

INCONVENIENT CORRECTIONS

The Start of The End, Hopefully

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This filing addresses five main areas:

1. **The False Test** advanced by "experts" and their followers, and how they even apparently applied the false test, with prejudice.
2. **Original experimental proof** that confirms my expectation that D-RATS, along with already-studied FLDGI/FLMSG, simply cannot be monitored with existing supplied software, in the manner demanded of WINLINK by multiple persons. I present a monitored, compressed file, and challenge anyone to read it. These facts have apparently been completely overlooked in the zeal of some persons to condemn WINLINK alone.
3. A series of factual technical corrections to erroneous material submitted by Lee McVey, W6EM
4. A series of responses and technical corrections to material submitted by Janis Carson AB2RA
5. **Healing From False Accusations.** A discussion of the implications of the apparent bias and prejudice exhibited by those who claimed to be experts, and did not realize that WINLINK was (in the past) not at all "unique" in the difficulty of monitoring compressed/ARQ communications. Retractions of false accusations are indeed the way good and honest leaders deal with mistaken accusations they have made.

The importance of facts. FCC Part 97.1 (c) and (d) suggest that **technical accuracy is an important part of the goals of amateur radio:**

(c) Encouragement and improvement of the amateur service through rules which provide for advancing skills in both the communication and technical phases of the art.

(d) Expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts.

It is therefore obviously important to get the details correct, and not make specious assertions, or false accusations.

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Section 1. The False Test and its Prejudiced Application

All Claims of Non-Monitorability Were Based On a Widely Touted, But Faulty Test

Multiple writers have utilized a faulty test:

whether or not a communication can be readily (e.g., without any additional software) understood as transmitted

as grounds for concluding that the material is "encrypted" (a term with specific meaning) or "effectively encrypted" (a pseudo-term of emotional value, but unknown definition). All well-trained communications experts would recognize that this is a *false test*, but apparently some self-proclaimed experts did not. The ARRL did a good job of debunking this type of false test.¹

It is important for me to **prove** this assertion that significant critics have utilized this *false criteria*, for the possible benefit of the Commission to recognize false experts. Therefore, below are numerous examples of such (false) assertions that relate to such a test being appropriate. I freely admit that this list is likely incomplete, as the number of person who have bought into this false test is quite large.

“Intercepting the Winlink/Pactor and other ARQ transmissions simply cannot be done, yet there is no admission of these facts by FCC, ARSFI/Winlink, or ARRL. FCC management should wonder why this is, when thousands have publicly complained about this for over a decade “²

“We discussed **national security** concerns voiced in public comments that urge WT16-239 and RM-11708 not be enacted, since the proposals ignore interference and would inadvertently perpetuate radio traffic that is impossible to self-monitor or intercept, leading to a greater increase of nefarious or illegal messages using proprietary schemes that are extremely difficult or impossible to intercept using “a man in the middle” amateur radio station. We discussed interference that occurs when wideband data is allowed to operate in the same spectrum as narrowband signals, and discussed where Part 97 rules are ambiguous in prohibiting (perceived by some to be a loophole) **proprietary compression or encryption** for over-the-air signaling”³ [emphases added]

"The filing [by Rappaport] said public records clearly show how the evolution of undocumented, proprietary transmission technologies such as PACTOR and Winlink, ARDOP, Winnor, STANAG and other HF transmission schemes that use controlling software have created a national security problem in the amateur radio service. Third parties, including other ham radio operators or the FCC listening stations, cannot intercept and decode over-the-air transmissions when used in the popular automated repeat request (ARQ) mode."⁴

1 ARRL: https://ecfsapi.fcc.gov/file/10918259487629/ARRL_16-239%2C_RM-11759%2C_RM-11828%2C_RM-11831.pdf See: D. ITU Radio Regulations and Identical Commission Strictures on Obscured Messages Do Not Bar Efficient Data Modes

2 Rappaport, <https://ecfsapi.fcc.gov/file/1032167020169/FCC%20Letter%20RM%2011828.pdf>

3 Rappaport, <https://ecfsapi.fcc.gov/file/10511986308556/Rappaport%20Ex%20Parte%20May%2011%202018.docx>

“To rectify this ongoing problem of effective encryption in amateur radio, and to open up the airwaves so that computer enthusiasts may intercept and experiment and learn from all transmissions, the FCC recently published a rule making proposal RM-11831, that would reiterate the need to keep all data communications open for all to intercept, while keeping email relay stations in their own allocated many sub-bands.”

