

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	RM-11831
Amendment of Part 97 of the)	
Commission's Amateur Radio Service)	
Rules to Reduce Interference and)	
Add Transparency to Digital Data Communications)	

To: The Chief, Wireless Telecommunications Bureau
Via: Office of the Secretary

REPLY TO COMMENTS

I, Ron Kolarik, author of RM-11831, would like to thank the Commission for the speed in issuing the petition RM status. I would also like to clarify some misconceptions about what the petition is, and is not. The petition was solely my idea and produced with input from other digital mode amateurs, and past comments on RM's 11306, 11708 and WT 16-239. To date there have been 445 comments, most in opposition to the petition. In reviewing the comments, there are primarily three groups opposed to open, transparent amateur radio communications, The Amateur Radio Safety Foundation Inc. (ARSFI), emergency communicators, and the boating community. It's worth noting that no other digital users, or groups, filed opposition comments to the petition. Responses are provided to each group individually below even though some comments may be related.

1. What the petition won't do.

- A. Will have no impact on digital voice modes, or any digital mode for which an over the air (OTA) decoding solution currently exists.
- B. Does not request a ban of any current mode.
- C. Does not affect current baud rate or bandwidth rules. Petitions addressing those issues already exist and are not part of this initiative.

2. **What the petition will do.**

- A. Only two simple changes requested.
- B. Moves all 97.221(c) operation into the ACDS segments with other unattended stations.
- C. Requires a decoder be provided for OTA decoding of current and future digital modes.

3. **Open source decoders.** The request for open source decoders was so that amateurs could ‘get under the hood’ to see what makes things work. "Open source" encourages "advancing skills in both the communication and technical phases of the art" and to keep amateur radio open to any and all interested. It was meant as a goal, not an absolute requirement. Any new or existing digital mode must have a decoder capable of OTA monitoring, ideally but, not necessarily, open source. An internet accessible message database, as Winlink¹ recently made available, is not a substitute for OTA monitoring. The next new mode, or system, to come along may not provide such access, peer-to-peer digital connections may not be inclined to keep a message log on the internet, and an internet connection may not be readily available for real time monitoring. To accept an internet accessible database as a substitute for OTA monitoring would require a rules change to force compliance on all users. The need for OTA monitoring can not be over emphasized to ensure amateur spectrum remains amateur, not commercial, or other inappropriate use of the spectrum. Many commenters claimed this requirement would stifle innovation with no clearly defined reasons why that would be the case.

4. **Digital mode and station identification problem.** A recently posted video documenting the problem of mode identification, by K2MO,² demonstrates the problem quite well and offers several solutions. It becomes very easy to get station identification once the mode is known and the proper decoder selected, if the monitoring station happens to be running appropriate software at the time. There are efforts by amateurs to get Reed-Solomon Identification (RSID) accepted by more digital users as a means to identify digital modes. RSID, the creation of digital modes software developer,

1 https://winlink.org/content/us_amateur_radio_message_viewer

2 <https://www.youtube.com/watch?v=nw kz0GNpA0I>

Patrick, F6CTE,³ has been released to the public domain, incorporated into other amateur digital software packages,⁴ it currently supports over 100 digital modes and growing. However, cw continues to be the most universal form of identification, recognizable and decoded by ear or software.

5. The Amateur Radio Safety Foundation inc. (ARSFI), and many commenters on this petition, chose to make it about Pactor, Winlink, and emergency communications, as they did on RM-11306, 11708 and WT 16-239, when it's about getting amateur radio back to an open service available to all, and neither Winlink, Pactor, nor emergency communications are mentioned in the petition. Most of the opposition comments seem to have been driven by scare tactics used by ARSFI in a letter⁵, circulated on emcomm and boating forums, declaring Winlink "will be forced to close shop" if RM-11831 becomes effective. The inflexible position and tactics exhibited by ARSFI should be taken into account when evaluating the comments.

6. **Elimination of 97.221(c).** ARSFI⁶ said that eliminating this rule would "pollute" the ACDS bands with dissimilar, incompatible modes while ignoring the fact that unlimited bandwidth digital signals are allowed anywhere in the RTTY/Data sub bands under current rules, with "dissimilar incompatible modes". Using this logic it's okay to "pollute" the rest of the spectrum but not the ACDS segments. The band occupancy "study" of 97.221(c)⁷ stations only focused on Winlink usage over a very short time span. The results of the "study" showed very low band occupancy that could easily be accommodated, in the ACDS sub bands, if users of the ACDS sub bands were willing to come to sharing agreements among themselves. Slightly more spectrum could be allocated to ACDS operations to accommodate the "insignificant" additional "study" traffic but, that's a subject for a different petition, not the current one.

