

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

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

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

Comments to the Federal Communications Commission regarding WT Docket
RM-11831 by Radio Relay International.

Submitted May 15, 2019

Executive Summary of this Filing

Radio Relay International (hereafter “RRI”) supports the comments submitted by the Amateur Radio Safety Foundation, Inc. and respectfully requests that the Commission dismiss the above captioned Petition for Rulemaking, RM-11831 for the reasons specified below. With this filing, we contribute our summarized experience operating and maintaining an automated network of Pactor relay stations, which are operated with the express purpose of ensuring the operational readiness of the Amateur Radio Service to fulfill its statutory obligation under CFR47, Part 97.1 (a) defined as, “recognition and enhancement of the value of the amateur service to the public as a voluntary, noncommercial radio service, particularly with respect to providing emergency communications.”

About Radio Relay International

RRI is an IRS recognized 501(c)(3) public benefit corporation, chartered in 2016 in the State of California, to manage and promote the systematic transfer of formal, record message traffic in the Amateur Radio Service. RRI is supervised by an executive board of directors elected by our constituent member nets. Such nets utilize a variety of modes and methods, including radiotelegraphy, radiotelephony and digital waveform methods, to convey record message traffic throughout North America and to selected overseas locations. RRI networks relay between fifteen and twenty thousand radiogram messages throughout its layered networks each month. Furthermore, the RRI system conducts periodic internal emergency communications exercises and participates in a variety of local, state and Federal emergency management exercises on a regular basis.

RRI sponsors the publication of QNI: The Independent Newsletter for Amateur Radio Traffic Operators and hosts two on-line discussion forums for radio amateurs involved in traffic handling and public service communications. Furthermore, RRI publishes field and technical manuals, training programs, operating aids and other material, all of which is offered free-of-charge at our website, www.radio-relay.org. This site demonstrates our expertise in the field.

Digital Traffic Network

RRI maintains the Pactor-based Digital Traffic Network (hereinafter "DTN"), direct descendent of the amateur service based, experimental AX.25 networks of the

1970s and 1980s. DTN was formerly affiliated with the American Radio Relay League as the NTSD. This network backbone operates in the high-frequency ACDS sub-bands using the PACTOR-3 waveform under automatic control conditions. In addition, a number of VHF gateways offer local access using standard packet radio equipment and techniques. The DTN network also interfaces with the Winlink system, thereby facilitating the origination of radiogram traffic via Winlink for automatic transfer to the RRI network. This method of interoperability adds an additional layer of flexibility to the public service mission of both organizations. DTN is available twenty-four hours per day, each day of the year. It is accessible to individual radio amateurs and emergency communications organizations via the “Digital Traffic Station” function for routine and emergency communications purposes.

Support Of ARSF Filing

RRI substantially agrees with the substance of the technical and legal arguments presented by the Amateur Radio Safety Foundation. Our comments discuss the deleterious burden RM-11831 would impose on RRI operations if adopted. In addition, we address several key assertions made by RM-11831 which we believe to be fallacious.

Claims of Interference

The title of RM-11831 purports to “reduce interference” caused by digital operations. This is unjustified in our experience. In April 2019, RRI searched available records and queried our current Area Digital Coordinators, all of whom have extensive experience operating digital networks in commercial, military or

government systems in addition to DTN. We were unable to reveal any case histories of interference complaints directed at our DTN despite over two-decades of operation.

To the contrary, our collected experience as operators of the DTN as well as users of the Winlink system operated by the ARSF, demonstrates both systems to be efficient users of the RF spectrum; operating within a narrow range of frequencies designated for automated control; and carefully selected based on a systematic frequency analysis. Great care has been taken to avoid sections of the amateur service bands commonly used for other communications purposes.

DTN protocols include hardware and software methods to inhibit automated transmit when a frequency is determined to be busy. Also, our state-level Digital Traffic Stations (DTS) are not automatically controlled and manually access DTN. As a matter of course, a DTS control operator must listen to the frequency before transmitting a connect request in consequence of the mechanics involved.

