

WSJTX/FT8 and Extracts from the Code of Federal Regulations, March 23, 2018

Editorial Comments: All **red** and/or **bold** text are my emphasis and not in the CFR. Note the use of the words **may** and **shall** in the sections. For digital modes, it is a **shall** that the signal not occupy more than 2.8 kHz. Thus, keeping the digital signal within this bandwidth is mandatory. With a mode like WSJTX/FT8, this requires any FT8 signal transmitted must be within the 2.8 kHz bandwidth specified! But, the "**may**" suggestion of keeping the signal centered on the channel is just that, a suggestion. Also, there is no CFR of using only one signal on a channel at one time. It just states signals must not cause harmful interference with primary users of the frequencies (non-ham Federal users). By implication, it would allow ham operators to interfere amongst themselves which is the norm. So, here are the pertinent sections of the CFR, March 23, 2018:

- §97.303 Frequency sharing requirements.
 - §97.307 Emission standards.
 - §97.309 RTTY and data emission codes.
 - §97.313 Transmitter power standards.
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§97.303 Frequency sharing requirements.

(h) 60 m band:

(1) In the 5330.5-5406.4 kHz band (60 m band), amateur stations may transmit only on the five center frequencies specified in the table below. In order to meet this requirement, control operators of stations transmitting phone, **data**, and RTTY emissions (emission designators 2K80J3E, 2K80J2D, and 60H0J2B, respectively) **may set the carrier frequency 1.5 kHz below the center frequency** as specified in the table below. For CW emissions (emission designator 150HA1A), the carrier frequency is set to the center frequency. Amateur operators **shall ensure that their emissions do not occupy more than 2.8 kHz** centered on each of these center frequencies.

60 M BAND FREQUENCIES (kHz)

Carrier	Center
5330.5	5332.0
5346.5	5348.0
5357.0	5358.5
5371.5	5373.0
5403.5	5405.0

(2) Amateur stations transmitting on the 60 m band must not cause harmful interference to, and must accept interference from, stations authorized by:

- (i) The United States (NTIA and FCC) and other nations in the fixed service; and
- (ii) Other nations in the mobile except aeronautical mobile service.

§97.307 Emission standards.

(14) In the 60 m band:

(i) A station may transmit only phone, RTTY, data, and CW emissions using the emission designators and any additional restrictions that are specified in the table below (except that the use of a narrower necessary bandwidth is permitted):

60 M BAND EMISSION REQUIREMENTS

Emission type	Emission designator	Restricted to:
Phone	2K80J3E	Upper sideband transmissions (USB).
Data	2K80J2D	USB (for example, PACTOR-III).
RTTY	60H0J2B	USB (for example, PSK31).
CW	150HA1A	Morse telegraphy by means of on-off keying.

(ii) The following requirements also apply:

(A) When transmitting the phone, RTTY, and data emissions, the suppressed carrier frequency may be set as specified in §97.303(h).

(B) The control operator of a station transmitting data or RTTY emissions must exercise care to limit the length of transmission so as to avoid causing harmful interference to United States Government stations.

[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; 77 FR 5412, Feb. 3, 2012; 79 FR 35291, June 20, 2014]

§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, code defined in ITU-T Recommendation F.1, Division C (commonly known as “Baudot”).

(2) The 7-unit code specified in ITU-R Recommendations M.476-5 and M.625-3 (commonly known as “AMTOR”).

(3) The 7-unit, International Alphabet No. 5, code defined in IT--T Recommendation T.50 (commonly known as “ASCII”).

(4) An amateur station transmitting a RTTY or data emission using a digital code specified in this paragraph may use any technique whose technical characteristics have been documented publicly, such as CLOVER, G-TOR, or PacTOR, for the purpose of facilitating communications.

(b) Where authorized by §§97.305(c) and 97.307(f), a station may transmit a RTTY or data emission using an unspecified digital code, except to a station in a country with which the United States does not have an agreement permitting the code to be used. RTTY and data emissions using unspecified digital codes must not be transmitted for the purpose of obscuring the meaning of any communication. When deemed necessary by a Regional Director to assure compliance with the FCC Rules, a station must:

(1) Cease the transmission using the unspecified digital code;

(2) Restrict transmissions of any digital code to the extent instructed;

(3) Maintain a record, convertible to the original information, of all digital communications transmitted.

§97.313 Transmitter power standards.

(a) An amateur station must use the minimum transmitter power necessary to carry out the desired communications.

(i) No station may transmit with an **effective radiated power (ERP) exceeding 100 W PEP on the 60 m band**. For the purpose of computing ERP, the transmitter PEP will be multiplied by the antenna gain relative to a half-wave dipole antenna. **A half-wave dipole antenna will be presumed to have a gain of 1 (0 dBd)**. Licensees using other antennas must maintain in their station records either the antenna manufacturer's data on the antenna gain or calculations of the antenna gain.