

**Regarding RM-11708
Amendment of Part 97 of the Commission's Amateur Radio Service Rules to
Permit Greater Flexibility in Digital Data Communications**

To: The Chief, Wireless Telecommunication Bureau

Comments of Jeffrey Blaine, Amateur Radio Station AC0C

December 22, 2013

I request the FCC deny the petition on the basis that the changes as written are A) not needed for the stated purposes, B) will necessarily lead to increased interference and congestion, C) restrict the ability of amateurs to self-police, and D) see increased use of the amateur bands for activities which have been specifically limited in the past by both the FCC and internationally by the IARU.

The arguments supporting these claims are as follows:

1. The petition states that the symbol rate restriction prevents the development of modern communication methods. The evidence simply does not support this.

Many other countries already have an active amateur radio tradition, strong domestic technical communities and no symbol rate restrictions. If a digital mode utilizing a high symbol rate were needed, it logical the need would have been filled by industry or capable amateurs in other countries.

However, there exists no commonly used high-symbol-rate mode which is popular among the non-US global amateur population. So either the benefit of high-symbol-rate modes is great - and other countries have been unable to create these needed modes. Or, the benefit of high-symbol-rate modes is not of actual benefit to amateur digital communications for other reasons.

The latter is the case; due to the nature of atmospheric propagation, slow symbol rates are actually preferred for HF communications as they are more readily able to survive the interaction with the earth's ionosphere. High symbol rate modes require an error correction facility which is inherently wasteful of bandwidth. For this reason, many popular digital communication modes are popular on a global basis in the amateur community. The most popular is PSK31 (and it's higher speed variants) and the weak-signal JT-series (and its variants). All of these

modern digital modes are of the narrow-band, low symbol rate nature; all inherently conservative in use of spectrum.

2. If the symbol rate restriction is not inhibiting development of useful amateur radio protocols, perhaps digital modes do exist which would be legalized by the proposal? I believe this is the root driver of this proposal; specifically a wide-band digital mode called Pactor 4 (P4).

Pactor 4 is the preferred mode for users of email-by-HF most popularly known as Sailmail. Sailmail is an FCC licensed organization that caters primarily to the off-shore boating enthusiasts, primarily for the purpose of facilitating email-by-HF radio.

Based on the success of Sailmail using the P4 hardware, other groups interested in email-by-HF-radio are eager to see this mode legalized.

Many of the comments provided to the FCC specifically mention this device/mode.

3. If Pactor 4 becomes legalized, it greatly increases the difficulty to implement amateur radios' critical self-policing role.

Pactor 4 is a proprietary implementation, owned by the "Spezielle Communications Systeme GmbH & Co. KG," (SCS) a German company. The company's web page for the hardware modem may be found here:

<http://www.p4dragon.com/en/Home.html>

Popular amateur radio modes are open-sourced and available with low or no cost software. The low cost and wide availability of software allows amateurs the ability to self-police. Self-policing is fundamental to the success of the amateur radio community.

Unfortunately, because Pactor 4 requires a hardware modem available only from SCS, the willing amateur operator would not have similar ease to monitor these proprietary communication exchanges between P4 stations. The inability to self-police largely eliminates the amateur service's ability to continue self-policing and as such this opens the door to potential misuse of spectrum.

4. There are further complications with an expanded email-by-HF presence; all of which are reasons that 97.221 as well as the recent IARU bandplan guidelines recommend limiting the operation of these stations.

Increased interference: email-by-radio implementations typically involve an automatically-responding station locally tied to the internet. These stations respond on an automatic basis to an interrogation by a remote caller. Depending on the software implementation, there are limited capabilities to determine if the frequency. Largely the responsibility of determining if the frequency is occupied falls to the remote caller alone.

FCC 97.221 is not-applicable. At least one popular email-by-radio software developer group states on their web site that section 97.221 is not applicable because the remote caller serves as the shore station's control operator. And for this reason, the sub-bands traditionally assigned to automatic-responding stations may not be universally honored in the future.

5. The bandwidth proposed by the ARRL is excessive.

The proposed bandwidth limit of 2.8 KHz was picked for its compatibility with amateur voice-capable equipment. Yet the band segments where digital operation is allowed now is quite small; in some cases as little as 20 KHz. This contradicts the notion of efficient bandwidth use. I believe that a 2.2 KHz limit would encompass all existing legal modes now used by amateurs and as such is a more suitable limit.