6585.625	6745.625
6586.875	6746.875
6588.125	6748.125
6589.375	6749.375
6590.625	6750.625
6591.875	6751.875
6593.125	6753.125
6594.375	6754.375
6595.625	6755.625
6596.875	6756.875
6598.125	6758.125
6599.375	6759.375
6600.625	6760.625
6601.875	6761.875
6603.125	6763.125
6604.375	6764.375
6605.625	6765.625
6606.875	6766.875
6608.125	6768.125
6609.375	6769.375
6610.625	6770.625
6611.875	6771.875
6613.125	6773.125
6614.375	6774.375
6615.625	6775.625
6616.875	6776.875
6618.125	6778.125
6619.375	6779.375
6620.625	6780.625
6621.875	6781.875
6623.125	6783.125
6624.375	6784.375
6625.625	6785.625
6626.875	6786.875
6628.125	6788.125
6629.375	6789.375
6630.625	6790.625
6631.875	6791.875
6633.125	6793.125
6634.375	6794.375
6635.625	6795.625
6636.875	6796.875
6638.125	6798.125
6639.375	6799.375
6640.625	6800.625
6641.875	6801.875
6643.125	6803.125
6644.375	6804.375
6645.625	6805.625
6646.875	6806.875
6648.125	6808.125
6649.375	6809.375
6650.625	6810.625
6651.875	6811.875

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6653.125	6813.125
6654.375	6814.375
6655.625	6815.625
6656.875	6816.875
6658.125	6818.125
6659.375	6819.375
6660.625	6820.625
6661.875	6821.875
6663.125	6823.125
6664.375	6824.375
6665.625	6825.625
6666.875	6826.875
6668.125	6828.125
6669.375	6829.375
6670.625	6830.625
6671.875	6831.875
6673.125	6833.125
6674.375	6834.375
6675.625	6835.625
6676.875	6836.875
6678.125	6838.125
6679.375	6839.375
6680.625	6840.625
6681.875	6841.875
6683.125	6843.125
6684.375	6844.375
6685.625	6845.625
6686.875	6846.875
6688.125	6848.125
6689.375	6849.375
6690.625	6850.625
6691.875	6851.875
6693.125	6853.125
6694.375	6854.375
6695.625	6855.625
6696.875	6856.875
6698.125	6858.125
6699.375	6859.375
6700.625	6860.625
6701.875	6861.875
6703.125	6863.125
6704.375	6864.375
6705.625	6865.625
6706.875	6866.875
6708.125 [1]	[1] 6710.625
6709.375 [1]	[1] 6711.875

[1] These frequencies may be assigned for unpaired use.

(4) 2.5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6526.25	6871.25
6528.75	6873.75
6541.25 [1]	[1] 6718.75
6543.75 [1]	[1] 6713.75
6546.25 [1]	[1] 6716.25
6548.75	6728.75
6551.25	6731.25
6553.75 [1]	[1] 6723.75
6556.25 [1]	[1] 6726.25
6558.75	6738.75
6561.25	6741.25
6563.75	6733.75
6566.25	6736.25
6568.75 [1]	[1] 6721.25
6581.25 [1]	[1] 6868.75
6583.75	6743.75
6586.25	6746.25
6588.75	6748.75
6591.25	6751.25
6593.75	6753.75
6596.25	6756.25
6598.75	6758.75
6601.25	6761.25
6603.75	6763.75
6606.25	6766.25
6608.75	6768.75
6611.25	6771.25
6613.75	6773.75
6616.25	6776.25
6618.75	6778.75
6621.25	6781.25
6623.75	6783.75
6626.25	6786.25
6628.75	6788.75
6631.25	6791.25
6633.75	6793.75
6636.25	6796.25
6638.75	6798.75
6641.25	6801.25
6643.75	6803.75
6646.25	6806.25
6648.75	6808.75
6651.25	6811.25
6653.75	6813.75
6656.25	6816.25
6658.75	6818.75
6661.25	6821.25
6663.75	6823.75
6666.25	6826.25
6668.75	6828.75
6671.25	6831.25
6673.75	6833.75
6676.25	6836.25
6678.75	6838.75
6681.25	6841.25
6683.75	6843.75
6686.25	6846.25
6688.75	6848.75
6691.25	6851.25
6693.75	6853.75
6696.25	6856.25
6698.75	6858.75
6701.25	6861.25
6703.75	6863.75
6706.25	6866.25
6708.75 [1]	[1] 6711.25

[1] These frequencies may be assigned for unpaired use.

(5) 3.75 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6545.625 [1]	6715.625 [1]
6550.625	6730.625
6555.625 [1]	6725.625 [1]
6560.625	6740.625
6565.625	6735.625
6585.625	6745.625
6590.625	6750.625
6595.625	6755.625
6600.625	6760.625
6605.625	6765.625
6610.625	6770.625
6615.625	6775.625
6620.625	6780.625
6625.625	6785.625
6630.625	6790.625
6635.625	6795.625

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6640.625	6800.625
6645.625	6805.625
6650.625	6810.625
6655.625	6815.625
6660.625	6820.625
6665.625	6825.625
6670.625	6830.625
6675.625	6835.625
6680.625	6840.625
6685.625	6845.625
6690.625	6850.625
6695.625	6855.625
6700.625	6860.625
6705.625	6865.625
6710.625 [1]	[1] 6720.625

[1] These frequencies may be assigned for unpaired use.

(6) 5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6545 [1]	[1] 6715
6550	6730
6555 [1]	[1] 6725
6560	6740
6565	6735
6585	6745
6590	6750
6595	6755
6600	6760
6605	6765
6610	6770
6615	6775
6620	6780
6625	6785
6630	6790
6635	6795
6640	6800
6645	6805
6650	6810
6655	6815
6660	6820
6665	6825
6670	6830
6675	6835
6680	6840
6685	6845
6690	6850
6695	6855
6700	6860
6705	6865
6710 [1]	[1] 6720

[1] These frequencies may be assigned for unpaired use.

(7) 10 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6545 [1]	[1] 6715
6555 [1]	[1] 6725
6565	6735
6585	6745
6595	6755
6605	6765
6615	6775
6625	6785
6635	6795
6645	6805
6655	6815
6665	6825
6675	6835
6685	6845
6695	6855
6705	6865
6535 [2]	[2] 6575

[1] These frequencies may be assigned for unpaired use.
[2] Available only for emergency restoration, maintenance bypass, or other temporary-fixed purposes. Such uses are authorized on a non-interference basis to other frequencies in this band. Interference analysis required by § 101.105 does not apply to this frequency pair.

(8) 30 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6555	6725
6595	6755
6625	6785
6655	6815
6685	6845

(l) *6875 to 7125 MHz*. 25 MHz authorized bandwidth.

(1) 5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6877.5	7027.5
6882.5	7032.5
6887.5	7037.5
6892.5	7042.5
6897.5	7047.5
6902.5	7052.5
6907.5	7057.5
6912.5	7062.5
6917.5	7067.5
6922.5	7072.5
6927.5	7077.5
6932.5	7082.5
6937.5	7087.5
6942.5	7092.5
6947.5	7097.5
6952.5	7102.5
6957.5	7107.5
6962.5	7112.5
6967.5	7117.5
6972.5	7122.5

(2) 8.33 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6879.165	7029.165
6887.495	7037.495
6895.825	7045.825
6904.155	7054.155
6912.485	7062.485
6920.815	7070.815
6929.145	7079.145
6937.475	7087.475
6945.805	7095.805
6954.135	7104.135
6962.465	7112.465

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6970.795	7120.795

(3) 12.5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6881.25	7031.25
6893.75	7043.75
6906.25	7056.25
6918.75	7068.75
6931.25	7081.25
6943.75	7093.75
6956.25	7106.25
6968.75	7118.75

(4) 25 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6887.5	7037.5
6912.5	7062.5
6937.5	7087.5
6962.5	7112.5

(m) *10,550 to 10,680 MHz.* 5 MHz authorized bandwidth.