3 http://f6cte.free.fr/index_anglais.htm

4 http://www.w1hkj.com/RSID_description.html

5 <http://www.cruisersforum.com/forums/f13/pactor-banned-from-the-usa-216519.html>

Also in appendix.

6 <https://ecfsapi.fcc.gov/file/10410668215598/RM-11831%20Motion%20to%20Dismiss%2BPetition.pdf>

7 Gordon Gibby analysis: <https://ecfsapi.fcc.gov/file/10408063816674/FCCRM11831-2.pdf>

7. From the ARSFI Motion, “Though the petitioner and his proponents think this will reduce the potential for interference, the ITU rules and the rules of other countries and our neighbors Canada and Mexico do not limit and allocate spectrum for digital emissions like the US does, so the potential for interference is not alleviated by any change of US rules”. ARSFI then goes on to say, “the RM-11831 proposed changes will make the USA an island within the ITU rules, offending our neighbors”. This makes no sense, how will our neighbors be offended by putting all ACDS activity in one designated segment? Once the activity is known it can easily be avoided by everyone, domestic or otherwise. Canada and Mexico allow phone operations well into the US RTTY/Data sub bands. Should US amateurs be offended by this? What other countries rules are should have no bearing on this petition.

8. ARSFI Motion, “The proposed deletion of §97.221(c) will also remove §97.221(c)(1), which requires ACDS stations to respond only to another station under local or remote control. Without the requirement for a vigilant human control operator to initiate an ACDS station's transmissions, interference potential grows quickly”. The rule, §97.221(c)(1), does not apply to stations operating under 97.221(b). There is no requirement, in the ACDS sub bands, for a “vigilant human control operator” to initiate transmissions. If such a requirement did exist Winlink auto forwarding, or other auto forwarding stations, would be unable to function. A “vigilant human control operator”, on both ends of a communication, is the preferred method of operation, but not a requirement in the ACDS segments.

9. ARSFI offers an alternative to the proposed changes in §97.309(a)(4) in their Motion to Dismiss, “35 U.S.C 112 (a) offers the concept of an enabling disclosure [with substitutions]”, without specifying what substitutions. As written Spezielle Communications Systeme GmbH & Co. (SCS), the only manufacturer of Pactor modems, and others, would be forced to fully disclose their protocols to a level that would allow duplication. It would be interesting to know what “substitutions” ARSFI had in mind to sidestep that detail. The ARSFI letter⁸ admitted Pactor 2-4 were not fully disclosed by SCS. The

8 See Appendix

same letter also admitted none of the other modes used by the Winlink system had an available decoder to allow third party over the air monitoring, and they would be forced to provide decoders or “close shop”. Since ARSFI claims their system is ‘mode agnostic’, given the multitude of available open modes, this is an extreme and limiting position demonstrating a lack of willingness to address open communications in the amateur radio service by failing to consider alternative modes, or provide decoders.

10. ARSFI stated “It is reasonable to require disclosure suitable for a person skilled in the art (with a background and knowledge of DSP). DSP has been taught in universities for 50 years, so it is truly accessible.”, and complained anyone not willing to do the necessary work to produce a decoder only wanted “free” software, or to avoid paying for someone’s intellectual property. The “necessary work” to produce Pactor 4 took one very experienced person 3 years of full time work with additional support amounting to 20 man years of effort.⁹ To expect, as ARSFI does, amateurs “skilled in the art” to write a decoder for ‘complex’ modulations falls into the realm of quite ‘unreasonable’. The only “free” item in the equation is a free email service provided by Winlink. ARSFI further warns “As computers and radio merge, become software-defined and more sophisticated, new advanced techniques will arrive and those like ARQ and compression inevitably will become more sophisticated and complex, further challenging a third-party trying to eavesdrop over the air.” and “Requiring *only* over-the-air monitoring, other than ID, will stifle technical progress, and unreasonably deny valuable, life-saving communication tools of high utility from the US amateur radio community.” This will continue to erode the open nature of amateur radio, further devolving into an essentially private network. How will requiring OTA monitoring, “stifle technical progress, and unreasonably deny valuable, life-saving communication tools of high utility from the US amateur radio community”? It’s a simple proposition, if a developer wants to put an advanced digital mode on the amateur bands provide a decoder, ideally

9 <https://kc4bqk.blogspot.com/2011/05/scs-new-pactor-4-modem.html> also see appendix

open source, for over the air monitoring. The protocol should have a receive capability written in, it would be useless without it, there should be no additional hardship to provide a receive only application.

