

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

In the Matter of)
) **RM-11708**
Amendment of Part 97 of the) **RM-11759**
Commission's Amateur Radio Service) **WT Docket No. 16-239**
Rules to Permit Greater Flexibility) **PSHSB 17-344**
in Digital Data Communications)
)
Submitted by: Ron Kolarik ARS K0IDT)

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

Reply to and rebuttal of comments from SCS, ARSFI, SSCA, et al.

1. I am an Extra class amateur radio operator, first licensed in 1987, my background is in avionics, and more recently the digital data transportation layer of the telecommunications industry. I'm very concerned about the direction some want to take the amateur service. A few groups, and individuals, only see amateur radio in terms of their own narrow agenda and don't have the best interests of the service, as a whole, in mind. The attempts to turn the service into a mass of unintelligible digital signals, only decipherable by those directly linked using those modes, is not in the best interest of the service, nor does it serve the public good. The notion that the 300 baud limit is holding back innovation is a distraction, real innovation is working within current constraints/limits to produce new communications methods. If amateur radio operators all used the same digital mode, the often heard bits/sec/Hz definition of efficiency might hold true, but the reality is amateur radio is a mixed mode, strictly personal, non-business hobby, and by design is a service where everything is not digital, and efficiency is defined differently for each mode. Allowing wider bandwidth modes to have, obscured, non-open protocols, and unfettered access throughout all of the very narrow HF RTTY/Data sub bands, as suggested in NPRM 16-239 and ARRL's RM-11708, is a recipe for disaster, and perpetuates ongoing violations of critical FCC rules that require the hobby to self-police though open monitoring of the public airways that ensures the hobby is not used as a replacement for a commercial maritime email service.

The recent filings, in the above captioned proceedings, by Specialized Communications Systems (SCS), the Amateur Radio Safety Foundation Inc.(ARSFI), the Seven Seas Cruising Association(SSCA), and RM-11708 filed by the ARRL, all fail to address current problems in the amateur bands, promote only their special interests, and demonstrate the continuing abuse of amateur spectrum. Judging by the flood of comments, the proceedings and filings are less about "symbol rate modernization", than about special interests, including the ARRL and ARSFI, to legalize Pactor 4 for questionable purposes.

2. SCS reply to Scot Stone

<https://ecfsapi.fcc.gov/file/110731917879/16-239.pdf>

SCS was asked to provide a source for the technical characteristics for Pactor 3-4. The reply was

somewhat responsive, but also included the statement that “offering complete insight to our technologies also means releasing corporate secrets.” According to this statement, all technical characteristics are not available.

The one question that wasn't asked in the letter to SCS, and needs to be answered is, can compressed ARQ Pactor 2-4, as used on the amateur bands today, be fully decoded on-air, to include the content, not just the headers and initial connect negotiations, which are sent in open source Pactor 1 for all versions to maintain compatibility? Readily available software decoders, such as Digipan (<http://www.digipan.net/>) and Multipsk (http://f6cte.free.fr/index_anglais.htm), are capable of only receiving Pactor 2-4 initial calls and limited connect negotiations, sent in Pactor 1 mode.

It is vital to note, however, that ScS, Arri, ARSFI, and other Winlink enthusiasts, have for decades sidestepped the fact that the body of the message cannot be readily intercepted by third parties. Quote from ARSFI letter to Chairman Pai, “It should be noted that within Winlink, station IDs, message and transaction information are always sent in clear text and can be intercepted easily by laymen on-air using the same equipment and software the sender and receiver use.”

*FCC must pay special attention here- SCS, and ARSFI, make no mention of the possibility to intercept the message content, and therefore does not satisfactorily address the FCC inquiry. In fact, by this formal filing, SCS admits their proprietary protocol effectively encrypts the message, and remains an undocumented, unspecified code. Winlink claims Pactor, and other protocols, as used in their system, are fully documented to a level that allows development of decoders sufficient to monitor their transmissions. No practical decoder has been developed, or otherwise made available, for the various protocols used by the Winlink system. The SCS response to the FCC, and the failure of Winlink to accept the many past challenges to demonstrate their communications can be monitored, only serves to prove the communications are closed and private. In a recent ECFS comment, one of the Winlink users admitted to what Dr. Rappaport and others have been telling the FCC – messages cannot be intercepted, even by other's in the Winlink System. See the comment by Mr. Van Iue posted on Dec. 24, 2018: <https://www.fcc.gov/ecfs/filing/1222718116209>

3. ARSFI

https://ecfsapi.fcc.gov/file/120566997404/ARSFI_Comments.pdf

As in the SCS reply above, the simple question of whether or not Pactor variants, or other modes used by Winlink, can be openly decoded by an observer, requires an equally simple Yes/No answer. Winlink gateway operators cannot see traffic moving through their stations locally. To trust that ARSFI will self-police their communications is like asking a bank robber to guard a bank vault. As long as Winlink controls the data, over-the-air intercept is not possible, and the unedited Winlink message database is not publicly available, it remains a hidden, secure/private transmission.

