

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)
)
Amendment of Part 97 of the Commission’s) WT Docket No. 16-239
Amateur Radio Service Rules to Permit)
Greater Flexibility in Data Communications)

To: The Commission

COMMENTS ON PETITION FOR DECLARATORY RULING

On behalf of the Amateur Radio Safety Foundation, Inc. (“ARSFI”), the providers of the radio network called Winlink¹, and pursuant to Section 1.2 of the Federal Communications Commission’s (“FCC” or “Commission”) rules², the undersigned is commenting on the Petition for Declaratory Ruling (“Petition”) submitted October 24th, 2019 in the above-listed matter by New York University (“NYU”). ARSFI submits that Section 97.113(4) of the Commission’s rules³ (“Section”) is quite clear as written and does not need to be clarified by the addition of the amorphous standards suggest by NYU. Furthermore, ARSFI respectfully submits that a ruling on this petition is unnecessary as duplicative of the Commission’s past and present efforts as set forth below. Finally, as the Petition is focused on Winlink, ARSFI submits that Winlink does not run afoul of the Section for the multiple reasons set forth below.

¹ Winlink Global Radio Network®

² 47 C.F.R. § 1.2.

³ See 47 C.F.R. § 97.113(a)(4) (“No amateur station shall transmit...messages encoded for the purpose of obscuring their meaning, except as otherwise provided herein.”) (emphasis added).

I. SECTION 97.113(a)(4) PROHIBITS THE TRANSMISSION OF MESSAGES ENCODED FOR THE PURPOSE OF OBSCURING THEIR MEANING – NOTHING MORE.

ARSLFI notes that Section 97.113(a)(4) closely follows Article 25 of the International Radio Regulations (RR25.2A) as modified at WRC-03 – “Transmissions between amateur stations of different countries shall not be encoded for purpose of obscuring their meaning, except for control signals exchanged between earth command stations and space stations in the amateur-satellite service.”⁴ While it applies only to international amateur radio communications, the key portions have been set forth *verbatim* in the Section as amended in 2006.⁵

The meaning of the Section is clear and has been interpreted as recently as 2013 in RM-11699⁶. Mr. Rolph asked permission to encrypt medically sensitive data in messages in order to enhance the Amateur Radio Service’s (“ARS” or “Service”) ability to participate in emergency communications.⁷ The Commission denied Mr. Rolph’s request noting that the Section’s standard prevented such encrypted, as opposed to merely encoded, communications.⁸

ARSLFI notes that the Winlink system has 209 RMS, or gateway, stations operating outside the United States. None of the amateur radio operators of these stations have been approached for violating international Radio Regulation RR25.2A, the genesis of the Section.

⁴ *WRC-03 Final Acts, RR25.2A.*

⁵ Order, DA 06-79, 21 FCC Rcd 278, released January 19, 2006.

⁶ In the matter of Don Rolph, DA 13-1918, Order dated September 17, 2013 and released September 18, 2017.

⁷ *Id.* at 2.

⁸ *Id.* at 4.

II. NYU WOULD HAVE THE COMMISSION EFFECTIVELY AMEND THE SECTION WITH UNWORKABLE NEW STANDARDS.

In order to essentially negate the portion of the Section requiring an intent to obscure, NYU would now have the Commission effectively amend the Section with four new, amorphous standards. Specifically, they would have the Commission expand the meaning of the Section to prohibit communications that are (1) “effectively encrypted or encoded messages” that (2) “cannot be readily decoded over the air” (3) “under reasonable propagation conditions” for their (4) “true meaning”.⁹ These standards are broad, unnecessary and difficult to define. In addition, the uncertainty they would add would hamper the Service’s ability to perform their self-policing functions under the Section. Later in the Petition NYU focuses Winlink’s use of “dynamic compression” as an example of “effective encryption.”¹⁰ NYU is surely aware that compression is not encryption. The former is used to compress the size of data to be transmitted, by internet, radio or any other means of transmission. (JPEG is a well-known example of compression.) Various ARS digital modes have used compression for decades. For instance, G-TOR is a digital mode that was explicitly approved in Part 97¹¹. This mode uses forward error correcting (“FEC”) and Automatic Repeat Request (“ARQ”) techniques to ensure message accuracy and Huffman compression to conserve band usage by compressing the size of the data to be transmitted, speed transmission time and enhance accuracy as well.¹² Similarly, Winlink uses both FEC and ARQ as well as a decades-old form of compression called LZH¹³ for the

⁹ See Petition at 9.

