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Subpart D -- Technical Standards

S 97.301 Authorized frequency bands.

The following transmitting frequency bands are available to an amateur station located within 50 km of the Earth's surface, within the specified ITU Region and out side any area where the amateur service is regulated by another country of another United States government agency.

(a) For a station having a control operator holding a Technician, General, Advanced or Amateur Extra Class operator license:

Wavelength band	ITU Region 1	ITU Region 2	ITU Region 3	Sharing requirements See S 97.303, Paragraph:
VHF	MHz	MHz	MHz	
6 m	---	50-54	50-54	(a)
2 m	144-146	144-148	144-148	(a)
1.25 m	---	220-225	---	(a), (b), (e)
UHF	MHz	MHz	MHz	
70 cm	430-440	420-450	430-440	(a), (b), (f)
33 cm	---	902-928	---	(a), (b), (g)
23 cm	1240-1300	1240-1300	1240-1300	(j)
13 cm	2300-2310	2300-2310	2300-2310	(a), (b), (j)
-do-	2390-2450	2390-2450	2390-2450	(a), (b), (j)
SHF	GHz	GHz	GHz	
9 cm	---	3.3-3.5	3.3-3.5	(a), (b), (k), (l)
5 cm	5.650-5.850	5.650-5.925	5.650-5.850	(a), (b), (m)
3 cm	10.00-10.50	10.00-10.50	10.00-10.50	(b), (c), (i), (n)
1.2 cm	24.00-24.25	24.00-24.25	24.00-24.25	(a), (b), (i), (o)
EHF	GHz	GHz	GHz	
6 mm	47.0-47.2	47.0-47.2	47.0-47.2	
4 mm	75.5-81.0	75.5-81.0	75.5-81.0	(b), (c), (h)
2.5 mm	119.98-120.02	119.98-120.02	119.98-120.02	(k), (p)
2 mm	142-149	142-149	142-149	(b), (c), (h), (k)
1 mm	241-250	241-250	241-250	(b), (c), (h), (q)
---	above 300	above 300	above 300	(k)

(b) For a station having a control operator holding an Amateur Extra Class operator license:

Wavelength band	ITU Region 1	ITU Region 2	ITU Region 3	Sharing requirements See S 97.303,
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Paragraph:

MF	kHz	kHz	kHz	
160 m	1810-1850	1800-2000	1800-2000	(a), (b), (c)
HF	MHz	MHz	MHz	
80 m	3.50-3.75	3.50-3.75	3.50-3.75	(a)
75 m	3.75-3.80	3.75-4.00	3.75-3.90	(a)
40 m	7.0-7.1	7.0-7.3	7.0-7.1	(a)
30 m	10.10-10.15	10.10-10.15	10.10-10.15	(d)
20 m	14.00-14.35	14.00-14.35	14.00-14.35	
17 m	18.068-18.168	18.068-18.168	18.068-18.168	
15 m	21.00-21.45	21.00-21.45	21.00-21.45	
12 m	24.89-24.99	24.89-24.99	24.89-24.99	
10 m	28.0-29.7	28.0-29.7	28.0-29.7	

(c) For a station having a control operator holding an Advanced Class operator license:

Wavelength band	ITU Region 1	ITU Region 2	ITU Region 3	Sharing requirements See S 97.303, Paragraph:
MF	kHz	kHz	kHz	
160 m	1810-1850	1800-2000	1800-2000	(a), (b), (c)
HF	MHz	MHz	MHz	
80 m	3.525-3.750	3.525-3.750	3.525-3.750	(a)
75 m	3.775-3.800	3.775-4.000	3.775-3.900	(a)
40 m	7.025-7.100	7.025-7.300	7.025-7.100	(a)
30 m	10.10-10.15	10.10-10.15	10.10-10.15	(d)
20 m	14.025-14.150	14.025-14.150	14.025-14.150	
-do-	14.175-14.350	14.175-14.350	14.175-14.350	
17 m	18.068-18.168	18.068-18.168	18.068-18.168	
15 m	21.025-21.200	21.025-21.200	21.025-21.200	
-do-	21.30-21.45	21.30-21.45	21.30-21.45	
12 m	24.89-24.99	24.89-24.99	24.89-24.99	
10 m	28.0-29.7	28.0-29.7	28.0-29.7	

(d) For a station having a control operator holding a General Class operator license:

