

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of:

**Response Efforts Undertaken
During the 2017 Hurricane Season**

ET Docket 17-344

**By: W. Lee McVey, PE Ret.
W6EM
PG-12-19879**

**To: The Chief, Public Safety and
Homeland Security Bureau**

**REPLY to the COMMENTS of R. STEPHEN WATERMAN, (STEVE
WATERMAN), K4CJX**

The following is my Reply to the Comments of R. Stephen Waterman (Waterman) in the above captioned proceeding. It is timely filed in accordance with 47CFR. §1.415.

1. Waterman presents us with his involvement in the Winlink Radio System. Colloquially referred to as *Winlink* by most amateurs. He may still be affiliated with its sister service for mariners on maritime frequencies referred to as *SailMail*, but does not share it. Not to confuse things, but there is apparently a subset of shared software within each of the foregoing referred to as *AirMail*, that defines email formatting and is part of both conduits.

2. He begins his Comments by offering criticism of 97.113, and, in-effect, requests permission to send encrypted or *scrambled* communications via amateur radio.¹ The Amateur Service *was not* and *is not* intended to be a *cloaked*, non-public service. 97.113 Prohibited Transmissions a)4.....”*messages encoded for the purpose of obscuring*

their meaning, except as otherwise provided herein;” Clearly, sending detailed medical patient data is not a function of the Amateur Service nor should it be. Besides, Public Safety Part 90 medical first responder communications systems are not encrypted either, so what’s the problem?

3. He then complains that 47CFR§97.221 is too restrictive.² Part 97.221 rightfully does restrict the amount of spectrum allotted to automatic digital stations such as those used with *Winlink*. If not for this restriction, we would likely have automatic, unattended email-forwarding transmissions spread throughout the sparsely available HF spectrum; coming to “life” at opportunistic moments, obliterating other in-progress communications. Irrespective of whether those automatic transmissions employ *Winlink* email software or something else going back and forth between them.

4. He criticizes the Commission’s inaction on RM 11708 with respect to not specifying limited bandwidth. Rightfully so. Unless an occupied bandwidth limitation is specified for digital transmissions, it is now possible, using digital signal processors in software-defined radio transmitters to expand transmitted bandwidth to well beyond 3 kHz. Potentially creating a spectral interference nightmare on the HF bands.

5. In the next paragraph he states that critical infrastructure partners cannot have amateur radio licensed employees participate while on the job during emergencies.³ As a former regional manager of critical infrastructure for a large West Coast utility, I can assure you that I and all of my employees had more than enough to do ourselves in our normal work during crises like the 1989 Loma Prieta San Francisco Earthquake than to baby sit a radio (other than our company’s robust remote base simplex radio system for work coordination). If we needed help with external communications, that help could be solicited from Amateur Service volunteers.⁴ In fact, the non-Amateur Service SHARES system is comprised of assigned representatives from both public and private critical

¹ Waterman Comments, Page 2.

² *Ibid.*, Pages 3 and 4.

³ *Ibid.*, 47CFR§97.113(a)4

⁴ Annual operational tests of the Diablo Canyon Nuclear Plant radiation emergency warning system sirens were monitored by a group of Amateur Service volunteers dispersed over several hundred square miles.

infrastructure and government. SHARES can provide needed pathways directly to FEMA when traditional communications are damaged or unavailable.⁵

6. He next expands his criticism of 97.221 automatic digital sub-bands being limited to as little as 5kHz. The automatic sub-bands were created and limited in order to prevent large numbers of “auto-bot” digital forwarding stations from filling up otherwise necessary spectrum, preventing effective point to point communications. Perhaps it is in his interest to proliferate the use of *Winlink*. But, it is *not* in the best interest of the Amateur Service to have unrestricted spectrum available to unattended, automatic stations. If the bandwidth of digital signals is limited to 2.8kHz, one or two simultaneous automatic connections per HF band should be sufficient. Propagation, of course, might expand the actual number able to utilize a limited segment. Besides, if many are intent on connecting to the *Winlink* system, they would have to wait their turn to do so anyway.

7. The “60-day rule” revision he next refers to is apparently the FCC Special Temporary Authority issued at ARRL’s request for permission to use Pactors III and IV in conjunction with the “Force of 50” (actually only twenty-two, along with five modems and Winlink software) sent to Puerto Rico.⁶ Since ARRL reported that only one SCS Modem was set up and was used at a FEMA location, it was hardly a demonstration for claimed ultra-fast digital communications. Actually, more like a “Pactor III and IV *Marketing Demonstration Gone Wrong*.” Perhaps the reason that the 4 other modems were not utilized in Puerto Rico is that no computers were sent along with the modems and software in the first place.

8. The balance of his writings compare PacTor III’s use of multiple, equal amplitude subcarrier Orthogonal, Frequency Division Multiplex (OFDM) with what now is apparently a single-subcarrier code used by Pactor IV.⁷ Multiple subcarrier OFDM and MPSK are used by other, open-source codes such as MT-63 and OLIVIA. And, the superior weak signal characteristics of multiple-subcarrier modes are understood. There

⁵ As an example of coordination, FEMA arranged for the US Air Force to transport several large high voltage circuit breakers on C-5A aircraft in the aftermath of the 1989 San Francisco Loma Prieta Earthquake.

⁶ Ibid. Page 5. See DA-17-974, Issued October 5, 2017

⁷ Ibid., Page 6.

is no justification offered, however, as to ****why**** unspecified PacTor III and IV codes, prohibited under 97.309(a)4, should be any better than those that are permitted under that regulation. (A comparison of OLIVIA and MT-63 versus Pactor III or IV under identical signal conditions in Comments would have been useful). Unless and until SCS GmbH releases and publishes the codes for PacTors III and IV into the public domain, by definition, §97.309(a)4 prohibits their use by US amateurs. *It isn't just that the symbol rate exceeds 300 baud.*

9. The organization to which Mr. Waterman belongs, Winlink.Org, has developed what it calls WINMOR, a specified, freeware code that it intended to be used in conjunction with *Winlink* software, at about half the throughput rate of what is claimed with PacTor III. It only requires a personal computer and an inexpensive sound card to use it. Why is it that Mr. Waterman, and ARRL for that matter, made no mention of it and apparently didn't use it in the Puerto Rican deployment? I can't answer that. Only Mr. Waterman and ARRL can.

Respectfully,

****/s/****

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February 20, 2018

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