"Many who are improperly using HF radio for free private email are spreading false information about the proposal and its impacts. The proposal would not end emailing in amateur radio, it would just open up the messages so all can hear and intercept.“⁵

“I pointed out national security concerns with the current problem of encrypted data, which arises from the non published compression algorithms used in Pactor II, Pactor III, and Pactor IV, and also discussed how the identification of many ACDS stations are often encrypted, as well, since that is an option on the SCS modems.”⁶

“...where many commenters stated the precise technical arguments about interference, the numerous FCC rules violations by ACDS transmissions, the improper use of amateur radio conducted over email and internet, and the need for documented coding (e.g. avoidance of **encryption through the use of open and published compression algorithms**).“ [emphasis added]

"Monitoring by Third Parties is Not Only Essential... 'It's the Law!!!' • Obscured Traffic Has Been a 'Core Issue!' ”⁷

"ACDS robots have been operating illegally, **by using proprietary encryption**, which cannot be monitored by anyone, including the FCC. " ⁸ [emphasis added]

Some of the claims made in these various assertions are difficult to even comprehend.⁹

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- 4 Wendelken, S. [Rappaport Suggests National Security Risks with Amateur Radio Violations](https://www.rrmediagroup.com/News/NewsDetails/NewsID/17667), Radio Resource International, accessed at: <https://www.rrmediagroup.com/News/NewsDetails/NewsID/17667>
 - 5 Rappaport, T. [Professor Rappaport Urges Support of the Basic Tenets of Amateur Radio](https://www.microwavejournal.com/articles/32108-professor-rappaport-urges-support-of-the-basic-tenets-of-amateur-radio), Microwave Journal, accessed at: <https://www.microwavejournal.com/articles/32108-professor-rappaport-urges-support-of-the-basic-tenets-of-amateur-radio>
 - 6 Rappaport, <https://ecfsapi.fcc.gov/file/1110241203910/Reply%20to%20Comments%20NPRM.docx>
 - 7 Carson, Kolarik, McVey, White, <https://ecfsapi.fcc.gov/file/1071958608259/July%2018%2C%202019%20Ex%20Parte%20Filing.pdf>
 - 8 Admiral Edmund P. Giambastiani, Jr. U.S. Navy (ret) https://ecfsapi.fcc.gov/file/10606634021673/FCC_filing_re_RM-11831_6_June_2019.docx cited by <https://ecfsapi.fcc.gov/file/10724035705944/NYU%20Ex%20Parte%20Filing%20-%2007.24.19.pdf> (Footnote 54)
 - 9 For example: "Specifically, Pactor 2, Pactor 3 and Pactor 4 use proprietary, undocumented compression algorithms having to do with unique keyboard key presses and instantaneous channel conditions known only between the transmitter and receiver in automatedrequest-mode (ARQ), such that anyone attempting to eavesdrop the modern Pactor transmissions cannot decipher the communication over the air." Rappaport: <https://ecfsapi.fcc.gov/file/102221007912824/FCC%20PS%2017-344%20Reply%20to%20ARRL%20and%20Steve%20Waterman%20from%20N9NB.pdf> Since I have now published examples of perfect reading of WINLINK messages, this claim seems absurd in retrospect.

Worse Than Using a False Test, is Using a False Test With Bias

But perhaps worse than using a completely false test, is claiming that only ONE system in amateur radio is "encrypted" or "effectively encrypted" for failing the (false) test -- which, as is being proved week by week¹⁰, is untrue. An expert would have known that, and not made such an egregious error.