ARSFI repeatedly cite the wrong rules, claim the rules do not apply to them, or come up with “creative” interpretations of the rules, as detailed below. Large parts of the Winlink web site are devoted to marine email use, despite the emergency communications wrapper they put on it.

One of the links in afternote 13 of the ARSFI filing points to a post, ironically on a sailing forum, for “cheap” text messaging over amateur radio using open source Pactor 1, openly skirting commercial services, there are problems with this, other than the obvious rules violations. Pactor 1 is actively discouraged by the Winlink system administrator from using the automatic sub bands, suggesting that the narrower slower Winlink modes use frequencies outside the allocation tying up yet more

frequencies in the already congested amateur radio service RTTY/Data sub bands. If Winlink can't share in the designated auto sub bands, among themselves, then there's a problem with the way their network actually works. Packet modes had the capability to que up stations waiting and allow multiple simultaneous station connects decades ago, Packet could also be freely monitored. What we have today with Winlink is not an improvement, it's actually a step backwards into 1980's networking technology.

ARSFI states that "Nothing in the Commission's rules requires third-party monitoring, and it will become ever more difficult to monitor as digital transmission techniques become more sophisticated." According to the Commission amateur radio is supposed to be self-policing which means third-party monitoring **is required** in order to accomplish self-policing. § 97.115 Third Party Communications and § 97.219 Message Forwarding System, also both specify that monitoring is required for third-party communications. The FCC ruled clearly in its R&O for DA 13-1918 that encryption of any kind, even in emergencies, is not allowed in the Amateur Radio Service, yet Winlink proponents, such as Steve Waterman, the Winlink system administrator, continues to lobby for encryption (see his 17-344 comments). The Winlink system messages are virtually all third-party, and these rules do apply. Winlink messages can't be directly monitored, in real time, by the gateway operators, they must log on to a master database to view messages. Gateway operators are responsible for all messages transiting their stations, which requires them to monitor all messages to insure rules compliance, (§ 97.115 and § 97.219), and that makes the gateway operator a third party observer – i.e., non-participant in any messages sent, or received. ARSFI is also saying future modes will be difficult to monitor and the FCC must take note that this position is in complete opposition to current Part 97 rules that require all amateur communications to be open and readable by all.

ARSFI says all Winlink's transmissions are readable with the proper equipment and software, this is disingenuous at best, and contradicted by the Mr. Van Iue testimony, Dr. Rappaport's testimony, and their own documentation as noted in their FAQ:

https://winlink.org/content/winlink_faq_sept_15_2018_frequently_asked_questions_answers

Q260 page 13

While monitoring transmissions from WL2K stations, I notice that the content appears as "gibberish". Isn't this illegal?

A260

The content looks that way because it is a compressed binary format called "B2F." This format is available to anyone, so the compressed data is not considered encryption or illegal for radio amateurs. Additional information about B2F is at:

<http://www.winlink.org/B2F>

Data transferred through Winlink 2000 is not considered to be Secure.

Data transferred through Winlink 2000 using the Keyboard method is not compressed; therefore it is readable by other listeners.

ARSFI quotes a section of the SCS manual that points out, "Monitor", can decode Pactor contacts, but that's not correct.

"All SCS Pactor modems also have an internal command, MONitor, that allows the modem to be used with appropriate software to demodulate and print received characters in clear text ARC mode. See page 69 of the manual at https://www.p4dragon.com/download/SCS_Manual_PTC-IIIusb_4.1.pdf

www.p4dragon.com/download/SCS_Manual_PTC-IIIusb_4.1.pdf"

The problem with the citation is it does not apply to Pactor, but AMTOR. a fully documented protocol that preceded Pactor 1.

6.61 MONitor

This command switches to AMTOR listen mode (Mode L).