(1) 400 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10605.225	10670.225
10605.625	10670.625
10606.050	10671.050
10606.450	10671.450
10606.875	10671.875
10607.275	10672.275
10607.725	10672.725
10608.125	10673.125
10608.550	10673.550
10608.950	10673.950
10609.375	10674.375
10609.775	10674.775
10610.225	10675.225
10610.625	10675.625
10611.050	10676.050
10611.450	10676.450
10611.875	10676.875
10612.275	10677.275
10612.725	10677.725
10613.125	10678.125
10613.550	10678.550
10613.950	10678.950
10614.375	10679.375
10614.775	10679.775

(2) 800 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10605.425	10670.425
10606.250	10671.250
10607.075	10672.075
10607.925	10672.925
10608.750	10673.750
10609.575	10674.575
10610.425	10675.425
10611.250	10676.250
10612.075	10677.075
10612.925	10677.925
10613.750	10678.750
10614.575	10679.575

(3) 1.25 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10550.625	10615.625
10551.875	10616.875
10553.125	10618.125
10554.375	10619.375
10555.625	10620.625
10556.875	10621.875
10558.125	10623.125
10559.375	10624.375
10560.625	10625.625
10561.875	10626.875
10563.125	10628.125
10564.375	10629.375
10565.625	10630.625
10566.875	10631.875
10568.125	10633.125
10569.375	10634.375
10570.625	10635.625
10571.875	10636.875
10573.125	10638.125
10574.375	10639.375
10575.625	10640.625
10576.875	10641.875
10578.125	10643.125
10579.375	10644.375
10580.625	10645.625
10581.875	10646.875
10583.125	10648.125
10584.375	10649.375
10585.625	10650.625
10586.875	10651.875
10588.125	10653.125
10589.375	10654.375
10590.625	10655.625
10591.875	10656.875
10593.125	10658.125
10594.375	10659.375
10595.625	10660.625
10596.875	10661.875
10598.125	10663.125
10599.375	10664.375
10600.625	10665.625
10601.875	10666.875
10603.125	10668.125
10604.375	10669.375
10605.625	10670.625
10606.875	10671.875
10608.125	10673.125
10609.375	10674.375
10610.625	10675.625
10611.875	10676.875
10613.125	10678.125
10614.375	10679.375

(4) 2.5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10551.25	10616.25
10553.75	10618.75
10556.25	10621.25
10558.75	10623.75
10561.25	10626.25
10563.75	10628.75
10566.25	10631.25
10568.75	10633.75
10571.25	10636.25
10573.75	10638.75
10576.25	10641.25
10578.75	10643.75
10581.25 [1]	[1] 10646.25
10583.75 [1]	[1] 10648.75
10586.25 [1]	[1] 10651.25
10588.75 [1]	[1] 10653.75
10591.25 [1]	[1] 10656.25
10593.75 [1]	[1] 10658.75
10596.25 [1]	[1] 10661.25
10598.75 [1]	[1] 10663.75
10601.25 [1]	[1] 10666.25
10603.75 [1]	[1] 10668.75
10606.25 [1]	[1] 10671.25
10608.75 [1]	[1] 10673.75
10611.25 [1]	[1] 10676.25
10613.75 [1]	[1] 10678.75

[1] These frequencies are also available for DEMS stations licensed, in operation, or applied for prior to July 15, 1993.

(5) 3.75 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10553.125	10618.125
10558.125	10623.125
10563.125	10628.125
10568.125	10633.125
10573.125	10638.125
10578.125	10643.125
10583.125	10648.125
10588.125	10653.125
10593.125	10658.125
10598.125	10663.125
10603.125	10668.125

(6) 5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10552.5	10617.5
10557.5	10622.5
10562.5	10627.5
10567.5 [1]	[1] 10632.5
10572.5 [1]	[1] 10637.5
10577.5 [1]	[1] 10642.5
10582.5 [1]	[1] 10647.5
10587.5	10652.5
10592.5	10657.5
10597.5	10662.5
10602.5	10667.5

[1] These frequencies are also available for DEMS stations licensed, in operation, or applied for prior to July 15, 1993.

(n) Point-to-multipoint systems licensed, in operation, or applied for in the 10,550–10,680 MHz band prior to July 15, 1993, are permitted to use the DEMS frequencies noted above if they prior coordinate such usage with the necessary parties including 10 GHz point-to-point applicants and licensees. DEMS Nodal Stations shall use the band 10,565–10,615 MHz while DEMS User Stations shall use the band 10,630–10,680 MHz.

(o) *10,700 to 11,700 MHz.* 40 MHz authorized bandwidth.

(1) 1.25 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
11130.625	11620.625
11131.875	11621.875
11133.125	11623.125
11134.375	11624.375
11135.625	11625.625
11136.875	11626.875
11138.125	11628.125
11139.375	11629.375
11140.625	11630.625
11141.875	11631.875
11143.125	11633.125
11144.375	11634.375
11145.625	11635.625
11146.875	11636.875
11148.125	11638.125
11149.375	11639.375
11150.625	11640.625
11151.875	11641.875
11153.125	11643.125
11154.375	11644.375
11155.625	11645.625
11156.875	11646.875
11158.125	11648.125
11159.375	11649.375
11160.625	11650.625
11161.875	11651.875
11163.125	11653.125
11164.375	11654.375
11165.625	11655.625
11166.875	11656.875
11168.125	11658.125
11169.375	11659.375
11170.625	11660.625
11171.875	11661.875
11173.125	11663.125
11174.375	11664.375
11175.625	11665.625
11176.875	11666.875
11178.125	11668.125
11179.375	11669.375
11180.625	11680.625
11181.875	11681.875
11183.125	11683.125
11184.375	11684.375
11185.625	11685.625
11186.875	11686.875
11188.125	11688.125
11189.375	11689.375
11190.625	11690.625
11191.875	11691.875
11193.125	11693.125
11194.375	11694.375
11195.625	11695.625
11196.875	11696.875
11198.125	11698.125
11199.375	11699.375

(2) 2.5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
11131.25	11621.25
11133.75	11623.75
11136.25	11626.25
11138.75	11628.75
11141.25	11631.25
11143.75	11633.75
11146.25	11636.25
11148.75	11638.75
11151.25	11641.25
11153.75	11643.75
11156.25	11646.25
11158.75	11648.75
11161.25	11651.25
11163.75	11653.75
11166.25	11656.25
11168.75	11658.75
11171.25	11661.25
11173.75	11663.75
11176.25	11666.25
11178.75	11668.75
11181.25	11681.25
11183.75	11683.75
11186.25	11686.25
11188.75	11688.75
11191.25	11691.25
11193.75	11693.75
11196.25	11696.25
11198.75	11698.75

(3) 3.75 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
11133.125	11623.125
11138.125	11628.125
11143.125	11633.125
11148.125	11638.125
11153.125	11643.125
11158.125	11648.125
11163.125	11653.125
11168.125	11658.125
11173.125	11663.125
11178.125	11668.125
11183.125	11683.125
11188.125	11688.125
11193.125	11693.125
11198.125	11698.125

(4) 5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
11132.5	11622.5
11137.5	11627.5
11142.5	11632.5
11147.5	11637.5
11152.5	11642.5
11157.5	11647.5
11162.5	11652.5
11167.5	11657.5
11172.5	11662.5
11177.5	11667.5
11182.5	11682.5
11187.5	11687.5
11192.5	11692.5
11197.5	11697.5

(5) 10 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10705	11205
10715	11215
10725[2]	[1] 11675
10735	11225
10745	11235
10755	11245
10765	11255
10775	11265
10785	11275
10795	11285
10805	11295
10815	11305
10825	11315
10835	11325
10845	11335
10855	11345
10865	11355
10875	11365
10885	11375
10895	11385
10905	11395
10915	11405
10925	11415
10935	11425
10945	11435
10955	11445
10965	11455
10975	11465
10985	11475
10995	11485
11005	11495
11015	11505
11025	11515
11035	11525
11045	11535
11055	11545
11065	11555
11075	11565
11085	11575
11095	11585
11105	11595
11115	11605
11125	11615
11135[1]	[1] 11625
11145[1]	[1] 11635
11155[1]	[1] 11645
11165[1]	[1] 11655
11175[1]	[1] 11665
11185[1]	[1] 11685
11195[1]	[1] 11695

[1] Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

[2] These frequencies may be assigned for unpaired use.