¹⁰ *Id.* at 3, 4, and 5.

¹¹ See 47 C.F.R. Section 97.309(a)(4) “An amateur station transmitting RTTY or data emission using a digital mode specified in this paragraph may use any technical characteristics that have been documented publicly, such as CLOVER, G-TOR, or PacTOR, for the purpose of facilitating communications.”

¹² See ARRL Handbook for Radio Communications, 2019 Edition, at 15.21, (ARRL, Newington, Connecticut 96th Edition).

¹³ LZW compression was first released in 1984. *Id.* at 15.4. This compression protocol is a part of the forwarding protocol called B2F developed by ARSFI for Winlink.

same purposes.¹⁴ Winlink’s combination of these three factors results, when combined with PACTOR, in efficient and virtually error-free communication, as noted in a leading ARRL publication on the subject.¹⁵ Errors cannot be tolerated in computer-to-computer automated message handling as used in common ARS bulletin board systems such as JNOS¹⁶, BPQ32¹⁷ or Winlink radio email routing¹⁸. ARSFI also respectfully submits that in this proposed effective amendment is embedded yet another new standard – that of compression. Which method of compression would be acceptable under the Section? This is a highly technical subject that requires substantial comment before the proposed new standard is implemented.¹⁹

Turning to the Petition’s proposed new standard of “readily decoded over the air”, ARSFI notes that it is difficult to imagine such a benchmark that would apply equally over all ARS transmissions and methods. Given the uncertainties of propagation, the deleterious effects of both ambient and artificial noise, as well as man-made interference of all sorts, and specifically the critical parameter – an unfavorable signal-to-noise ratio (“SNR”), all of which would negatively affect signal reception and thus the ability to decode, ARSFI submits that this proposed standard would add a great amount of uncertainty in the interpretation of the Section. Another factor to be considered for this new “readily decoded” standard is the type of radio equipment that should be used to receive the signal. What would be the minimum benchmark of

¹⁴ <https://winlink.org>

¹⁵ See Get on the Air with HF Digital, 2nd Edition, Steve Ford, WB8IMY, describing PACTOR at iii and 6-1. (2018, ARRL Publishers, Newington, Connecticut).

¹⁶ <https://www.lagenlaar.net>

¹⁷ <https://nts-digital.net>

¹⁸ <https://winlink.org>

¹⁹ NYU insists that “[a]n entity relying on communications mode that effectively encrypt messages could easily switch out the code that implements dynamic compression techniques for code that implements static compression, and that switch could easily be made through a software update”. See Petition at 6. Respondents respectfully submit that such a software switch would not be simple, would be fraught with uncertainty in the ambiguous nature of the proposed effective amendments, and may needlessly degrade Winlink’s performance in transmitting more substantial messages as compared to the messages transmitted in other digital modes such as JT-65, WSPR, PSK-31, FT-8 and FT-4. See Petition at 6, footnote 15.

quality and sophistication that enable the ARS in exercising its self-policing function to be certain that the Section was being followed? Finally, ARSFI notes that it is often difficult on any of the ARS frequency bands for a third party to monitor both sides of a conversation regardless of the mode of communication, including using the simplest mode, CW (Morse Code).²⁰

The proposed new standard of “reasonable propagation conditions” is problematical for reasons like those stated above. Propagation conditions differ from frequency band to frequency band, between communication mode to communication mode, between night and day, with the months of the year, with the weather conditions, with the solar conditions, and the like. Indeed, it is these differences and uncertainties in propagation that add to the satisfaction of successfully communicating in the ARS. Defining appropriate standards to encompass all these variable conditions would be a massive undertaking. Leaving them undefined would make ARS self-policing very difficult.

