

Wavelength band	Frequencies	Emission types authorized	Standards see § 97.307(f), paragraph:
20 m	14.15–14.35 MHz .....	Phone, image .....	(1), (2).
17 m	18.068–18.110 MHz ...	RTTY, data .....	(3).
17 m	18.110–18.168 MHz ...	Phone, image .....	(1), (2).
15 m	21.0–21.2 MHz .....	RTTY, data .....	(3), (9).
15 m	21.20–21.45 MHz .....	Phone, image .....	(1), (2).
12 m	24.89–24.93 MHz .....	RTTY, data .....	(3).
12 m	24.93–24.99 MHz .....	Phone, image .....	(1), (2).
10 m	28.0–28.3 MHz .....	RTTY, data .....	(4).
10 m	28.3–28.5 MHz .....	Phone, image .....	(1), (2), (10).
10 m	28.5–29.0 MHz .....	Phone, image .....	(1), (2).
10 m	29.0–29.7 MHz .....	Phone, image .....	(2).
VHF:			
6 m	50.1–51.0 MHz .....	MCW, phone, image, RTTY, data .....	(2), (5).
Do	51.0–54.0 MHz .....	MCW, phone, image, RTTY, data, test .....	(2), (5), (8).
2 m	144.1–148.0 MHz .....	MCW, phone, image, RTTY, data, test .....	(2), (5), (8).
1.25 m	219–220 MHz .....	Data .....	(13).
Do	222–225 MHz .....	MCW, phone, image, RTTY, data, test .....	(2), (6), (8).
UHF:			
70 cm	Entire band .....	MCW, phone, image, RTTY, data, SS, test .....	(6), (8).
33 cm	Entire band .....	MCW, phone, image, RTTY, data, SS, test, pulse ...	(7), (8), and (12).
23 cm	Entire band .....	MCW, phone, image, RTTY, data, SS, test .....	(7), (8), and (12).
13 cm	Entire band .....	MCW, phone, image, RTTY, data, SS, test, pulse ...	(7), (8), and (12).
SHF:			
9 cm	Entire band .....	MCW, phone, image, RTTY, data, SS, test, pulse ...	(7), (8), and (12).
5 cm	Entire band .....	MCW, phone, image, RTTY, data, SS, test, pulse ...	(7), (8), and (12).
3 cm	Entire band .....	MCW, phone, image, RTTY, data, SS, test .....	(7), (8), and (12).
1.2 cm	Entire band .....	MCW, phone, image, RTTY, data, SS, test, pulse ...	(7), (8), and (12).
EHF:			
6 mm	Entire band .....	MCW, phone, image, RTTY, data, SS, test, pulse ...	(7), (8), and (12).
4 mm	Entire band .....	MCW, phone, image, RTTY, data, SS, test, pulse ...	(7), (8), and (12).
2.5 mm	Entire band .....	MCW, phone, image, RTTY, data, SS, test, pulse ...	(7), (8), and (12).
2 mm	Entire band .....	MCW, phone, image, RTTY, data, SS, test, pulse ...	(7), (8), and (12).
1 mm	Entire band .....	MCW, phone, image, RTTY, data, SS, test, pulse ...	(7), (8), and (12).
—	Above 300 GHz .....	MCW, phone, image, RTTY, data, SS, test, pulse ...	(7), (8), and (12).

[54 FR 25857, June 20, 1989; 54 FR 39536, Sept. 27, 1989; 55 FR 22013, May 30, 1990, as amended at 55 FR 30457, July 26, 1990; 60 FR 15688, Mar. 27, 1995; 64 FR 51471, Sept. 23, 1999]

**§ 97.307 Emission standards.**

(a) No amateur station transmission shall occupy more bandwidth than necessary for the information rate and emission type being transmitted, in accordance with good amateur practice.

(b) Emissions resulting from modulation must be confined to the band or segment available to the control operator. Emissions outside the necessary bandwidth must not cause splatter or keyclick interference to operations on adjacent frequencies.

(c) All spurious emissions from a station transmitter must be reduced to the greatest extent practicable. If any spurious emission, including chassis or power line radiation, causes harmful interference to the reception of another radio station, the licensee of the interfering amateur station is required to take steps to eliminate the interference, in accordance with good engineering practice.