(6) 30 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10715	11215
10755	11245
10795	11285
10835	11325
10875	11365
10915	11405
10955	11445
10995	11485
11035	11525
11075	11565
11115	11605
11155[1]	[1] 11645

Transmit (receive) (MHz)	Receive (transmit) (MHz)
11185 [1]	[1] 11685

[1] Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

(7) 40 MHz bandwidth channels: [2]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10735	11225
10775	11265
10815	11305
10855	11345
10895	11385
10935	11425
10975	11465
11015	11505
11055	11545
11095	11585
11135 [1]	[1] 11625
11175 [1]	[1] 11665

[1] Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

[2] In congested areas where 40 MHz channels block most 30 MHz channels, radios authorized for 30 MHz bandwidths may use the 40 MHz channels. In uncongested areas, 30 MHz channels should be used.

(p)*12,200 to 13,150 MHz. (1)* 12,000–12,700 MHz. The Commission has allocated the 12.2–12.7 GHz band for use by the Direct Broadcast Satellite Service (DBS), the Multichannel Video Distribution and Data Service (MVDDS), and the Non-Geostationary Satellite Orbit Fixed Satellite Service (NGSO FSS). MVDDS shall be licensed on a non-harmful interference co-primary basis to existing DBS operations and on a co-primary basis with NGSO FSS stations in this band. MVDDS use can be on a common carrier and/or non-common carrier basis and can use channels of any desired bandwidth up to the maximum of 500 MHz provided the EIRP does not exceed 14 dBm per 24 megahertz. Private operational fixed point-to-point microwave stations authorized after September 9, 1983, are licensed on a non-harmful interference basis to DBS and are required to make any and all adjustments necessary to prevent harmful interference to operating domestic DBS receivers. Incumbent public safety licensees shall be afforded protection from MVDDS and NGSO FSS licensees, however all other private operational fixed licensees shall be secondary to DBS, MVDDS and NGSO FSS licensees. As of May 23, 2002, the Commission no longer accepts applications for new licenses for point-to-point private operational fixed stations in this band, however, incumbent licensees and previously filed applicants may file applications for minor modifications and amendments (as defined in §1.929 of this chapter) thereto, renewals, transfer of control, or assignment of license. Notwithstanding any other provisions, no private operational fixed point-to-point microwave stations are permitted to cause harmful interference to broadcasting-satellite stations of other countries operating in accordance with the Region 2 plan for the Broadcasting-Satellite Service established at the 1983 WARC.

(2) *12,700 to 13,150 MHz.* 50 MHz authorized bandwidth.

(i) 5 MHz channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
12702.5	12927.5
12707.5	12932.5
12712.5	12937.5
12717.5	12942.5
12722.5	12947.5
12727.5	12952.5
12732.5	12957.5
12737.5	12962.5
12742.5	12967.5
12747.5	12972.5
12752.5	12977.5
12757.5	12982.5
12762.5	12987.5
12767.5	12992.5
12772.5	12997.5
12777.5	13002.5
12782.5	13007.5
12787.5	13012.5
12792.5	13017.5
12797.5	13022.5
12802.5	13027.5
12807.5	13032.5
12812.5	13037.5
12817.5	13042.5
12822.5	13047.5
12827.5	13052.5
12832.5	13057.5
12837.5	13062.5
12842.5	13067.5
12847.5	13072.5
12852.5	13077.5
12857.5	13082.5
12862.5	13087.5
12867.5	13092.5
12872.5	13097.5
12877.5	13102.5
12882.5	13107.5
12887.5	13112.5
12892.5	13117.5
12897.5	13122.5
12902.5	13127.5
12907.5	13132.5
12912.5	13137.5
12917.5	13142.5
12922.5	13147.5

(ii) 8.33 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
12704.165	12929.165
12712.495	12937.495
12720.825	12945.825
12729.155	12954.155
12737.485	12962.485
12745.815	12970.815
12754.145	12979.145
12762.475	12987.475
12770.805	12995.805
12779.135	13004.135
12787.465	13012.465
12795.795	13020.795
12804.125	13029.125
12812.455	13037.455
12820.785	13045.785
12829.115	13054.115
12837.445	13062.445
12845.775	13070.775
12854.105	13079.105
12862.435	13087.435
12870.765	13095.765
12879.095	13104.095
12887.425	13112.425
12895.755	13120.755
12904.085	13129.085
12912.415	13137.415

(iii) 12.5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
12706.25	12931.25
12718.75	12943.75
12731.25	12956.25
12743.75	12968.75
12756.25	12981.25
12768.75	12993.75
12781.25	13006.25
12793.75	13018.75
12806.25	13031.25
12818.75	13043.75
12831.25	13056.25
12843.75	13068.75
12856.25	13081.25
12868.75	13093.75
12881.25	13106.25
12893.75	13118.75
12906.25	13131.25
12918.75	13143.75

(iv) 25 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
12712.5	12937.5
12737.5	12962.5
12762.5	12987.5
12787.5	13012.5
12812.5	13037.5
12837.5	13062.5
12862.5	13087.5
12887.5	13112.5
12912.5	13137.5

(v) 50 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
12725	12950
12775	13000
12825	13050
12875	13100

(q) Special provisions for incumbent low power, limited coverage systems in the band segments 12.2–12.7 GHz.

(1) As of May 23, 2002, the Commission no longer accepts applications for new stations in this service and incumbent stations may remain in service provided they do not cause harmful interference to any other primary services licensed in this band as described in paragraph (p) of this section. However, incumbent licensees and previously filed applicants may file applications for minor modifications and amendments (as defined in §1.929 of this chapter) thereto, renewals, transfer of control, or assignment of license.

(2) Prior to December 8, 2000, notwithstanding any contrary provisions in this part, the frequency pairs 12.220/12.460 GHz, 12.260/12.500 GHz, 12.300/12.540 GHz and 12.340/12.580 GHz, were authorized for low power, limited coverage systems subject to the following provisions:

(i) Maximum equivalent isotropically radiated power (EIRP) shall be 55 dBm;

(ii) The rated transmitter output power shall not exceed 0.5 watts;

(iii) Frequency tolerance shall be maintained to within 0.01 percent of the assigned frequency;

(iv) Maximum beamwidth shall not exceed 4 degrees. However, the sidelobe suppression criteria contained in §101.115 shall not apply, except that a minimum front-to-back ratio of 38 dB shall apply;

(v) Upon showing of need, a maximum bandwidth of 12 MHz may be authorized per frequency assigned;

(vi) Radio systems authorized under the provisions of this section shall have no more than three hops in tandem, except upon showing of need, but in any event the maximum tandem length shall not exceed 40 km (25 miles);

(vii) Interfering signals at the receiver antenna terminals of stations authorized under this section shall not

exceed –90 dBm and –70 dBm respectively, for co-channel and adjacent channel interfering signals, and

(viii) Stations authorized under the provisions of this section shall provide the protection from interference specified in §101.105 to stations operating in accordance with the provisions of this part.