Wavelength band	ITU Region 1	ITU Region 2	ITU Region 3	Sharing requirements See S 97.303, Paragraph:
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MF	kHz	kHz	kHz	
160 m	1810-1850	1800-2000	1800-2000	(a), (b), (c)
HF	MHz	MHz	MHz	
80 m	3.525-3.750	3.525-3.750	3.525-3.750	(a)
75 m	---	3.85-4.00	---	(a)
40 m	7.025-7.100	7.025-7.100	7.025-7.100	(a)
-do-	---	7.225-7.300	---	(a)
30 m	10.10-10.15	10.10-10.15	10.10-10.15	(d)
20 m	14.025-14.150	14.025-14.150	14.025-14.150	
-do-	14.225-14.350	14.225-14.350	14.225-14.350	
17 m	18.068-18.168	18.068-18.168	18.068-18.168	
15 m	21.025-21.200	21.025-21.200	21.025-21.100	
-do-	21.30-21.45	21.30-21.45	21.30-21.45	
12 m	24.89-24.99	24.89-24.99	24.89-24.99	
10 m	28.0-29.7	28.0-29.7	28.0-29.7	

(e) For a station having a control operator holding a Technician or Novice Class operator license:

Wavelength band	ITU Region 1	ITU Region 2	ITU Region 3	Sharing requirements See S 97.303, Paragraph:
HF	MHz	MHz	MHz	
80 m	3.70-3.75	3.70-3.75	3.70-3.75	(a)
40 m	7.050-7.075	7.10-7.15	7.050-7.075	(a)
15 m	21.10-21.20	21.10-21.20	21.10-21.20	
10 m	28.1-28.5	28.1-28.5	28.1-28.5	

(f) For a station having a control operator holding a Novice Class operator license:

Wavelength band	ITU Region 1	ITU Region 2	ITU Region 3	Sharing requirements See S 97.303, Paragraph:
VHF	MHz	MHz	MHz	
1.25 m	---	222.10-223.91	---	(a), (b), (e)
UHF	MHz	MHz	MHz	
23 cm	1270-1295	1270-1295	1270-1295	(i)

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S 97.303 Frequency sharing requirements.

The following is a summary of the frequency sharing requirements that apply to amateur station transmissions on the frequency bands specified in S 97.301 of this Part. (For each ITU Region, each frequency band allocated to the amateur service is designated as either a secondary service or a primary service. A station in a secondary service must not cause harmful interference to, and must accept interference from, stations in a primary service. See SS 2.105 and 2.106 of the FCC Rules, United States Table of Frequency Allocations for complete requirements.)

(a) Where, in adjacent ITU Regions or Subregions, a band of frequencies is allocated to different services of the same category, the basic principle is the equality of right to operate. The stations of each service in one region must operate so as not to cause harmful interference to services in the other Regions or Subregions. (See ITU Radio Regulations, No. 346 (Geneva, 1979).)

(b) No amateur station transmitting in the 1900-2000 kHz segment, the 1.25 m band, the 70 cm band, the 33 cm band, the 13 cm band, the 9 cm band, the 5 cm band, the 3 cm band, the 24.05-24.24 GHz segment, the 76-81 GHz segment, the 144-149 GHz segment and the 241-248 GHz segment shall cause harmful interference to, nor is protected from interference due to the operation of, the Government radiolocation service.

(c) No amateur station transmitting in the 1900-2000 kHz segment, the 3 cm band, the 76-81 GHz segment, the 144-149 GHz segment and the 241-248 GHz segment shall cause harmful interference to, nor is protected from interference due to the operation of, stations in the non-Government radiolocation service.

(d) No amateur station transmitting in the 30 meter band shall cause harmful interference to stations authorized by other nations in the fixed service. The licensee of the amateur station must make all necessary adjustments, including termination of transmissions, if harmful interference is caused.

(e) The 1.25 m band is allocated to the amateur, fixed and mobile services in the United States on a co-primary basis. The basic principle that applies is the equality of right to operate. Amateur, fixed and mobile stations must operate so as not to cause harmful interference to each other.

(f) In the 70 cm band:

(1) No amateur station shall transmit from north of Line A in the 420-430 MHz segment.