This error is not surprising, and is an example of intentional obfuscation by ARSFI, since ARSFI can't cite the correct Part 97 rule for unspecified codes –

ARSFI incorrectly cites § 97.305(b)(3), which doesn't exist, as allowing “proprietary” codes to be used on HF as long as a record is kept of all communications. The actual rule, from the description of what was intended, is § 97.309(b)(3), and that rule does not include the word “proprietary” but rather “unspecified” codes. The rule, § 97.309(b)(3), only applies to the 6 meter and above bands, **not** the MF/HF bands, which are the subject of the original petition and WT 16-239. There is a “Listen” mode available in the Pactor modems, but careful reading of the SCS manual shows that only callsigns and link negotiation can be decoded, page 65 in the same manual referenced by ARSFI. In the other Winlink ARQ modes in use, only the callsigns may be available for open intercept, but not any part of the message. With all the errors and misleading statements in this filing by ARSFI to the FCC, the Commission needs to give ARSFI-Winlink operations much closer scrutiny in the use of amateur spectrum and compliance with existing rules.

A demonstration of third-party intercepts of all modes used by Winlink is needed, preferably by someone not associated with SCS, Winlink or ARRL, all whom have an interest in the proper use of these modes and their compliance with FCC Part 97 regulations

4. SSCA

<https://ecfsapi.fcc.gov/file/121353186912/SSCA's%20Letter%20to%20FCC.pdf>

The SSCA filing is giant red flag indicating that the amateur radio service is currently being abused by communications that should be occurring in a different service designated for marine operations.

SSCA claims amateur radio is necessary for safety-of-life for deep water recreational sailors. Marine equipment, services, and licensing exist specifically for off shore, deep water, communications. In spite of the fact that SSCA owns and operates marine radio station KPK, it still promotes use of amateur radio for email, weather and other purposes. Sailmail is a commercial service providing email service, on non-amateur spectrum, to the boating community, where the desired Pactor 4 is legal. It is clear from the SSCA comment boaters are bypassing that commercial service with amateur radio. Other services, more reliable than HF amateur radio, are available. Since amateur radio by definition is a personal, hobby service that is specifically forbidden in Part 97 from being used as a routine bypass of commercial services, to even suggest offshore sailors rely on HF amateur radio for safety-of-life at sea is irresponsible and dangerous.

The citation for the Bounty sinking shows that email, through Winlink, to their business office, was the only thing that worked on the vessel, but the delay in effective communication led to loss of life, and suggests evidence that Winlink was being used for regular business messages, in violation of Part 97. According to the article cited by SSCA, nothing else, communications wise was working, if any worked before the event is also in question, since the marine SSB communications system wasn't tested before leaving port, as documented in the NTSB report, and possibly other communications equipment as well was non-functional on departure.

5. OTHER COMMENTS

The casual dismissal of national security concerns is worrisome. There are daily intruders to the amateur bands, that in many cases aren't identifiable, using modes that amateurs commonly use. Dr. Rappaport was right to raise concerns over the national security aspects, and to deny or deflect from the issue also denies the reality of today's world. Adding yet more, new, unidentifiable, undecodable protocols to the amateur bands, with wider bandwidths, is not a solution to any existing problem, and absolutely does not advance the state of the radio art in any way. Amateurs need to be able to understand the communications of others to effectively self-police and guard against intruders, whether such traffic be from commercial interests or bad actors intent on doing harm.

In answer to the emergency services contingent that claim a "need" for Pactor 4 to handle more traffic: The request for a relaxation of the rules, to permit Pactor 4, should have some documentation or other evidence to justify the request. For example; the number and type of messages that were sent under recent STA's for Pactor 4; how many of those messages benefited from the faster speed or could have used a slower protocol to achieve the same result; in recent large scale events, where HF was used, how many digital messages were sent on HF, compared to VHF/UHF, or other modes like phone. Lacking documented evidence, of Pactor 4 usage, the request for Pactor 4 on HF is more a "want" than "need". Email is not time-sensitive, delivery is more important than speed. How often is it necessary to use HF during a typical event, the large majority of which are extremely rare and local? Even during the hurricane Maria aftermath in Puerto Rico the communications need was for local VHF/UHF voice modes, and not HF. It should be apparent to the Commission that the cry for Pactor 4 is simply to facilitate more bandwidth for faster private email, that bypasses other commercial maritime mobile services.

6. Final comment

To date, no individual or organization has come forward with an explanation of exactly what the large volume of data is that requires wide band, high baud rate transmission, on the HF amateur bands, on a daily basis. The only thing that seems to be a focal point is an email system to serve "customers" or "agencies", which sounds like a commercial product. There should be no rule changes until current problems with interference from unattended stations, and questionable use of the amateur service, are resolved, especially in light of the hundreds of "lemming" comments spurred on by a media campaign by ARSFI/Winlink seeking more bandwidth for its private obscured transmissions.

Respectfully,

/s/

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