(r) *17,700 to 19,700 and 24,250 to 25,250 MHz:* Operation of stations using frequencies in these bands is permitted to the extent specified in this paragraph. Until November 19, 2012, stations operating in the band 18.3–18.58 GHz that were licensed or had applications pending before the Commission as of November 19, 2002 shall operate on a shared co-primary basis with other services under parts 21, 25, 74, and 78 of this chapter. Until October 31, 2011, operations in the band 19.26–19.3 GHz and low power systems operating pursuant to paragraph (r)(10) of this section shall operate on a co-primary basis. Until June 8, 2010, stations operating in the band 18.58–18.8 GHz that were licensed or had applications pending before the Commission as of June 8, 2000 may continue those operations on a shared co-primary basis with other services under parts 21, 25, 74, and 78 of this chapter. Until June 8, 2010, stations operating in the band 18.8–19.3 GHz that were licensed or had applications pending before the Commission as of September 18, 1998 may continue those operations on a shared co-primary basis with other services under parts 21, 25, 74, and 78 of this chapter. After November 19, 2012, stations operating in the band 18.3–18.58 GHz are not entitled to protection from fixed-satellite service operations and must not cause unacceptable interference to fixed-satellite service station operations. After June 8, 2010, operations in the 18.58–19.30 GHz band are not entitled to protection from fixed-satellite service operations and must not cause unacceptable interference to fixed-satellite service station operations. After November 19, 2002, no applications for new stations for 47 CFR part 101 licenses will be accepted in the 18.3–18.58 GHz band. After June 8, 2000, no applications for new stations for 47 CFR part 101 licenses will be accepted in the 18.58–19.3 GHz band. Licensees, except 24 GHz band licensees, may use either a two-way link or one frequency of a frequency pair for a one-way link and must coordinate proposed operations pursuant to the procedures required in §101.103 of this subpart. (Note, however, that stations authorized as of September 9, 1983, to use frequencies in the band 17.7–19.7 GHz may, upon proper application, continue to be authorized for such operations, consistent with the above conditions related to the 18.58–19.3 GHz band.) Applicants for one-way spectrum from 17.7–18.58 GHz for multichannel video programming distribution are governed by paragraph (r)(6) of this section. Licensees are also allowed to use one-way (unpaired) channels in the 17.7–17.74 GHz sub-band to pair with other channels in the FS portions of the 18 GHz band where, for example, the return pair is already in use and therefore blocked or in TDD systems. Stations used for MVPD operations in the 17.7–17.8 GHz band must coordinate with the Federal Government before operating in the zones specified in §1.924(e) of this chapter.

(1) 1.25 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
17700.625	NA
17701.875	NA
17703.125	NA
17704.375	NA
17705.625	NA
17706.875	NA
17708.125	NA
17709.375	NA
17710.625	NA
17711.875	NA
17713.125	NA
17714.375	NA
17715.625	NA
17716.875	NA
17718.125	NA
17719.375	NA
17721.625	NA
17722.875	NA
17723.125	NA
17724.375	NA
17725.625	NA
17726.875	NA
17728.125	NA
17729.375	NA
17730.625	NA
17731.875	NA
17733.125	NA
17734.375	NA
17735.625	NA
17736.875	NA
17738.125	NA
17739.375	NA
18060.625	19620.625

Transmit (receive) (MHz)	Receive (transmit) (MHz)
18061.875	19621.875
18063.125	19623.125
18064.375	19624.375
18065.625	19625.625
18066.875	19626.875
18068.125	19628.125
18069.375	19629.375
18070.625	19630.625
18071.875	19631.875
18073.125	19633.125
18074.375	19634.375
18075.625	19635.625
18076.875	19636.875
18078.125	19638.125
18079.375	19639.375
18080.625	19640.625
18081.875	19641.875
18083.125	19643.125
18084.375	19644.375
18085.625	19645.625
18086.875	19646.875
18088.125	19648.125
18089.375	19649.375
18090.625	19650.625
18091.875	19651.875
18093.125	19653.125
18094.375	19654.375
18095.625	19655.625
18096.875	19656.875
18098.125	19658.125
18099.375	19659.375
18100.625	19660.625
18101.875	19661.875
18103.125	19663.125
18104.375	19664.375
18105.625	19665.625
18106.875	19666.875
18108.125	19668.125
18109.375	19669.375
18110.625	19670.625
18111.875	19671.875
18113.125	19673.125
18114.375	19674.375
18115.625	19675.625
18116.875	19676.875
18118.125	19678.125
18119.375	19679.375
18120.625	19680.625
18121.875	19681.875
18123.125	19683.125
18124.375	19684.375
18125.625	19685.625
18126.875	19686.875
18128.125	19688.125
18129.375	19689.375
18130.625	19690.625
18131.875	19691.875
18133.125	19693.125
18134.375	19694.375
18135.625	19695.625
18136.875	19696.875
18138.125	19698.125
18139.375	19699.375

(2) 2 Megahertz maximum authorized bandwidth channel:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
18141.0	N/A

(3) 2.5 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
17701.25	N/A
17703.75	N/A
17706.25	N/A
17708.75	N/A
17711.25	N/A
17713.75	N/A
17716.25	N/A
17718.75	N/A
17721.25	N/A
17723.75	N/A
17726.25	N/A
17728.75	N/A
17731.25	N/A
17733.75	N/A
17736.25	N/A
17738.75	N/A
18061.25	19621.25
18063.75	19623.75
18066.25	19626.25
18068.75	19628.75
18071.25	19631.25
18073.75	19633.75
18076.25	19636.25
18078.75	19638.75
18081.25	19641.25
18083.75	19643.75
18086.25	19646.25
18088.75	19648.75
18091.25	19651.25
18093.75	19653.75
18096.25	19656.25
18098.75	19658.75
18101.25	19661.25
18103.75	19663.75
18106.25	19666.25
18108.75	19668.75
18111.25	19671.25
18113.75	19673.75
18116.25	19676.25
18118.75	19678.75
18121.25	19681.25
18123.75	19683.75
18126.25	19686.25
18128.75	19688.75
18131.25	19691.25
18133.75	19693.75
18136.25	19696.25
18138.75	19698.75

(4) 5 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
340 Megahertz Separation (* channels are no longer available on a primary basis)	
18762.5*	19102.5*
18767.5*	19107.5*
18772.5*	19112.5*
18777.5*	19117.5*
18782.5*	19122.5*
18787.5*	19127.5*
18792.5*	19132.5*
18797.5*	19137.5*
18802.5*	19142.5*
18807.5*	19147.5*

Transmit (receive) (MHz)	Receive (transmit) (MHz)
18812.5*	19152.5*
18817.5*	19157.5*

(5) 5 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation	
17702.5	N/A
17707.5	N/A
17712.5	N/A
17717.5	N/A
17722.5	N/A
17727.5	N/A
17732.5	N/A
17737.5	N/A
18062.5	19622.5
18067.5	19627.5
18072.5	19632.5
18077.5	19637.5
18082.5	19642.5
18087.5	19647.5
18092.5	19652.5
18097.5	19657.5
18102.5	19662.5
18107.5	19667.5
18112.5	19672.5
18117.5	19677.5
18122.5	19682.5
18127.5	19687.5
18132.5	19692.5
18137.5	19697.5

(6) MVPD use: Multichannel video programming distributors (MVPDs) can use any size channels for one-way operations in the 17.7–18.58 GHz band for any permissible communications specified for this band in §101.603 provided that they have coordinated the appropriate emission designators and power, but must request contiguous spectrum (minus spectrum that is already licensed or prior coordinated in the area and thus blocked). MVPD systems must meet the efficiency requirements of §101.141. Spectrum at 18.3–18.58 GHz is only available for grandfathered stations. See §101.85.