In discussions with our DTN control operators we asked specifically about interference unintentional or deliberate. Note the scope of these discussions was limited to DTN not including WL2K operations. While no statistical analysis has been conducted, casual observation indicates the level of unintentional interference occurring in association with automated Pactor based systems is de minimis. In fact, other amateur service activities including radio-sport (contests), casual operating, and manual digital modes cause significant disruption to on-going communications

of all types. Unlike DTN and Winlink, which utilize a published set of frequencies with the minimum time-domain required to exchange message traffic, these latter activities tend to respond to occupancy pressure in an ad-hoc, dynamic manner, seemingly without prior analysis or in-process concern of co-channel or adjacent channel communication.

Considering our institutional experience, RRI holds current automated Pactor networks to be well engineered, well maintained, and situated in such a manner that interference is not a significant issue. Furthermore, we question the reliability of interference claims attributed to Pactor operations by default. Numerous novel and innovative digital modes are employed in the amateur radio service at any given time. Many are variations of earlier inventions and sound alike to the human ear. None can be positively identified without some level of technical analysis. We believe Pactor is unfairly disparaged having become a bête noir while its actual complicity is far from established.

Transparency

The requirement for transparency is also misleading. In reality, the vast majority of radio amateurs are incapable of decoding every mode currently authorized in the amateur service. Without additional hardware or interface devices, the stock, commercial communications equipment operated by most radio amateurs is capable of only radiotelephone (ssb) and radiotelegraph (cw or Morse code) communications. For example, most radio amateurs cannot decode the long-standing frequency shift keying Baudot code used for radioteletype communications.

Likewise, many operators cannot decode manually keyed Morse code. While both methods are ostensibly open source, this fact does little to improve transparency.

Precedent for other digital methods developed by commercial manufacturers also exists in the Amateur Service. Examples include the common D-Star, APCO-25 and similar digital voice modes now gaining popularity in the VHF spectrum. These modes cannot be decoded with the common VHF-FM transceivers in widespread use yet they often play an important role in emergency communications. This is particularly true for intra-county hospital networks or other emergency communications functions in which an extra layer of confidentiality is desired.

That some Pactor communications relies on equipment using proprietary software does not logically extend to a form of de facto encoding or encryption. There is no expectation of communications security for stations using Pactor. Furthermore, the fact not all amateur service operators can decode Pactor is insufficient justification for placing limits on its use, any more than the fact that not all, or even a majority, amateur service operators can decode radioteletype or Morse code would justify limits their use.

Security Issues

Some have expressed concerns about the potential for abuse of automated Pactor networks for nefarious purposes. In decades of operating an automated digital network, unauthorized intrusion has proven not to be an issue. The operational structure of DTN is such that manual interface occurs at the point of

origination and delivery and unauthorized or inappropriate message content would be immediately flagged by this natural gate keeping. The inherent interoperability of RRI networks further limit the potential for abuse because message traffic can be transferred from automated to manual modes at any stage to effect “last mile” connectivity.

RRI believes the Petition’s security concerns are grossly overstated theoretical constructs lacking a basis in evidence. Furthermore, we believe true cases of Pactor interference are best handled by amateur radio’s traditional manner, direct contact with the offending station’s control operator.

Regressive Consequences

Firstly, the open source, free software clause is regressive. It discourages future research and development by vendors supplying the amateur service with new technology and it discourages individual technological evolution in the Amateur Radio Service.

Secondly, the withdrawal of widely used Pactor modes will effectively terminate the operation of our Digital Traffic Network, greatly diminishing the ability of the amateur service to provide an effective emergency communications capability.

If approved, RM-11831 will not decrease the frequency of unintentional interference. It is unjustified because the level of unintentional interference caused by automated Pactor networks is de minimis and likely far below the average interference caused by other, long-established modes and activities in the amateur service.

Conclusion

Given RRI's experience and assessment of the Petitioner's claims and proposed remedies, RM-11831 is not only regressive but harmful to the ability of the Amateur Radio Service to fulfill its statutory obligation as a resource for public service and emergency communications.

Radio Relay International respectfully asks the Commission to dismiss RM-11831 with prejudice.

Radio Relay International

by its Board of Directors

Joseph Ames W3JY *chairman*
Grant Hays WB60TS
Larry Jones WB9FHP
James Michener K9JM
Jeffrey Miller WB8WKQ
Steve Phillips K6JT
Marty Ray N9SE
Lee Painter-Smith N7EIE
David Struebel WB2FTX
Chuck Vernon W5KAV
James Wades WB8SIW *secretary*



Global Messaging via Amateur Radio
www.radio-relay.org