And finally, what does the proposed new standard “true meaning” imply? This seemingly simple standard is possibly the broadest and hardest to define. If there are sections missing from the message due to various propagation characteristics has the “true meaning” standard been met? Who is the judge of the “true meaning” of a message? Would it be the average ham radio operator, who might be confused by technical jargon in an emergency communication, especially one using medical terms or someone who is defined as a specialist in the field of the message’s comments? If he or she doesn’t understand the jargon, is the proposed “true meaning” standard violated?

²⁰ It is easier to monitor conversations on the ARS VHF and UHF frequency bands when repeater stations are involved, but again, this points to the uncertainty to the proposed standard.

ARSFI notes that for at least the above reasons the granting of the Petition would add, not remove, uncertainty surrounding the Section. The current international standard of “intent to obscure meaning” is clear and enforceable.

III. THE ARS IS ABLE TO SELF-POLICE WINLINK UNDER THE SECTION.

Winlink messages are open for review to the ARS. As mentioned in the ARSFI’s recent Ex Parte presentation in this Docket²¹, ARSFI has included in the Winlink website²² a Message Viewer that can display every message that is sent through U.S. stations over the Winlink system. The Message Viewer displays the most recent messages within 3 minutes of them being transmitted. Each message is retained for 21 days. Using the browser function, up to 1000 searched messages can be viewed at a time. Thus, ARSFI respectfully submits that there is no encoding with the intent to obscure the meaning of Winlink messages.

As proof of the effectiveness of the Message Viewer in the ARS’s self-policing efforts, ARSFI notes that NYU has knowledge of a currently pending Enforcement Action brought against Winlink under this Section.²³ ARSFI has not seen this Action *in toto*²⁴, but knows that the information used to file the Complaint for the Enforcement Action was taken from the Message Viewer.

²¹ Ex Parte Notice of ARSFI, submitted November 5th, 2019 in WT Docket No. 16-239.

²² <https://Winlink.org>.

²³ FCC Enforcement Bureau Ticket No. 3184322. (“Enforcement Action”). See Petition at 7, footnote 17.

²⁴ Excerpts from the Complaint were posted by members of the ARS on a popular internet reflector site for amateur radio – QRZ.com. See, for example: <https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fforums.qrz.com%2Findex.php%3Fthread%2Fnew-digital-petition-at-the-fcc-rm-11831.652589%2Fpage-81&data=02%7C01%7C%7Cb47578f2f95d4b37059308d777498810%7C84df9e7fe9f640afb435aaaaaaaaaaaa%7C1%7C0%7C637109030000282026&data=WF0fXxtpgdaT26y65FSgZVCwspla12hfC9DsmpQGF4%3D&reserved=0>

ARSFI also notes that as least two members of the ARS have stepped forward to state they have been able to monitor Winlink messages over the air.^{25,26} In addition, recently the Commission was informed that software that permits viewing of Winlink Pactor signals using an inexpensive Raspberry Pi computer has been developed and made available at no charge.²⁷ ARSFI respectfully submits that this ability demonstrates that Winlink messages are simply encoded, not encrypted, and that Winlink's Viewer System facilitates effective self-policing by the ARS²⁸. As Winlink is the focus of this Petition²⁹, the fact that it is does not run afoul of the Section is yet another reason that the Petition should be dismissed.

IV. ARSFI MAKES CLEAR THE TRANSPARENCY OF ITS SYSTEM AND ITS SELF-POLICING SAFEGUARDS.

As set forth in ARSFI's *Ex Parte* Presentation of November 1st, 2019,³⁰ ARSFI has included safeguards in the Winlink system to ensure compliance with Part 97, including:

- 1) Winlink RMS radio operators must agree to Winlink Terms of Conditions of Use and Privacy Policy; the latter makes clear that there is no privacy to be expected when using the Winlink system³¹;

²⁵ See Gordon L. Giddy, MD, KX4Z, *Ex Parte* Comments, WT Docket No. 16-239; "Inconvenient Observations" (filed Nov. 1, 2019).

