

Dear Commis sioners:

This comment is a reply to recent comments that claim the proposed RM-11708 does not impact, or increase the interference to, current narrowband users of the lower HF portions (the CW/data portions) of the amateur radio bands.

I make these comments as a technical expert, having served as a former member of the FCC Technological Advisory Council, and having testified before congress in spectrum proceedings in the past. I am a life member of the ARRL and have been a licensed amateur radio operator (N9NB) for nearly 40 years.

FACT: RM-11708 would undo the existing legal protections for the tens of thousands of US narrowband amateur radio users who currently enjoy narrowband CW, RTTY, and PSK31 data modes (modes that use bandwidths well under 500 Hz) at the low end of the HF amateur radio bands, since RM-11708 would immediately specify, by law, the explicit allowance of wideband digital signals with no limit on baud rate, thus permitting wider bandwidth high data rates signals with information content comparable to today's SSB and image/phone signals. These wideband digital signals, if they are allowed to have a baud rate greater than 300 baud, would drastically interfere with the existing narrowband users, since the occupied bandwidth of "useful" communications is directly proportional to the baud rate or symbol rate of the signaling. With all things being equal, a radio signal that uses an increased baud rate uses an increased bandwidth. Wider bandwidth signals, as proposed by RM-11708, will interfere dramatically with existing CW/RTTY/PSK31 users if they are allowed to have a signaling rate of greater than 300 baud.

FACT: RM-11708 attempts to remove the current limitation of 300 baud (or, 300 symbols per second) in the current FCC law, yet this baud rate limitation is critically needed to maintain the existing protections from wideband interference that incumbent users must have in order to continue to carry out narrowband CW/Data communications such as CW, RTTY and PSK31. It is worth nothing that narrowband communications serve the public in emergency, requiring the smallest signal to noise ratios and occupied bandwidths, and is most reliable for use with modest antennas and equipment. The baud rate limitation of 300 baud serves to limit the bandwidth of all CW and Data transmissions in this portion of the amateur spectrum.

FACT: As is presently written in FCC regulations, the use of ?baud rate? or ?symbol rate? is necessary to ensure protections of narrowband signals that use the lower portion of the amateur bands (the narrowband CW/Data amateur radio bands in the HF spectrum). The existing 300 baud limit works to ensure that spectrum efficiency and occupied bandwidth are harmonized to ensure that current narrowband users are protected in this CW/Data-only portion of the ham band. These protections have allowed CW and RTTY, and other novel narrowband data transmission techniques such as PSK31, to flourish in user bandwidths that are well within 500 Hz, while being protected from wide band interfering users. Proponents of RM-11708 offer a misleading argument by claiming that RM-11708 offers no impact on CW/narrowband users, and assert that "wideband digital signals are already allowed today with current rules." While this may be legally accurate (since legally, an amateur radio operator perhaps may be allowed to operate a 300 baud transmission that covers, say, 100 kHz of bandwidth in the CW/data sub band), this is a red herring and is not a technically meaningful or accurate argument, since such inefficient wideband digital signals operating at 300 baud are not used today, as they occupy too much bandwidth for the signal to be useful or commercially viable -- such signals would barely be received by hams at the other end because of the wide bandwidth and large noise levels (and other signals from narrowband users), and the Signal to Noise ratio would be too poor for such mythical wideband digital signals to have commercial adoption or meaningful use in the amateur radio service. Thus, in practice, hams do not use wideband digital modulations in the protected (300 baud) narrowband CW/data sub band, as they are quite inefficient/ineffective for two-way communication. Current CW and RTTY/PSK31 operators are thus inherently protected by this 300 baud limit, and the existing FCC rules have served the CW/RTTY/PSK31 community well.

FACT: The current law properly uses the term " baud rate" or "symbol rate" with a

limit of 300 baud to ensure that there is a limited bandwidth for all meaningful users who currently occupy the lower amateur spectrum. In light of the above facts, the claim by proponents that RM-11708 does nothing to affect the current users of the lower portion of the HF bands in the amateur radio service, is both misleading and not accurate, since the current law uses the baud rate/symbol rate to protect CW, RTTY/PSK31 and other narrowband data users. The proposed RM offers to introduce wideband interference into the bands used by these protected narrowband users. In summary, the claims by proponents that the proposal does nothing to impact existing incumbent users is false.