(7) 10 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation (* channels are no longer available on a primary basis)	
17705.0	19265.0*
17715.0	19275.0*
17725.0	19285.0*
17735.0	19295.0*
17745.0	19305.0
17755.0	19315.0
17765.0	19325.0
17775.0	19335.0
17785.0	19345.0
17795.0	19355.0
17805.0	19365.0
17815.0	19375.0
17825.0	19385.0
17835.0	19395.0
17845.0	19405.0
17855.0	19415.0
17865.0	19425.0
17875.0	19435.0
17885.0	19445.0
17895.0	19455.0
17905.0	19465.0
17915.0	19475.0
17925.0	19485.0
17935.0	19495.0
17945.0	19505.0
17955.0	19515.0
17965.0	19525.0
17975.0	19535.0
17985.0	19545.0
17995.0	19555.0
18005.0	19565.0
18015.0	19575.0
18025.0	19585.0
18035.0	19595.0
18045.0	19605.0
18055.0	19615.0
18065.0	19625.0
18075.0	19635.0
18085.0	19645.0
18095.0	19655.0
18105.0	19665.0
18115.0	19675.0
18125.0	19685.0
18135.0	19695.0
340 Megahertz Separation	
18585.0*	18925.0*
18595.0*	18935.0*
18605.0*	18945.0*
18615.0*	18955.0*
18625.0*	18965.0*
18635.0*	18975.0*
18645.0*	18985.0*
18655.0*	18995.0*
18665.0*	19005.0*
18675.0*	19015.0*
18685.0*	19025.0*
18695.0*	19035.0*
18705.0*	19045.0*
18715.0*	19055.0*
18725.0*	19065.0*
18735.0*	19075.0*
18745.0*	19085.0*
18755.0*	19095.0*
18765.0*	19105.0*
18775.0*	19115.0*
18785.0*	19125.0*
18795.0*	19135.0*
18805.0*	19145.0*
18815.0*	19155.0*

(8) 20 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation (* channels are no longer available on a primary basis)	
17710.0	19270.0*
17730.0	19290.0*
17750.0	19310.0
17770.0	19330.0
17790.0	19350.0
17810.0	19370.0
17830.0	19390.0
17850.0	19410.0
17870.0	19430.0
17890.0	19450.0
17910.0	19470.0
17930.0	19490.0
17950.0	19510.0
17970.0	19530.0
17990.0	19550.0
18010.0	19570.0
18030.0	19590.0
18050.0	19610.0
18070.0	19630.0
18090.0	19650.0
18110.0	19670.0
18130.0	19690.0
340 Megahertz Separation	
18590.0*	18930.0*
18610.0*	18950.0*
18630.0*	18970.0*
18650.0*	18990.0*
18670.0*	19010.0*
18690.0*	19030.0*
18710.0*	19050.0*
18730.0*	19070.0*
18750.0*	19090.0*
18770.0*	19110.0*
18790.0*	19130.0*
18810.0*	19150.0*

(9) 30 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation	
17715.0	N/A
17755.0	19315.0
17785.0	19345.0
17815.0	19375.0
17845.0	19405.0
17875.0	19435.0
17905.0	19465.0
17935.0	19495.0
17965.0	19525.0
17995.0	19555.0
18025.0	19585.0
18055.0	19615.0
18085.0	19645.0
18115.0	19675.0

(10) 40 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation (* channels are no longer available on a primary basis)	
17720.0	19280.0*
17760.0	19320.0
17800.0	19360.0
17840.0	19400.0
17880.0	19440.0
17920.0	19480.0
17960.0	19520.0
18000.0	19560.0
18040.0	19600.0
18080.0	19640.0
18120.0	19680.0

(11) 50 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation	
17765.0	19325.0
17815.0	19375.0
17865.0	19425.0
17915.0	19475.0
17965.0	19525.0
18015.0	19575.0
18065.0	19625.0
18115.0	19675.0

(12) 80 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation (* channels are no longer available on a primary basis)	
17740.0	19300.0*
17820.0	19380.0
17900.0	19460.0
17980.0	19540.0
18060.0	19620.0

(13) The following frequencies on channels 35–39 are available for point-to-multipoint systems and are available by geographic area licensing in the 24 GHz Service to be used as the licensee desires. The 24 GHz spectrum can be aggregated or disaggregated and does not have to be used in the transmit/receive manner shown except to comply with international agreements along the U.S. borders. Channels 35 through 39 are licensed in the 24 GHz Service by Economic Areas for any digital fixed service. Channels may be used at either nodal or subscriber station locations for transmit or receive but must be coordinated with adjacent

channel and adjacent area users in accordance with the provisions of § 101.509 of this subpart. Stations also must comply with international coordination agreements.

Channel No.	Nodal station frequency band (MHz) limits	User station frequency band (MHz) limits
(* channels are no longer available on a primary basis)		
25	18,820–18,830	19,160–19,170*
26	18,830–18,840	19,170–19,180*
27	18,840–18,850	19,180–19,190*
28	18,850–18,860	19,190–19,200*
29	18,860–18,870	19,200–19,210*
30	18,870–18,880	19,210–19,220*
31	18,880–18,890	19,220–19,230*
32	18,890–18,900	19,230–19,240*
33	18,900–18,910	19,240–19,250*
34	18,910–18,920	19,250–19,260*
35	24,250–24,290	25,050–25,090
36	24,290–24,330	25,090–25,130
37	24,330–24,370	25,130–25,170
38	24,370–24,410	25,170–25,210
39	24,410–24,450	25,210–25,250

(14) *Special provision for low power systems in the 17,700–19,700 MHz band:* Notwithstanding other provisions in 47 CFR part 101 and except for specified areas around Washington, DC, and Denver, Colorado, licensees of point-to-multipoint channel pairs 25–29 identified in paragraph (r)(13) of this section may continue to operate in accordance with the requirements of § 101.85 and may operate multiple low power transmitting devices within a defined service area. Operations are prohibited within 55 km when used outdoor and within 20 km when used indoor of the coordinates 38 deg.48′ N/76 deg.52′ W (Washington, DC area) and 39 deg.43′ N/104 deg.46′ W (Denver, Colorado area). The service area will be a 28 kilometer omni directional radius originating from specified center reference coordinates. The specified center coordinates must be no closer than 56 kilometers from any co-channel nodal station or the specified center coordinates of another co-channel system. Applicants/licensees do not need to specify the location of each individual transmitting device operating within their defined service areas. Such operations are subject to the following requirements on the low power transmitting devices:

(i) Power must not exceed one watt EIRP and 100 milliwatts transmitter output power;

(ii) A frequency tolerance of 0.001% must be maintained; and

(iii) The mean power of emissions shall be attenuated in accordance with the following schedule:

(A) In any 4 kHz band, the center frequency of which is removed from the center frequency of the assigned channel by more than 50 percent of the channel bandwidth and is within the bands 18,820–18,870 MHz or 19,160–19,210 MHz:

$$A = 35 + .003\,(F - 0.5B)\ \text{dB}$$

or,

80 dB (whichever is the lesser attenuation).

Where:

A = Attenuation (in decibels) below output power level contained within the channel for a given polarization.
B = Bandwidth of channel in kHz.
F = Absolute value of the difference between the center frequency of the 4 kHz band measured at the center frequency of the channel in kHz.

(B) In any 4 kHz band the center frequency of which is outside the bands 18.820–18.870 GHz: At least 43 + 10 log P (mean output power in watts) decibels.

(iv) Low power stations authorized in the band 18.8–19.3 GHz after June 8, 2000, are restricted to indoor use only. No new licenses will be authorized for applications received after April 1, 2002.

(s) *21,200 to 23,600 MHz:* 50 MHz authorized bandwidth.