²⁶ See John S. Huggins, KX4O, *Ex Parte* Comments, WT Docket No. 16-239, "Exhibit Demonstrating over the air monitoring of a Winlink email exchange using, in this example, the Pactor Mode" (filed July 30, 2019) and "Addendum to previous exhibit" (filed Aug 13, 2019).

²⁷ See Hans-Peter Helfert, Spezielle Communications Systeme GmbH & Co. KG, *Ex Parte* Comments, WT Docket No. 16-239, "Regarding monitoring/transparency of our PACTOR 3/4 communications modes (filed October 23, 2019). See also PMON- a PACTOR monitoring Utility for Linux: <https://www.scs-ptc.com/en/PMON.html>.

²⁸ See Gordon Gibby's *Ex Parte* submission in this docket documenting the decrease in objectional messages since the introduction of the Viewer System - <https://ecfsapi.fcc.gov/file/10822196770221/ReAnalysisOfWinlinkObjectionableMessages.pdf>

²⁹ No other ARS licensees are mentioned in the Petition at the appropriate point as violating the Section. See Petition at 3.

³⁰ *Ex Parte* Notice of ARSFI, submitted November 5th, 2019 in WT Docket No. 16-239.

³¹ See https://Winlink.org/terms_conditions; as set forth verbatim in Exhibit 1.

- 2) Non-licensed internet recipients of messages from Winlink users receive notices that they should not expect privacy in the return e-mails;³²
- 3) U.S. RMS operators are advised by software when they select violative frequency selections;
- 4) All RMS stations maintain local station logs for the Commission's inspection;
- 5) The central servers also maintain logs for all sessions, messages and tracking;³³ and
- 6) Winlink automatic central servers enforce the prohibition of indecent language and improper third-party traffic on the system.

Included in the Ex Parte Presentation³⁴ are corrective messages sent to clients when their messages are rejected, for example, profanity, violating Third Party Traffic rules and operating on frequencies that are outside those allowed by Part 97.221 or on frequencies that are known to be regularly used by other digital modes.³⁵ Thus, ARSFI respectfully submits that no other ARS group network goes to such lengths to ensure a user's compliance with Part 97.

³² See the attached Exhibit 2. The Exhibit sets forth the language sent to non-ARS recipients of Winlink e-mail.

³³ Winlink administrators use the information in the logs compiled in 4) and 5) to lock out users who make unintentional violations and do not acknowledge warning messages as well as operators who intentionally violate Part 97.

³⁴ See Ex Parte Notice of ARSFI submitted November 5th, 2019 in WT Docket No. 16-239.

³⁵ *Id.* at Exhibits 3-6.

V. CONCLUSION.

In closing ARSFI would like to bring to the Commission's attention the number of organizations that Winlink is utilized by Amateur Radio licensees at the U.S. Federal, State and local levels by governments and NGO's alike for contingency emergency communications. A list of some of the many such organizations is set forth in the attached Appendix. The agencies in this list utilizes the volunteer operators from the ARS in order to complement their existing communication systems because of the experience of the ARS operators with the Winlink system.³⁶ The effectiveness of these ARS operators is proven with each and every mass casualty event in which they are utilized. ARSFI submits that Petition's proposed effective amendments to the Section would degrade these agencies' ability to serve their respective communities.

At least in light of the above remarks, ARSFI respectfully submits that the suggestions to effectively amend The Section stated in the Petition are at best unnecessary and redundant and at worst would needlessly complicate the ARS's self-policing efforts. Furthermore, given the focus of the Petition on Winlink, as evidenced by the list of Part 97 sections that NYU alleges that Winlink violates^{37,38}, ARSFI respectfully submits that this Petition is essentially a Complaint to

³⁶ John O'Connor, Director, National Coordinating Center for Communications, Department of Homeland Security ("NCCC"), has recently commented on this subject. In the NCCC's Reply Comment to the FCC's Request for Comments on the Response Efforts Undertaken During 2017 Hurricane Season, PS Docket No. 17-344, Director O'Connor summarized his answer to the question "[t]o what extent were response efforts facilitated by amateur radio operators?" by stating: "[i]n addition to the direct services provided by amateur radio operators, the indirect services of technology development, operator training, and support of SHARES Winlink network (among others) makes amateur radio an indispensable component of our national capability to prepare for, protect against, respond to, recover from, and mitigate against all hazards". See "In the Matter of Response Efforts Undertaken During the 2017 Hurricane Season", PS Docket No. 17-344, filed 2/21/18 and posted 2/22/18; at the last page (all pages are numbered as "7")

³⁷ See Petition at 7, 8 and 9.