(2) The 420-430 MHz segment is allocated to the amateur service in the United States on a secondary basis, and is allocated in the fixed and mobile (except aeronautical mobile) services in the International Table of allocations on a primary basis. No amateur station transmitting in this band shall cause

harmful interference to, nor is protected from interference due to the operation of, stations authorized by other nations in the fixed and mobile (except aeronautical mobile) services.

(3) The 430-440 MHz segment is allocated to the amateur service on a secondary basis in ITU Regions 2 and 3. No amateur station transmitting in this band in ITU Regions 2 and 3 shall cause harmful interference to, nor is protected from interference due to the operation of, stations authorized by other nations in the radiolocation service. In ITU Region 1, the 430-440 MHz segment is allocated to the amateur service on a co-primary basis with the radiolocation service. As between these two services in this band in ITU Region 1, the basic principle that applies is the equality of right to operate. Amateur stations authorized by the United States and radiolocation stations authorized by other nations in ITU Region 1 shall operate so as not to cause harmful interference to each other.

(4) No amateur station transmitting in the 449.5-450 MHz segment shall cause interference to, nor is protected from interference due to the operation of stations in, the space operation service and the space research service or Government or non-Government stations for space telecommand.

(g) In the 33 cm band:

(1) No amateur station shall transmit from within the States of Colorado and Wyoming, bounded on the south by latitude 39° N, on the north by latitude 42° N, on the east by longitude 105° W, and on the west by longitude 180° W. This band is allocated on a secondary basis to the amateur service subject to not causing harmful interference to, and not receiving protection from any interference due to the operation of, industrial, scientific and medical devices, automatic vehicle monitoring systems or Government stations authorized in this band.

(2) No amateur station shall transmit from those portions of the States of Texas and New Mexico bounded on the south by latitude 31° 41' N, on the north by latitude 34° 30' N, on the east by longitude 104° 11' W, and on the west by longitude 107° 30' W.

(h) No amateur station transmitting in the 23 cm band, the 3 cm band, the 24.05-24.25 GHz segment, the 76-81 GHz segment, the 144-149 GHz segment and the 241-248 GHz segment shall cause harmful interference to, nor is protected from interference due to the operation of, stations authorized by other nations in the radiolocation service.

(i) In the 1240-1260 MHz segment, no amateur station shall cause harmful interference to, nor is protected from interference due to the operation of, stations in the radionavigation-satellite service.

(j) In the 13 cm band:

(1) The amateur service is allocated on a secondary basis in

all ITU Regions. In ITU Region 1, no amateur station shall cause harmful interference to, and is not protected from interference due to the operation of, stations authorized by other nations in the fixed service. In ITU Regions 2 and 3, no station shall cause harmful interference to, and is not protected from interference due to the operation of, stations authorized by other nations in the fixed, mobile and radiolocation services.

(2) In the United States, the 2300-2310 MHz segment is allocated to the amateur service on a co-secondary basis with the Government fixed and mobile services. In this segment, the fixed and mobile services must not cause harmful interference to the amateur service. No amateur station transmitting in the 2400-2450 MHz segment is protected from interference due to the operation of industrial, scientific and medical devices on 2450 MHz.

(k) No amateur station transmitting in the 3.332-3.339 GHz and 3.3458-3.3525 GHz segments, the 2.5 mm band, the 144.68-144.98 GHz, 145.45-145.75 and 146.82-147.12 GHz segments and the 343-348 GHz segment shall cause harmful interference to stations in the radio astronomy service. No amateur station transmitting in the 300-302 GHz, 324-326 GHz, 345-347 GHz, 363-365 GHz and 379-381 GHz segments shall cause harmful interference to stations in the space research service (passive) or Earth exploration-satellite service (passive).

(1) In the 9 cm band:

(1) In ITU Regions 2 and 3, the band is allocated to the amateur service on a secondary basis.

(2) In the United States, the band is allocated to the amateur service on a co-secondary basis with the non-Government radiolocation service.

(3) In the 3.3-3.4 GHz segment, no amateur station shall cause harmful interference to, nor is protected from interference due to the operation of, stations authorized by other nations in the radiolocation service.

(4) In the 3.4-3.5 GHz segment, no amateur station shall cause harmful interference to, nor is protected from interference due to the operation of, stations authorized by other nations in the fixed and fixed-satellite service.

(m) In the 5 cm band:

(1) In the 5.650-5.725 GHz segment, the amateur service is allocated in all ITU Regions on a co-secondary basis with the space research (deep space) service.