Claims That Winlink Alone Fails This (Improperly Applied) Test:

Some writers claimed that WINLINK was "unique" in the inability to be read "over the air" (and thus, by the above definition, would be "encrypted" or "effectively encrypted"):

"For our Florida Medical Doctor, Gordo, KX4Z, who apparently has lots of unemployed time on his hands to banter about intentionally and **uniquely obscured** HF Internet Email service provider Winlink. "¹¹ [emphasis added]

"Winlink is unique among all data transmission systems in the Amateur Radio Service in that it: (1) relies on advanced communications modes that effectively encrypt communications, which renders over-the-air decoding impossible when an amateur operator experiences a single bit error; (2) does not allow operators of RMS stations to monitor e-mails passing through their RMS stations until after the messages have been transmitted, which prevents RMS operators from determining whether an e-mail communication complies with the amateur rules before such communication is transmitted; and (3) **fails to offer over-the-air decoding methods for other amateur operators to intercept such messages and self-police the band.**" ¹²[emphasis added]

"It is the combination of whole message compression with ARQ that is unique to Winlink and makes it impossible to intercept messages over the air, for meaning, for rank and file hams. No one has disproved this. It's a fact. Yet, a couple of fanatics chewing up QRZ.com claim to now (in the last month) be able to decode Pactor over the air, but that's not true- it is only with much guess work, having ideal channel conditions with known station ID's ahead of time, and then much manual manipulation of data files, often with a priori knowledge of the message — none which can be applied in real time and in typical use. There is still no over-the-air decode of Winlink data- and Hams should ask the ARRL directors why they won't address this effective encryption problem!" ¹³ [emphasis added]

I have only been involved in this controversy for a few short years, limiting my first-hand knowledge; however, Google searches for accusations of encryption or obsuration with FLDGI/FLMSG or D-RATS have been fruitless. As will be shown, those systems (which are NOT encrypted) will FAIL the same false test -- and yet I can find no evidence that the "experts" ever tested these systems or attacked

10 The filing <https://ecfsapi.fcc.gov/file/109191626613689/InconvenientTruths.pdf> demonstrated that FLDGI/FLMSG compressed/ARQ transfers will fail this false test. I expect many such experimental proofs to follow.

11 W6EM; <https://forums.qrz.com/index.php?threads/winlink-posting-message-on-line.658595/page-8#post-5071460>

12 Rappaport: <https://ecfsapi.fcc.gov/file/10724035705944/NYU%20Ex%20Parte%20Filing%20-%2007.24.19.pdf>

13 August 30, 2019 Posting on eham.net by "NA4M", with the notation at the end of the missive, "73, Posted with permission from - Ted n9nb " See: <https://www.eham.net/articles/43661> An email to NA4M asking for confirmation of the writer of this text was not answered.

them in the manner that they attacked WINLINK / PACTOR **If anyone has information to the contrary, please immediately forward it to me.**

Spread Abroad

At least some of writers above appeared to have promulgated their (incorrect) views widely. Multiple examples of such evidence have already been found.^{14 15 16}

Faulty Conclusion From 2013 FCC Decision

Some of those holding these viewpoints drew incorrect conclusions from a 2013 FCC decision:

"6. As the Commission has noted, Section 97.113 is intended to help maintain the noncommercial character of the amateur radio service by prohibiting certain types of transmissions.¹⁸ The primary protection against exploitation of the amateur service and the enforcement mechanism in the amateur service is its self-regulating character.¹⁹ As noted by numerous commenters, the amateur community has a long tradition of self-regulation and a strong commitment to maintaining the unclouded distinction between the amateur service and other radio services.²⁰ To ensure that the amateur service remains a non-commercial service and self-regulates, amateur stations must be capable of understanding the communications of other amateur stations. ²¹ The content of messages that are encoded, however, are known only to those stations that have the code used to encode the message."¹⁷

*While making a very important point of the usefulness of monitorability (in the service of which I personally have poured some hundred or more hours of my own time to develop and test software at no charge)....that paragraph does **not** assign responsibility for creating software to read techniques which already have met the requirements of FCC Regulations.*

Rather than bicker for 6 years since that decision, it would have been far more efficacious if the participants had simply written the software which I wrote in five days, even while having to learn the C language at the same time.

These False Claims Swayed Even Leadership

Here is an example of one leadership person who appears to have "bought into" these (now know to be false) claims:

(Context: The response below answers this statement wherein the forum poster stated in part,

It seems to be a bit of a specious argument that everything needs to be open and easily received when, in fact, that hasn't been the case in amateur radio. Either propagation does you in, or you

14 Email by Don White discussing "effectively encrypted email" and asking for submissions to the FCC.

<https://groups.io/g/DCARC/message/484>

15 <https://www.myarrlvoice.org/n9nb-letter-december-27-2017/>

16 <https://wnydx.blogspot.com/2019/01/arsfiwinlink-illegal-use-update.html?m=1>

17 https://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0918/DA-13-1918A1.pdf

needed to purchase equipment or any number of reasons that hearing a particular mode just wasn't easy. Or possible. Only now with Winlink is this now somehow a problem, and all the remedies that were previously just fine for dealing with new modes (like buying the gear to do it) are now somehow off the table because a few people feel they need to do it for free on their PC.

