

Before the
Federal Communications Commission
Washington, DC 20554

In the matter of:

Amendment of Part 97 of the Commission's Amateur Radio Service Rules to Permit
Great Flexibility in Digital Data Communications

RM-11708

To The Commission & Whom It May Concern:

In brief: I am in favor of the proposed amendments to Part 97 as outlined in this NPRM
and the petition that generated it.

I agree with the general statements by the American Radio Relay League (ARRL) that
the current symbol rate limits in Section 97.307(f) are long outdated and obsolete.
The current rules impede communications by digital mode users within the United
States by unreasonably limiting them to symbol rates that were outdated over 20
years ago.

Specifically:

I am currently a licensed Amateur Radio operator, and have held an Amateur license
since 1972. I've held the Amateur Extra Class for almost 30 years. I operate on
many of the existing communications modes available to the Amateur Radio
Service, including several of the digital modes.

In addition, professionally, I am currently employed as an Applications Specialist for a
small insurance broker. Despite that title, my duties include those of a database
administrator, and as a network administrator, both of which are positions I have
held with other employers.

While I do not claim to be an expert, I do believe I have sufficient experience and
background to intelligently comment on the proposal.

Essentially, the NPRM addresses two primary items: Removing the symbol limit, and (as
a result of that) establishing a maximum allowable bandwidth for all digital
signals below 29.7 MHz.

I would like to address the proposed maximum bandwidth limit first.

At present, Part 97 does not appear to directly address a maximum bandwidth limit below
29.7 MHz. As a practical matter, there are two limitations that may preclude, at
present, the need for a specific regulatory limit. One of those limitations is the

current symbol rates. Since faster rates can not be used, there is simply no need for most modes to use a wider bandwidth. This also means that should there be a need to use a faster rate, that would indirectly require a wider bandwidth, it can not be legally used in the Amateur Radio Service. As a result, possible use of faster modes... modes which are legal and which are (potentially) in use in the rest of the world are unnecessarily and unreasonably off-limits to current US Amateur Radio operators.

The second limitation is more technical, and more practical. Most Amateur Radio operators are using the same transmitters or transceivers for digital communications that they use for analog communications; specifically, most data is transmitted by transmitters while operating in Single Sideband (SSB) modes.

Most SSB capable transmitters are designed to use a maximum communications bandwidth of approximately 3 kHz. So as a practical matter, without significant modification, a digital signal can NOT be wider than 3 kHz today.

Section 97.307(f)(2) currently limits the bandwidth of non-voice transmissions in the voice sub-bands to (effectively) the same 3 kHz bandwidth. While strictly speaking, this sub-paragraph does not technically apply to the data modes, as a practical matter (when considering the nature of an SSB transmission), it does.

With this in mind, the request to regulate a data transmission to a maximum bandwidth of 2.8 kHz makes sense. In reality, it is simply codifying the existing maximum bandwidth limitation, and conforms with existing Amateur Radio practices. It also removes the possibility that, if the symbol rate limits are removed, a handful of super-wide high-speed data transmissions could saturate the portions of the bands where digital signals are allowed.

Which leads to the proposal to drop the existing symbol rate limits.

Simply put, the current limitations are long obsolete. Amateur Radio operators may be the only people who are still using data rates as low as 300 baud on a regular basis, but we do so because we have to. Technology has made faster speeds reasonable and practical.

Some argue that an outright removal of the rate limits is not a good idea. They raise concerns about automated or semi-automated stations that would push other users aside. The proposed 2.8 kHz bandwidth limit avoids some of these concerns, as there will be practical speed limits with that bandwidth. More importantly, though... we stifle potential new communication modes, even if we won't see them for 5 to 10 or more years to come, with an artificially low limitation.

The existing data modes (such as PSK-31) that combine the slow speed and a very narrow bandwidth to provide exceptional communications will still remain. They are too well established to disappear overnight. And like other modes which,

strictly speaking, may be technically obsolete today (such as AM, analog SSTV, and some would argue, CW) , they will live on for decades as long as their supporters continue to use them.

Development of new modes to augment the narrow modes will continue. Some may even become popular and generally accepted. Removing the symbol rate limits... or at the very least, changing those rate limits to faster baud rates than currently allowed... will simply encourage development of potential new modes, and provide additional options for the developers to consider.

I am aware of discussions in various on-line forums that show that there are a relatively small group of individual Amateurs who are not happy about the proposed changes. Some of their concerns have merit; concerns about specific proprietary or semi-proprietary modes (PACTOR III and PACTOR IV often mentioned); or concerns about certain users of those modes; or concerns about new digital users and/or digital modes that the existing digital sub-bands will have to accommodate.

While these concerns, and others have varying degrees of merit... and I do not want to give the impression that their concerns should be ignored, for they should not be... opposing this proposal is not, in my opinion, going to alleviate them.

Yes, there may be unintended or unforeseen consequences:

The bands may get more users. I don't see how this could be bad. We simply have to learn to share, to put it bluntly. It may mean that several years from now, a reallocation of the sub-bands to make more "elbow room" available will be required. But let's wait and see if that becomes necessary. These new users and new modes won't magically appear overnight; it will take months, or even years, before this becomes anything close to a concern.

More wide-band digital modes will, in time, become available. Some will be adopted and used. The users of the modes simply **MUST** follow FCC rules, as well as good Amateur practices, to avoid interfering with existing users.

However, I don't believe that we'll see a "saturation" of those parts of the bands where these modes will congregate. I think some people are forgetting that the trade-off between a faster mode is that while it may use more bandwidth to send the same amount of data, it will do so faster. I suspect we will see more use of "data bursts" rather than continual transmissions. Which means that more people will be able to use that spectrum; they'll just take turns. Not at all unlike a high speed computer communications network, like a 1 GHz Ethernet that uses packet switching. Possibly we may even find a different, if not necessarily better, way to do it. If we don't open the possibility of developing these new communications technology, we'll never know.

There are concerns about use/abuse of automated stations. There are concerns about use/abuse of the PACTOR III & IV modes, which currently require an expensive communications modem only available from one source. These are legitimate concerns... but this NPRM is not the place to discuss those, as these are different sets of regulations that may need adjusted.

I would also point out that the rules for these modes, and the automated stations, are different for many areas outside of the United States & its territories and possessions. I would be more concerned about these modes, stations, and their use/abuses, if we saw evidence of it, even on a smaller scale, from other parts of the world. I don't see the evidence of a widespread problem, and I don't foresee that we are opening Pandora's Box to these potential problems in the problems. That's not to say that the Amateur community shouldn't be vigilant against it... just that at present, this is not a matter that needs to be addressed by the Commission.

In Summary: The symbol rate limits are obsolete. They date back to the middle-to-late 1970's, and were enacted in 1980. The state of the art has progressed a great deal in 33 years.

RM-11708 adequately addresses these issues and would bring, from a regulatory standpoint, authorized data communications in line with current practices in other radio services and in other countries.

They should be adopted, and I urge the Commission to do so.

Sincerely,

Ronald J. Notarius
Amateur Radio Station W3WN