Transmit (receive) (MHz)	Receive (transmit) (MHz)
(1) 2.5 MHz bandwidth channels:	
21601.25	22801.25
21603.75	22803.75
21606.25	22806.25
21608.75	22808.75
21611.25	22811.25
21613.75	22813.75
21616.25	22816.25
21618.75	22818.75
21621.25	22821.25
21623.75	22823.75
21626.25	22826.25
21628.75	22828.75
21631.25	22831.25
21633.75	22833.75
21636.25	22836.25
21638.75	22838.75
21641.25	22841.25
21643.75	22843.75
21646.25	22846.25
21648.75	22848.75
21651.25	22851.25
21653.75	22853.75
21656.25	22856.25
21658.75	22858.75
21661.25	22861.25

Transmit (receive) (MHz)	Receive (transmit) (MHz)
21663.75	22863.75
21666.25	22866.25
21668.75	22868.75
21671.25	22871.25
21673.75	22873.75
21676.25	22876.25
21678.75	22878.75
21681.25	22881.25
21683.75	22883.75
21686.25	22886.25
21688.75	22888.75
21691.25	22891.25
21693.75	22893.75
21696.25	22896.25
21698.75	22898.75
21701.25	22901.25
21703.75	22903.75
21706.25	22906.25
21708.75	22908.75
21711.25	22911.25
21713.75	22913.75
21716.25	22916.25
21718.75	22918.75
21721.25	22921.25
21723.75	22923.75
21726.25	22926.25
21728.75	22928.75
21731.25	22931.25
21733.75	22933.75
21736.25	22936.25
21738.75	22938.75
21741.25	22941.25
21743.75	22943.75
21746.25	22946.25
21748.75	22948.75
21751.25	22951.25
21753.75	22953.75
21756.25	22956.25
21758.75	22958.75
21761.25	22961.25
21763.75	22963.75
21766.25	22966.25
21768.75	22968.75
21771.25	22971.25
21773.75	22973.75
21776.25	22976.25
21778.75	22978.75
21781.25	22981.25
21783.75	22983.75
21786.25	22986.25
21788.75	22988.75
21791.25	22991.25
21793.75	22993.75
21796.25	22996.25
21798.75	22998.75
22301.25	23501.25
22303.75	23503.75
22306.25	23506.25
22308.75	23508.75
22311.25	23511.25
22313.75	23513.75
22316.25	23516.25
22318.75	23518.75
22321.25	23521.25
22323.75	23523.75
22326.25	23526.25
22328.75	23528.75
22331.25	23531.25
22333.75	23533.75
22336.25	23536.25
22338.75	23538.75
22341.25	23541.25
22343.75	23543.75
22346.25	23546.25
22348.75	23548.75
22351.25	23551.25
22353.75	23553.75
22356.25	23556.25
22358.75	23558.75
22361.25	23561.25
22363.75	23563.75
22366.25	23566.25
22368.75	23568.75
22371.25	23571.25
22373.75	23573.75
22376.25	23576.25
22378.75	23578.75
22381.25	23581.25
22383.75	23583.75
22386.25	23586.25
22388.75	23588.75
22391.25	23591.25
22393.75	23593.75
22396.25	23596.25
22398.75	23598.75
(2) 5 MHz bandwidth channels:	
21602.5	22802.5
21607.5	22807.5
21612.5	22812.5
21617.5	22817.5
21622.5	22822.5
21627.5	22827.5
21632.5	22832.5
21637.5	22837.5
21642.5	22842.5
21647.5	22847.5
21652.5	22852.5
21657.5	22857.5
21662.5	22862.5
21667.5	22867.5
21672.5	22872.5
21677.5	22877.5
21682.5	22882.5
21687.5	22887.5
21692.5	22892.5
21697.5	22897.5
21702.5	22902.5
21707.5	22907.5
21712.5	22912.5
21717.5	22917.5
21722.5	22922.5
21727.5	22927.5
21732.5	22932.5
21737.5	22937.5
21742.5	22942.5
21747.5	22947.5
21752.5	22952.5
21757.5	22957.5
21762.5	22962.5
21767.5	22967.5
21772.5	22972.5
21777.5	22977.5
21782.5	22982.5
21787.5	22987.5
21792.5	22992.5
21797.5	22997.5
22302.5	23502.5
22307.5	23507.5
22312.5	23512.5
22317.5	23517.5
22322.5	23522.5
22327.5	23527.5
22332.5	23532.5
22337.5	23537.5

Transmit (receive) (MHz)	Receive (transmit) (MHz)
22342.5	23542.5
22347.5	23547.5
22352.5	23552.5
22357.5	23557.5
22362.5	23562.5
22367.5	23567.5
22372.5	23572.5
22377.5	23577.5
22382.5	23582.5
22387.5	23587.5
22392.5	23592.5
22397.5	23597.5
(3) 10 MHz bandwidth channels:	
21205	22405
21215	22415
21225	22425
21235	22435
21245	22445
21255	22455
21265	22465
21275	22475
21285	22485
21295	22495
21305	22505
21315	22515
21325	22525
21335	22535
21345	22545
21355	22555
21365	22565
21375	22575
21385	22585
21395	22595
21405	22605
21415	22615
21425	22625
21435	22635
21445	22645
21455	22655
21465	22665
21475	22675
21485	22685
21495	22695
21505	22705
21515	22715
21525	22725
21535	22735
21545	22745
21555	22755
21565	22765
21575	22775
21585	22785
21595	22795
21605[1]	[1]22805
21615[1]	[1]22815
21625[1]	[1]22825
21635[1]	[1]22835
21645[1]	[1]22845
21655[1]	[1]22855
21665[1]	[1]22865
21675[1]	[1]22875
21685[1]	[1]22885
21695[1]	[1]22895
21705[1]	[1]22905
21715[1]	[1]22915
21725[1]	[1]22925
21735[1]	[1]22935
21745[1]	[1]22945
21755[1]	[1]22955
21765[1]	[1]22965
21775[1]	[1]22975
21785[1]	[1]22985
21795[1]	[1]22995
21805[2]	[2]23005
21815[2]	[2]23015
21825[2]	[2]23025
21835[2]	[2]23035
21845[2]	[2]23045
21855[2]	[2]23055
21865[2]	[2]23065
21875[2]	[2]23075
21885[2]	[2]23085
21895[2]	[2]23095
21905[2]	[2]23105
21915[2]	[2]23115
21925[2]	[2]23125
21935[2]	[2]23135
21945[2]	[2]23145
21955[2]	[2]23155
21965[2]	[2]23165
21975[2]	[2]23175
21985[2]	[2]23185
21995[2]	[2]23195
22005	23205
22015	23215
22025[2]	23225[2]
22035	23235
22045	23245
22055	23255
22065	23265
22075[2]	23275[2]
22085	23285
22095	23295
22105	23305
22115	23315
22125	23325
22135	23335
22145	23345
22155	23355
22165	23365
22175	23375
22185	23385
22195	23395
22205	23405
22215	23415
22225	23425
22235	23435
22245	23445
22255	23455
22265	23465
22275	23475
22285	23485
22295	23495
22305[1]	[1]23505
22315[1]	[1]23515
22325[1]	[1]23525
22335[1]	[1]23535
22345[1]	[1]23545
22355[1]	[1]23555
22365[1]	[1]23565
22375[1]	[1]23575
22385[1]	[1]23585
22395[1]	[1]23595
(4) 20 MHz bandwidth channels:	
21210	22410
21230	22430
21260	22460
21280	22480
21310	22510
21330	22530
21360	22560
21380	22580
21410	22610
21430	22630