³⁸ Respondent categorically denies the alleged violation of any of these sections of Part 97 set forth in the Petition.

the Enforcement Bureau rather than a policy-making procedure and should be dismissed as such.

Thus, ARSFI asks that the Petition be denied and dismissed with prejudice.

Respectively Submitted,

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Exhibit 1

Privacy and Amateur Radio Email

You understand and agree that email content sent and/or received over the Winlink system is not private. By most countries' amateur radio rules--to which each radio licensee must abide--content may not be encrypted with the intention to obscure it. Message content transported through the system over public or government radio frequencies, over the internet, or over private networks may be accessed by anyone with appropriate equipment and software. Messages are available online for public inspection, and may be requested by law enforcement, regulatory or defense agencies, health and safety agencies, or similar organizations in support of life- or property-threatening mitigation efforts, search and rescue, legal inquiries, or incident investigations. In addition, radio gateway sysops regularly monitor the messages sent and received through their stations in order to comply with regulations that govern their licenses. System administrators and licensed volunteer monitors also regularly search and read messages sent through the system to ensure that message content conforms to regulatory requirements of the amateur radio rules. (original emphasis).

Exhibit 2

(This message footer is appended to emails delivered to internet addresses:)

This message was sent from an amateur radio account. If you reply, be mindful that your reply will be subject to inspection by the public. If your reply contains prohibited content (profanity, personal or commercial business information, etc.) it may not reach its destination, and will endanger your correspondent's license. Ask your correspondent if you have any questions.

Appendix

American Red Cross

The International Red Cross

ARRL Amateur Radio Emergency Service® (ARES)

Radio Amateur Civil Emergency Service (“RACES”)

Salvation Army (Amateur Radio only)

Southern Baptist Disaster Relief

The International Health Service

AUXCOMM (DHS ECD)

Department of Homeland Security’s National Coordinating Center for SHARED RESOURCES (SHARES);

FEMA, US NORTHCOM, U.S. state, county and municipal Emergency Management Agencies (EMAs), such as:

Washington State Emergency Management Division;

Oregon Emergency Management Agency;

California Office of Emergency Services;

Idaho Office of Emergency Management;

Florida Division of Emergency Management;

Illinois Emergency Management Agency;

Indiana Department of Homeland Security;

Maryland Department of Emergency Management;

Missouri Department of Emergency Management;

Hawaii Emergency Management Agency;

North Carolina Emergency Management Agency;

South Carolina Emergency Management Division;

Tennessee Emergency Management Agency & Tennessee National Guard;

Texas Division of Emergency Management;

Pennsylvania Office of Emergency;

Appendix, cont'd

Monroe County, FL, sheriff's Office/EM;

Hillsborough County, FL, EMA (Tampa);

Sarasota County, FL, Red Cross;

Charlette County, FL EMA;

Alachua County, FL EMA;

Williamson County, TN, Office of Public Safety;

Knox County, TN, EMA;

Davidson County, TN, Office of General Services;

Roane County, TN, EMA;

Waldo County, ME, EMA;

Knox County, ME, EMA;

ME-St George, EMA;

Mesa County, CO, Sheriff's Office;

Harris County, TX, EMA (Houston);

Livingston County, MO, EMA;

Benton County, MO, EMA;

Marin County, CA, EMA;

United State Coast Guard;

NGO critical infrastructure partners;

ITU sponsored amateur radio Winlink RMS stations in Central America and the Caribbean Islands;

Government Services in other countries: Mexico, Canada, countries throughout Central America and the Caribbean, the UK, Australia, the Marshall Island, and Guam.