FACT: It is clear that the existing FCC laws provide the needed protection for narrowband users in the lower portion of the HF amateur radio bands. Today's existing laws properly protect narrowband incumbents like CW and RTTY/PSK31 users precisely with the use of baud rate/symbol rate terminology, and the limitation of 300 baud. In practice, narrowband users are protected by existing FCC rules, since inefficient wide band data signals at 300 baud would lead to poor Signal to Noise ratio and poor usability in the CW bands ? they simply are not used. Said another way, the spreading out of transmitted energy, while limiting the baud rate (symbol rate), ensures that there is minimal interference for narrowband users, so the current law protects CW and RTTY/PSK31 operators, and should not be changed.

FACT: The proposed RM 11708 is an attempt to allow wideband data signals into a portion of the amateur radio spectrum expressly dedicated to narrowband (e.g. 300 baud) transmissions. If allowed, RM-11708 would allow wideband digital data to operate in the protected CW only band, and would flood the narrowband users with interference. This RM proposes to introduce data signals with the same bandwidth and similar power spectral densities of phone/SSB/AM signals (of similar 2.8 KHz bandwidth), and is a blatant attempt to circumvent current FCC rules that protect current narrowband users of the CW-only portion of the bands from such wide band interferers.

FACT: The FCC has never before allowed the encroachment of Voice/Phone or similarly "useable" signals having 2.8 kHz bandwidth to occur in the lower portions of the amateur radio HF bands. Yet, RM-11708 pleads for the allowance of data signals of comparable SSB bandwidth to coexist with the narrowband users of the CW-only sub band. Thus, RM-11708 attempts to undo the FCC's intended use of the amateur radio service for narrowband (300 baud) users of the lower end of the HF amateur bands (i.e., the CW/data amateur sub band in the lower band portion of the amateur HF allocations). These incumbent narrowband users (CW, RTTY and PSK31 users) have enjoyed historic protections from wider bandwidth signals, such as voice/phone users within their sub band, as the FCC has ensured that narrowband (300 baud) transmissions could occupy this portion of the amateur spectrum.

ASSERTION: Given the fact that new digital modes that occupy more than 300 baud may have spectral occupancies that are on the order of existing SSB signals and image/SSTV/ATV signals of comparable bandwidth, these new "wideband" digital signals must not be allowed to interfere with existing narrowband (300 baud) users of the protected CW/data band. The petitioners would do better to allow such wideband signals to exist with the wideband SSB and image signals of similar bandwidths.

ASSERTION: Another reason that these wideband digital signals, proposed by the ARRL in RM-11708 should be placed in the Phone/Voice sub band of the amateur radio service is that the modern transceivers that produce all ham signals, including these wideband digital signals and today's SSB signals, are all based on digital signal processing techniques, and SSB is simply a form of QPSK, a common digital modulation that could easily be represented as a wideband digital signal as is being proposed for use in RM11708. Thus, the bandwidths of SSB and the proposed wideband digital data modes are equivalent, and easily produced with identical circuitry. The FCC never allowed SSB or phone signals into the CW-only bands in the past, and the FCC rules currently ensure this necessary protection of the narrowband signals. This RM attempts to undo this decades-long protections in the lower end of the amateur HF bands, and must be rejected.

SUMMARY: The ARRL and RM-11708 attempts to undo the historic protections of CW and narrowband data users and uses a red herring argument to try and eliminate the requirement of 300 baud (which is the ultimate protector for CW/RTTY/PSK31 and incumbent users). On its FAQ for members, the ARRL gives the misleading appearance that nothing is being changed by the RM with respect to current narrowband users, when in fact removal of the 300 baud ?symbol rate? takes away the key protections that CW and other narrowband users require to be able to enjoy this segment of the band. In short, this RM is an attempt to bring digital signals with image and SSB-like bandwidth, into the protected CW-only portion of the spectrum where rules exist to protect these narrowband users..

CLOSING: As shown above, RM-11708 attempts to undo the FCC's intended use of the amateur radio service for narrowband (300 baud) users of the lower end of the HF amateur bands (i.e., the CW/data amateur sub band in the lower band portion of the amateur HF allocations). These incumbent narrowband users (CW, RTTY and PSK31 users) have narrow bandwidths of less than 500 Hz and have enjoyed historic protections from wider bandwidth signals, such as voice/phone users within their sub band. The FCC has ensured, through regulation, that only narrowband (300 baud) transmissions could occupy this lower portion of the amateur spectrum, and the rules have provided the vital protection from interference from wider band users. These narrowband users need continued protection by the FCC from the proposed wideband signals, so that they may ensure continued enjoyment of narrowband operations in the lower end of the HF amateur radio bands. RM-11708 must be rejected to honor the long-standing protection of narrowband users who offer a great many technical contributions and provide ready low-power emergency capabilities with such tiny bandwidths.

Respectfully submitted,
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N9NB