(d) For transmitters installed after January 1, 2003, the mean power of any spurious emission from a station transmitter or external RF power amplifier transmitting on a frequency below 30 MHz must be at least 43 dB below the mean power of the fundamental emission. For transmitters installed on or before January 1, 2003, the mean power of any spurious emission from a station transmitter or external RF power amplifier transmitting on a frequency below 30 MHz must not exceed 50 mW and must be at least 40 dB below the mean power of the fundamental emission. For a transmitter of mean power less than 5 W installed on or before January 1, 2003, the attenuation must be at least 30 dB. A transmitter built before April 15, 1977, or first marketed before January 1, 1978, is exempt from this requirement.

(e) The mean power of any spurious emission from a station transmitter or

external RF power amplifier transmitting on a frequency between 30-225 MHz must be at least 60 dB below the mean power of the fundamental. For a transmitter having a mean power of 25 W or less, the mean power of any spurious emission supplied to the antenna transmission line must not exceed 25  $\mu$ W and must be at least 40 dB below the mean power of the fundamental emission, but need not be reduced below the power of 10  $\mu$ W. A transmitter built before April 15, 1977, or first marketed before January 1, 1978, is exempt from this requirement.

(f) The following standards and limitations apply to transmissions on the frequencies specified in §97.305(c) of this part.

(1) No angle-modulated emission may have a modulation index greater than 1 at the highest modulation frequency.

(2) No non-phone emission shall exceed the bandwidth of a communications quality phone emission of the same modulation type. The total bandwidth of an independent sideband emission (having B as the first symbol), or a multiplexed image and phone emission, shall not exceed that of a communications quality A3E emission.

(3) Only a RTTY or data emission using a specified digital code listed in §97.309(a) of this part may be transmitted. The symbol rate must not exceed 300 bauds, or for frequency-shift keying, the frequency shift between mark and space must not exceed 1 kHz.

(4) Only a RTTY or data emission using a specified digital code listed in §97.309(a) of this part may be transmitted. The symbol rate must not exceed 1200 bauds, or for frequency-shift keying, the frequency shift between mark and space must not exceed 1 kHz.

(5) A RTTY, data or multiplexed emission using a specified digital code listed in §97.309(a) of this part may be transmitted. The symbol rate must not exceed 19.6 kilobauds. A RTTY, data or multiplexed emission using an unspecified digital code under the limitations listed in §97.309(b) of this part also may be transmitted. The authorized bandwidth is 20 kHz.

(6) A RTTY, data or multiplexed emission using a specified digital code listed in §97.309(a) of this part may be transmitted. The symbol rate must not

exceed 56 kilobauds. A RTTY, data or multiplexed emission using an unspecified digital code under the limitations listed in §97.309(b) of this part also may be transmitted. The authorized bandwidth is 100 kHz.

(7) A RTTY, data or multiplexed emission using a specified digital code listed in §97.309(a) of this part or an unspecified digital code under the limitations listed in §97.309(b) of this part may be transmitted.

(8) A RTTY or data emission having designators with A, B, C, D, E, F, G, H, J or R as the first symbol; 1, 2, 7 or 9 as the second symbol; and D or W as the third symbol is also authorized.

(9) A station having a control operator holding a Novice or Technician Class operator license may only transmit a CW emission using the international Morse code.

(10) A station having a control operator holding a Novice Class operator license or a Technician Class operator license and who has received credit for proficiency in telegraphy in accordance with the international requirements may only transmit a CW emission using the international Morse code or phone emissions J3E and R3E.

(11) Phone and image emissions may be transmitted only by stations located in ITU Regions 1 and 3, and by stations located within ITU Region 2 that are west of 130° West longitude or south of 20° North latitude.

(12) Emission F8E may be transmitted.

(13) A data emission using an unspecified digital code under the limitations listed in §97.309(b) also may be transmitted. The authorized bandwidth is 100 kHz.

[54 FR 25857, June 20, 1989; 54 FR 30823, July 24, 1989, as amended at 54 FR 39537, Sept. 27, 1989; 60 FR 15688, Mar. 27, 1995; 65 FR 6550, Feb. 10, 2000; 69 FR 24997, May 5, 2004]

#### §97.309 RTTY and data emission codes.

(a) Where authorized by §§97.305(c) and 97.307(f) of the part, an amateur station may transmit a RTTY or data emission using the following specified digital codes:

(1) The 5-unit, start-stop, International Telegraph Alphabet No. 2,