Transmit (receive) (MHz)	Receive (transmit) (MHz)
21460	22660
21480	22680
21510	22710
21530	22730
21560	22760
21580	22780
21610[1]	[1]22810
21630[1]	[1]22830
21660[1]	[1]22860
21680[1]	[1]22880
21710[1]	[1]22910
21730[1]	[1]22930
21760[1]	[1]22960
21780[1]	[1]22980
21810[2]	[2]23010
21830[2]	[2]23030
21860[2]	[2]23060
21880[2]	[2]23080
21910[2]	[2]23110
21930[2]	[2]23130
21960[2]	[2]23160
21980[2]	[2]23180
22010	23210
22030	23230
22060	23260
22080	23280
22110	23310
22130	23330
22160	23360
22180	23380
22210	23410
22230	23430
22260	23460
22280	23480
22310[1]	[1]23510
22330[1]	[1]23530
22360[1]	[1]23560
22380[1]	[1]23580
(5) 30 MHz bandwidth channels:	
21235	22435
21285	22485
21335	22535
21385	22585
21435	22635
21485	22685
21535	22735
21585	22785
21635[1]	[1]22835
21685[1]	[1]22885
21735[1]	[1]22935
21785[1]	[1]22985
21835[2]	[2]23035
21885[2]	[2]23085
21935[2]	[2]23135
21985[2]	[2]23185
22035	23235
22085	23285
22135	23335
22185	23385
22235	23435
22285	23485
22335[1]	[1]23535
22385[1]	[1]23585
(6) 40 MHz bandwidth channels:	
21220	22420
21270	22470
21320	22520
21370	22570
21420	22620
21470	22670
21520	22720
21570	22770
21620[1]	[1]22820
21670[1]	[1]22870
21720[1]	[1]22920
21770[1]	[1]22970
21820[2]	[2]23020
21870[2]	[2]23070
21920[2]	[2]23120
21970[2]	[2]23170
22020	23220
22070	23270
22120	23320
22170	23370
22220	23420
22270	23470
22320[1]	[1]23520
22370[1]	[1]23570
(7) 50 MHz bandwidth channels:	
21225	22425
21275	22475
21325	22525
21375	22575
21425	22625
21475	22675
21525	22725
21575	22775
21625[1]	[1]22825
21675[1]	[1]22875
21725[1]	[1]22925
21775[1]	[1]22975
21825[2]	[2]23025
21875[2]	[2]23075
21925[2]	[2]23125
21975[2]	[2]23175
22025	23225
22075	23275
22125	23325
22175	23375
22025[2]	23225[2]
22075[2]	23275[2]
22325[1]	[1]23525
22375[1]	[1]23575

[1] Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

[2] These frequencies may be assigned to low power systems, as defined in paragraph (8) of this section.

(8) *Special provisions for low power, limited coverage systems in the 21.8–22.0 GHz and 23.0–23.2 GHz band segments.* Notwithstanding any contrary provisions in this part, the frequency band segment 21.8–22.0 GHz paired with the frequency band segment 23.0–23.2 GHz may be authorized for low power, limited coverage systems subject to the following provisions:

(i) The maximum EIRP shall be 55 dBm and the rated transmitter output power shall not exceed 0.100 Watts;

(ii) In the band segments from 21.8–22.0 GHz and 23.0–23.2 GHz, the frequency tolerance for stations authorized on or before April 1, 2005 is 0.05%. Existing licensees and pending applicants on that date may continue to operate after that date with a frequency

tolerance of 0.05%, provided that it does not cause harmful interference to the operation of any other licensee. The frequency tolerance of §101.107(a) shall apply to stations applied for after April 1, 2005;

(iii) The maximum beamwidth shall not exceed 4 degrees;

(iv) The sidelobe suppression criteria contained in §101.115 of this part shall not apply, except that a minimum front-to-back ratio of 38 dB shall apply;

(v) Upon showing of need, a maximum bandwidth of 50 MHz may be authorized per frequency assigned;

(vi) Radio systems authorized under the provisions of this section shall have no more than five hops in tandem, except upon showing of need, but in any event the maximum tandem length shall not exceed 40 km (25 miles);

(vii) Interfering signals at the antenna terminals of station authorized under this section shall not exceed –90 dBm and –70 dBm respectively, for co-channel and adjacent channel interfering signals; and

(viii) Stations authorized under the provisions of this section shall provide the protection from interference specified in §101.105 to stations operating in accordance with the provisions of this part.

(t) *27,500–28,350; 29,100–29,250; 31,000–31,300 MHz*. These frequencies are available for LMDS systems. Each assignment will be made on a BTA service area basis, and the assigned spectrum may be subdivided as desired by the licensee.

(u) *31,000–31,300 MHz*. Stations licensed in this band prior to March 11, 1997, may continue their authorized operations, subject to license renewal, on the condition that harmful interference will not be caused to LMDS operations licensed in this band after June 30, 1997. Non-LMDS stations licensed after March 11, 1997, based on applications refiled no later than June 26, 1998 are unprotected and subject to harmful interference from each other and from stations licensed prior to March 11, 1997, and are licensed on a secondary basis to LMDS. In the sub-bands 31,000–31,075 MHz and 31,225–31,300 MHz, stations initially licensed prior to March 11, 1997, except in LTTS, and LMDS operations authorized after June 30, 1997, are equally protected against harmful interference from each other in accordance with the provisions of §101.103(b). For stations, except in LTTS, permitted to relocate to these sub-bands, the following paired frequencies are available:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
(1) 25 MHz Authorized Bandwidth Channels	
31,012.5	31,237.5
31,037.5	31,262.5
31,062.5	31,287.5
(2) 75 MHz Authorized Bandwidth Channel	
31,037.5	31,275.0

NOTE TO (u): These channels are assigned for use within a rectangular service area to be described in the application by the maximum and minimum latitudes and longitudes. Such service area must be as small as practical consistent with the local service requirements of the carrier. These frequency plans may be subdivided as desired by the licensee and used within the service area as desired without further authorization subject to the terms and conditions set forth in §101.149. These frequencies may be assigned only where it is shown that the applicant will have reasonable projected requirements for a multiplicity of service points or transmission paths within the area.

(v)(1) Assignments in the band 38,600–40,000 MHz must be according to the following frequency plan:

Channel Group A		Channel Group B	
Channel No.	Frequence band limits (MHz)	Channel No.	Frequency band limits (MHz)
1–A	38,600–38,650	1–B	39,300–39,350
2–A	38,650–38,700	2–B	39,350–39,400
3–A	38,700–38,750	3–B	39,400–39,450
4–A	38,750–38,800	4–B	39,450–39,500
5–A	38,800–38,850	5–B	39,500–39,550
6–A	38,850–38,900	6–B	39,550–39,600
7–A	38,900–38,950	7–B	39,600–39,650
8–A	38,950–39,000	8–B	39,650–39,700
9–A	39,000–39,050	9–B	39,700–39,750
10–A	39,050–39,100	10–B	39,750–39,800

Channel Group A		Channel Group B	
Channel No.	Frequence band limits (MHz)	Channel No.	Frequency band limits (MHz)
11–A	39,100–39,150	11–B	39,800–39,850
12–A	39,150–39,200	12–B	39,850–39,900
13–A	39,200–39,250	13–B	39,900–39,950
14–A	39,250–39,300	14–B	39,950–40,000

(v)(2) Channels Blocks 1 through 14 are assigned for use within Economic Areas (EAs). Applicants are to apprise themselves of any licensed rectangular service areas within the EA for which they seek a license and comply with the requirements set forth in §101.103. All of the channel blocks may be subdivided as desired by the licensee and used within its service area as desired without further authorization subject to the terms and conditions set forth in §101.149.

(w) Fixed systems licensed, in operation, or applied for in the 3,700–4,200, 5925–6425, 6,525–6,875, 10,550–10,680, and 10,700–11,700 MHz bands prior to July 15, 1993, are permitted to use channel plans in effect prior to that date, including adding channels under those plans.

(x) Operations on other than the listed frequencies may be authorized where it is shown that the objectives or requirements of the interference criteria prescribed in §101.105 could not otherwise be met to resolve the interference problems.

(y) *Special requirements for operations in the band 29.1–29.25 GHz.* (1)(i) LMDS receive stations operating on frequencies in the 29.1–29.25 GHz band within a radius of 75 nautical miles of the geographic coordinates provided by a non-GSO MSS licensee pursuant to paragraphs (c)(2) or (c)(3)(i) of this section (the ''feeder link earth station complex protection zone'') shall accept any interference caused to them by such earth station complexes and shall not claim protection from such earth station complexes.

(ii) LMDS licensees operating on frequencies in the 29.1–29.25 GHz band outside a feeder link earth station complex protection zone shall cooperate fully and make reasonable efforts to resolve technical problems with the non-GSO MSS licensee to the extent that transmissions from the non-GSO MSS operator's feeder link earth station complex interfere with an LMDS receive station.

