

RM-11708 BRIEFING MEMORANDUM

The ARRL *Petition* was filed November 15, and it was placed on public notice by FCC on November 21, as RM-11708. Comments are due by December 23, 2013, and reply comments are due by January 7, 2014. More than 600 comments have now been filed, a significant majority of which are short statements of support for the petition. ARRL filed an *Erratum* to the Petition on November 26, to correct an error included in the Appendix of the proposed amended rules.

The reasons why the Petition is necessary are:

- The state of the art in digital communications now allows transmission protocols in which the symbol rate exceeds the present limitations of Section 97.307(f) of the FCC Rules, but the necessary bandwidth of the protocol is within the bandwidth of a typical HF single sideband channel (3 kHz).
- The symbol rate “speed limit” therefore prohibits radio amateurs from utilizing state of the art technology.
- The present rules *in the data subbands* at HF permit spectrum inefficiency, allowing data transmissions of unlimited bandwidth as long as the symbol rate is sufficiently slow.
- Eliminating the symbol rate limitations for data emissions and substituting a maximum authorized bandwidth would permit the utilization of all HF data transmission protocols presently legal in the Amateur Radio Service, as well as state of the art protocols that fall within the authorized bandwidth.

The *Petition*, as corrected by the Erratum we filed, **WOULD**:

- Remove the symbol rate limitation for data emissions in the band segments where RTTY and data emissions are now permitted.
- Establish a maximum bandwidth for data emissions of 2.8 kHz on MF and HF bands (where *none currently exists*, except for some unattended operations). The MF and HF segments subject to this new maximum bandwidth limit are: 160 meters; 3.5-3.6 MHz; 7.000-7.125 MHz; 30 meters; 14.00-14.15 MHz; 18.068-18.110 MHz; 21.0-21.2 MHz; 24.89-24.93 MHz; and 28.0-28.3 MHz.
- *Leave intact* the requirement now in the rules for the RTTY and data subbands listed above that data emissions must be a specified digital code listed in § 97.309(a) of the FCC rules.
- Permit the utilization of existing and future data protocols which allow greater throughput, while limiting data emissions to those which are reasonably spectrum efficient.

The *Petition*, as corrected by the Erratum we filed, **WOULD NOT**:

- Have any effect whatsoever on the HF subbands where phone and image emissions are now permitted. The petition would not permit digital voice transmissions in the data and RTTY subbands because digital voice is defined in the FCC rules as voice, not data.
- Have any effect on CW operation in the HF bands.
- Change the restrictions on automatically controlled digital stations. The Section 97.221 rule would remain unchanged. That rule now prohibits automatically controlled RTTY or data emissions below 6 meters unless: (1) the automatically controlled station is responding to an interrogation *and* the occupied bandwidth is less than 500 Hz; *or* (2) the station is transmitting in one of nine very small HF subbands listed in the rule.
- Permit data emissions to use occupied bandwidths in excess of what is presently allowed. It would instead, for the first time, limit the bandwidths of data emissions. Now, the rules for HF data emissions permit and in fact encourage spectrum inefficiency, allowing data transmissions of *unlimited bandwidth* as long as the symbol rate is sufficiently slow.
- Change which modes are allowed in which subbands or affect any emission other than data. The Petition proposes no changes that would affect in any way the existing rules governing Morse telegraphy, phone, and image emissions.
- Add rules that affect digital voice (digital voice is defined in FCC rules as phone).
- Expand the frequencies on which unspecified digital codes may be used. When originally filed, an error that was included in the Committee Report was also included in the Petition. When discovered, ARRL filed immediately an erratum that deleted the erroneous reference to unspecified digital codes at HF. It was never our intention to permit unspecified digital codes at HF.
- Have any effect on Section 97.307(f)(2), which limits the bandwidth of a non-phone emission to the bandwidth of a "communications quality phone emission of the same modulation type." This provision does NOT apply to the RTTY and data subbands at HF. It applies ONLY to the phone and image subbands.
- Initiate any large scale plan to convert to regulation of emissions by bandwidth. It is instead a narrow, surgical means of eliminating an outdated limitation in the FCC rules which precludes radio amateurs from experimenting and contributing to the radio art.

The *Petition*'s maximum bandwidth proposal is **BALANCED**:

- It can be fairly debated whether or not 2.8 kHz is the proper maximum bandwidth for data emissions. Some say that greater bandwidth for data emissions should be permitted

in order to permit a wider array of data emissions now and in the future. Others argue that 2.8 kHz is too wide, permitting usurpation of the band to the detriment of CW and narrow bandwidth emissions.

- ARRL attempted, in adopting the 2.8 kHz maximum bandwidth proposal for data emissions at HF to balance the two objectives of facilitating use of new and future data emissions and protecting against usurpation of the band by a few data stations. Some bandwidth limit is necessary if the outdated symbol rate limit is eliminated, as it should be. It would not be possible to reduce the permitted maximum bandwidth for data emissions at HF much below 2.8 kHz without prohibiting data modes that are in legal use now. At the same time, it would not be desirable to have a few data stations using large swaths of spectrum to the detriment of other modes.