11. Emergency communications commenters. Amateur radio emergency communications (emcomm), does provide a valuable public service but, amateur radio is not an emergency service as the FCC and ARRL have stated many times. The overemphasis on emergency communications, to the exclusion of all else, does a disservice to everything that amateur radio has to offer. It's a shameful embarrassment that emergency communicators got duped into commenting by ARSFI threatening to "close shop". This group also claimed great harm to emcomm, with no supporting evidence other than the loss of Pactor and the Winlink system, nothing in the petition refers to, or bans either one. The emotional responses to the ARSFI letter declaration to, "close shop" on HF, exposes a deficiency in amateur radio emcomm preparedness. Dependency on a single HF system, or mode, that can, at the drop of a hat, "close shop" in response to a perceived "threat", does not inspire confidence in the system. Clearly the emcomm comments were not opposed to the actual petition proposals but, a reaction to the Winlink letter. Again, the petition bans nothing, it only requires a decoder for OTA monitoring be made available.

12. The boating community. The reliance on amateur radio for safety of life at sea is questionable at best and dangerous at worst. The USCG will not respond to email distress messages, as suggested by some of the comments, only telephone or radio calls. Ample marine radio resources exist to fulfill the data (email) need. The comments from recreational boaters further confirm this community is abusing amateur radio to bypass reliable, readily available, for fee, commercial services. A few of the commenters cited potential loss of equipment investment should the provisions of RM-11831 be accepted, while ignoring the fact identical equipment is used for both amateur and marine radio over HF SSB. The only additional requirements are a marine radio license and a marine qualified SSB radio, which should be standard equipment on any ocean going vessel. To venture beyond VHF range without

an HF SSB marine radio is irresponsible. The comments from this group are also a reaction to the ARSFI letter threatening to “close shop”, and not the petition, which bans nothing.

13. Conclusion

Considering all the opposition comments, what is the amateur radio service today?

Is the amateur radio service:

1. An emergency service as many commenters believe?
2. A free email to internet bridge service?
3. A bypass of for fee marine services?
4. A closed, private network service?

Or, is amateur radio a service open to experimentation, learning, skills development, and person to person communications? The comments in opposition to the petition take a very narrow, limited view of the service and show that some rules are in serious need of review, change, elimination, and enforcement. The limited resources the Commission has to devote to amateur radio monitoring and enforcement makes open over the air monitoring of all amateur radio transmissions, by all amateurs, extremely important for self-policing.

How the FCC acts in this matter sends a strong message that it takes seriously the misuse of amateur radio spectrum and the orderly implementation of current and future digital modes.

I would like to thank the Commission for the timely consideration of RM-11831, and also thank the many commenters.

Respectfully submitted,
/s/
Ron Kolarik
ARS K0IDT

APPENDIX

footnotes 4 & 7 pactor banned from the usa?

I received this [email](#) from winlink

This is NOT an April Fool's joke!

The FCC has just opened for comment RM-11831, a proposal for [rule](#) making that would do two things the the US amateur [radio](#) rules:

1) remove paragraph (c) of 97.221. This would disallow narrow-bandwidth ARQ modes of 500 Hz or less from outside the specified 97.221 sub bands for automatically controlled digital stations. This will require Winlink HF gateway stations, regardless of mode/technique, to only operate within these narrow sub bands.

2) modify the wording of 97.309(4) thusly:

(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](#),* (remove *-*, add the following 😊 and the protocol used can be be monitored, in it's entirety, by 3rd parties, with freely available open source [software](#), for the purpose of facilitating [communications](#).

This effectively eliminates [Pactor](#) 2, 3, and 4 from the US amateur bands unless SCS steps up and publishes complete technical specifications including their proprietary signal processing methods, and produces an open-source monitoring program allowing on-air eavesdropping by third parties.

The Winlink Team will have to produce monitoring [software](#) for an unconnected eavesdropper for WINMOR, ARDOP. VARA's author must do the same. The alternative is for Winlink to close shop for US licensees on HF amateur bands.

See and read the new proceeding from the link below. The 30-day comment period opened on 28 March.

<https://www.fcc.gov/ecfs/search/fili...seminated,DESC>

Unless we receive support from users on this serious threat, Winlink will be forced to close shop on HF in the USA. US and non-US users and gateway operators are urged to educate themselves and comment!

Sincerely,

Lor Kutchins, W3QA

Winlink Development Team

President,

Amateur [Radio Safety](#) Foundation, Inc.

footnote 5.

[Eberhard Gamm July 21, 2011 at 1:07 AM](#)

I have designed the speedlevels 2-10 of Pactor 4, see www.ibega.de/proj.htm (available in german only). It took three years of full-time work to develop the algorithms with MATLAB, to build a PC-based demonstrator for on-air tests, and to implement the algorithms on a quad-core DSP with a lot of heavily-optimized hand-crafted assembler code. No single person and no community can do this for free. It requires leading-edge expertise in many fields. Similar developments in the defense industry (for example, MIL-188-110 or STANAG 4539) cost millions of dollars. The next generation (P5) will be even more complex.

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