(2) No more than 15 days after the release of a public notice announcing the commencement of LMDS auctions, feeder link earth station complexes to be licensed pursuant to Section 25.257 shall be specified by a set of geographic coordinates in accordance with the following requirements: no feeder link earth station complex may be located in the top eight (8) metropolitan statistical areas (''MSAs''), ranked by population, as defined by the Office of Management and Budget as of June 1993, using estimated populations as of December 1992; two (2) complexes may be located in MSAs 9 through 25, one of which must be Phoenix, AZ (for a complex at Chandler, AZ); two (2) complexes may be located in MSAs 26 to 50; three (3) complexes may be located in MSAs 51 to 100, one of which must be Honolulu, Hawaii (for a complex at Waimea); and the three (3) remaining complexes must be located at least 75 nautical miles from the borders of the 100 largest MSAs or in any MSA not included in the 100 largest MSAs. Any location allotted for one range of MSAs may be taken from an MSA below that range.

(3)(i) Any non-GSO MSS licensee may at any time specify sets of geographic coordinates for feeder link earth station complexes with each earth station contained therein to be located at least 75 nautical miles from the borders of the 100 largest MSAs.

(ii) For purposes of paragraph (c)(3)(i) of this section, non-GSO MSS feeder link earth station complexes shall be entitled to accommodation only if the affected non-GSO MSS licensee preapplies to the Commission for a feeder link earth station complex or certifies to the Commission within sixty days of receiving a copy of an LMDS application that it intends to

file an application for a feeder link earth station complex within six months of the date of receipt of the LMDS application.

(iii) If said non-GSO MSS licensee application is filed later than six months after certification to the Commission, the LMDS and non-GSO MSS entities shall still cooperate fully and make reasonable efforts to resolve technical problems, but the LMDS licensee shall not be obligated to re-engineer its proposal or make changes to its system.

(4) LMDS licensees or applicants proposing to operate hub stations on frequencies in the 29.1–29.25 GHz band at locations outside of the 100 largest MSAs or within a distance of 150 nautical miles from a set of geographic coordinates specified under paragraph (c)(2) or (c)(3)(i) of this section shall serve copies of their applications on all non-GSO MSS applicants, permitees or licensees meeting the criteria specified in §25.257(a). Non-GSO MSS licensees or applicants shall serve copies of their feeder link earth station applications, after the LMDS auction, on any LMDS applicant or licensee within a distance of 150 nautical miles from the geographic coordinates that it specified under paragraph (c)(2) or (c)(3)(i) of this section. Any necessary coordination shall commence upon notification by the party receiving an application to the party who filed the application. The results of any such coordination shall be reported to the Commission within sixty days. The non-GSO MSS earth station licensee shall also provide all such LMDS licensees with a copy of its channel plan.

(z) *71,000–76,000 MHz; 81,000–86,000 MHz; 92,000–94,000 MHz; 94,100–95,000 MHz.* (1) Those applicants who are approved in accordance with FCC Form 601 will each be granted a single, non-exclusive nationwide license. Site-by-site registration is on a first-come, first-served basis. Registration will be in the Universal Licensing System until the Wireless Telecommunications Bureau announces by public notice, the implementation of a third-party database. *See* 47 CFR 101.1523. Links may not operate until NTIA approval is received. Licensees may use these bands for any point-to-point non-broadcast service.

(2) Prior links shall be protected using the interference protection criteria set forth in section 101.105. For transmitters employing digital modulation techniques and operating in the 71,000–76,000 MHz or 81,000–86,000 MHz bands, the licensee must construct a system that meets a minimum bit rate of 0.125 bits per second per Hertz of bandwidth. For transmitters that operate in the 92,000–94,000 MHz or 94,100–95,000 MHz bands, licensees must construct a system that meets a minimum bit rate of 1.0 bit per second per Hertz of bandwidth. If it is determined that a licensee has not met these loading requirements, then the database will be modified to limit coordination rights to the spectrum that is loaded and the licensee will lose protection rights on spectrum that has not been loaded.

[61 FR 26677, May 28, 1996]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §101.147, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

EFFECTIVE DATE NOTE: At 77 FR 54434, Sept. 5, 2012, §101.147 was amended by revising the introductory texts of paragraphs (i) and (o), and by adding paragraphs (i)(9) and (o)(8), effective Oct. 5, 2012. For the convenience of the added and revised text is set forth as follows:

§ 101.147 Frequency assignments.

* * * * *

(i) *5,925 to 6,425 MHz.* 60 MHz authorized bandwidth.

* * * * *

(9) 60 MHz bandwidth channels: [1]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5964.97	6217.01
6024.27	6276.31
6083.57	6335.61
6142.87	6394.91

[1] The highest available channel should be selected, except where such a choice would impede the efficiency of local frequency coordination efforts.

* * * * *

(o) *10,700 to 11,700 MHz.* 80 MHz authorized bandwidth.

* * * * *

(8) 80 MHz bandwidth channels:[1]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10745	11235
10825	11315
10905	11395
10985	11475
11065	11555
11145	11635

[1] The highest available channel should normally be selected, except where such a choice would impede the efficiency of local frequency coordination efforts.

* * * * *

§ 101.149 Special requirements for operation in the band 38,600–40,000 MHz

Assigned frequency channels in the band 38,600–40,000 MHz may be subdivided and used anywhere in the authorized service area, subject to the following terms and conditions:

(a) No interference may be caused to a previously existing station operating in another authorized service area;

(b) Each operating station must have posted a copy of the service area authorization; and

(c) The antenna structure height employed at any location may not exceed the criteria set forth in §17.7 of this chapter unless, in each instance, authorization for use of a specific maximum antenna structure for each location has been obtained from the FAA prior to the erection of the antenna.

§ 101.151 Use of signal boosters.

Private operational-fixed licensees authorized to operate multiple address systems in the 928–929/952–960 MHz and 932–932.5/941–941.5 MHz bands may employ signal boosters at fixed locations in accordance with the following criteria:

(a) The amplified signal is retransmitted only on the exact frequency(ies) of the originating base, fixed, mobile, or portable station(s). The booster will fill in only weak signal areas and cannot extend the system's normal signal coverage area.

(b) Class A narrowband signal boosters must be equipped with automatic gain control circuitry which will limit the total effective radiated power (ERP) of the unit to a maximum of 5 watts under all conditions. Class B broadband signal boosters are limited to 5 watts ERP for each authorized frequency that the booster is designed to amplify.

(c) Class A narrowband boosters must meet the out-of-band emission limits of §101.111 for each narrowband channel that the booster is designed to amplify. Class B broadband signal boosters must meet the emission limits of §101.111 for frequencies outside of the booster's design passband.

(d) Class B broadband signal boosters are permitted to be used only in confined or indoor areas such as buildings, tunnels, underground areas, etc., or remote areas, *i.e.*, areas where there is little or no risk of interference to other users.

(e) The licensee is given authority to operate signal boosters without separate authorization from the Commission. Certificated equipment must be employed and the licensee must ensure that all applicable rule requirements are met.

(f) Licensees employing either Class A narrowband or Class B broadband signal boosters as defined in §101.3 are responsible for correcting any harmful interference that the equipment may cause to other systems.

[61 FR 31052, June 19, 1996, as amended at 63 FR 36611, July 7, 1998]

Subpart D—Operational Requirements

§ 101.201 Station inspection.

The licensee of each station authorized in the radio services included in this part must make the station available for inspection by representatives of the Commission at any reasonable hour.

§ 101.203 Communications concerning safety of life and property.

(a) Handling and transmission of messages concerning the safety of life or property which is in imminent danger must be afforded priority over other messages.

(b) No person may knowingly cause to be transmitted any false or fraudulent message concerning the safety of life or property, or refuse upon demand immediately to relinquish the use of a