(2) In the 5.725-5.850 GHz segment, the amateur service is allocated in all ITU Regions on a secondary basis. No amateur station shall cause harmful interference to, nor is protected from interference due to the operation of, stations authorized by other nations in the fixed-satellite service in ITU Region 1.

(3) No amateur station transmitting in the 5.725-5.875 GHz segment is protected from interference due to the operation of

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industrial, scientific and medical devices operating on 5.8 GHz.

(4) In the 5.650-5.850 GHz segment, no amateur station shall cause harmful interference to, nor is protected from interference due to the operation of, stations authorized by other nations in the radiolocation service.

(5) In the 5.850-5.925 GHz segment, the amateur service is allocated in ITU Region 2 on a co-secondary basis with the radiolocation service. In the United States, the segment is allocated to the amateur service on a secondary basis to the non-Government fixed-satellite service. No amateur station shall cause harmful interference to, nor is protected from interference due to the operation of, stations authorized by other nations in the fixed, fixed-satellite and mobile services. No amateur station shall cause harmful interference to, nor is protected from interference due to the operation of, stations in the non-Government fixed-satellite service.

(n) In the 3 cm band:

(1) In the United States, the 3 cm band is allocated to the amateur service on a co-secondary basis with the non-government radiolocation service.

(2) In the 10.00-10.45 segment in ITU Regions 1 and 3, no amateur station shall cause interference to, nor is protected from interference due to the operation of, stations authorized by other nations in the fixed and mobile services.

(o) No amateur station transmitting in the 1.2 cm band is protected from interference due to the operation of industrial, scientific and medical devices on 24.125 GHz. In the United States, the 24.05-24.25 GHz segment is allocated to the amateur service on a co-secondary basis with the non-government radiolocation and Government and non-government Earth exploration-satellite (active) services.

(p) The 2.5 mm band is allocated to the amateur service on a secondary basis. No amateur station transmitting in this band shall cause harmful interference to, nor is protected from interference due to the operation of, stations in the fixed, inter-satellite and mobile services.

(q) No amateur station transmitting in the 244-246 GHz segment of the 1 mm band is protected from interference due to the operation of industrial, scientific and medical devices on 245 GHz.

S 97.305 Authorized emission types.

(a) An amateur station may transmit a CW emission on any frequency authorized to the control operator.

(b) A station may transmit a test emission on any frequency authorized to the control operator for brief periods for experimental purposes, except that no pulse modulation emission may be transmitted on any frequency where pulse is not specifically authorized.

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(c) A station may transmit the following emission types on the frequencies indicated, as authorized to the control operator, subject to the standards specified in S 97.307(f) of this Part.

Wavelength band	Frequencies	Emission types authorized	Standards See S 97.307(f) Paragraph:
MF			
160 m	entire band	phone, image, RTTY, data	(1), (2), (3)
HF			
80 m	entire band	RTTY, data	(3), (9)
75 m	entire band	phone, image	(1), (2)
40 m	7.000-7.075 MHz	RTTY, data	(c), (9)
-do-	7.075-7.100 MHz	phone, image	(1), (2), (9), (11)
-do-	7.10-7.15 MHz	RTTY, data	(1), (9)
-do-	7.15-7.30 MHz	phone, image	(1), (2)
30 m	entire band	RTTY, data	(3)
20 m	14.00-14.15 MHz	RTTY, data	(3)
-do-	14.15-14.35 MHz	phone, image	(1), (2)
17 m	18.068-18.110 MHz	RTTY, data	(3)
-do-	18.110-18.168 MHz	phone, image	(1), (2)
15 m	21.0-21.2 MHz	RTTY, data	(3), (9)
-do-	21.20-21.45 MHz	phone, image	(1), (2)
12 m	24.89-24.93 MHz	RTTY, data	(3)
-do-	24.93-24.99 MHz	phone, image	(1), (2)
10 m	28.0-28.3 MHz	RTTY, data	(4)
-do-	28.3-29.5 MHz	phone, image	(1), (2), (10)
-do-	28.5-29.0 MHz	phone, image	(1), (2)
-do-	29.0-29.7 MHz	phone, image	(1)
VHF			
6 m	50.1-51.0 MHz	MCW, phone, image, RTTY, data	(2), (5)
-do-	51.0-54.0 MHz	MCW, phone, image,	