Yeah, I get it, it is hard to decode Pactor even with the gear when you're not part of the connection. But then, it also would have been difficult to get a clean decode in monitor mode for IP packets containing compressed tarballs on packet. Yet, no one blinked an eye then.

You guys want to beat up on team Winlink, have it, no love lost here. Go on their crowdsourced enforcement page and start filing your complaints But salting the earth to prevent any new digital modes and modern techniques for sending large quantities of data over narrowband paths because someone might misuse them is not in the interests of the hobby.

An intelligent leader of a national organization, possibly swayed the previously discussed false claims, answered as follows,

"This is different.

In the past you could just buy (or build, I think people still do that) equipment that could monitor such a transmission. In the case of SSB you add a VFO to your AM receiver. In the case of packet, DSTAR or DMR, buy a radio and tune in.

In the case of Pactor as used in the winlink system, **even if you buy a modem, to understand even 1/1000th of a message being transmitted over the air you need to receive all packets sent without error. It's not just ARQ but ARQ with compression that makes decoding over the air so inherently difficult.**

What makes things worse is that many have touted the "privacy" benefits of winlink.

So **this is completely different from those and winlink is very unique in that regard.**"¹⁸
[emphasis added]

Except --- Much of that is false, and No, it is not completely different. (As this document provides even more proof.) How many other leaders have been similarly misled?

Another example: Another person who doesn't understand PACTOR and the legal issues involved:

"Part 97 - **Transmitting Encrypted Messages**

Amateur radio is not set up to be an encrypted service. As the FCC and ARRL have both said on numerous occasions in the past, we all need to know what is being said via amateur radio, and

¹⁸ <https://forums.grz.com/index.php?threads/arrl-report-no-consensus-reached-for-fcc-on-“symbol-rate”-issues.666183/page-41#post-5139604>

by whom. After all, that is a key to the self policing aspect of our great hobby. Besides that, when a real emergency does exist, we need a transparent way to ensure that all know what is going on, so that frequencies can be properly cleared and made available for responders.

"With the new PACTOR modes, it is virtually impossible for an Official Observer to actually perform their duties with regard to the automated email servers that are in operation. A functional Official Observer program is essential to ensure the integrity and lawful use of amateur spectrum. Pactor 3 and Pactor 4 are proprietary protocols. The encoding/decoding is not open source. It's very questionable if these waveforms are legitimate within the amateur radio bands and it's explicitly forbidden in the regulations. "¹⁹

Only The Obstinate Now Persist

There have been so many explanations by *actual experts*²⁰, explaining that the mere inability to directly read transmitted text does not at all prove encryption (or "effective encryption" for the case of publicly disclosed algorithms), including that of the American Radio Relay League, that only the most obstinate would continue to make that flawed argument.

However, even more concerning is the claim that WINLINK was "unique" in failing precisely this false test. I have already explained that due to the way user-software is written, it is very likely that most, if not all, historical amateur radio ARQ/compressed systems will appear to "fail" this faulty test. In a previous filing, I have provided an example of such a "failing" by the widely known FLDGI/FLMSG system (when placed in ARQ/compressed mode) -- and provided Appendix 5 in that paper for anyone who wishes to prove me wrong, to decode. **To date, I am unaware of ANYONE able to decode that message, which was perfectly received by the intended recipient in my experiment.** This is precisely the behavior of WINLINK prior to the discoveries and developments by John Huggins, myself, and Peter Helfert.

¹⁹ <https://ecfsapi.fcc.gov/file/7521098786.pdf>

²⁰ Karn: <https://ecfsapi.fcc.gov/file/10513525129724/rm11831-rebuttal-to-rappaport.pdf>

Section 2. Original Study: Applying the False Test to D-RATS

In this filing, I now present the result of applying this (faulty) test to a 2nd such ARO/compressed system -- D-RATS. D-RATS was quite popular several years ago as a method of communicating and providing for compressed file transfers over several different lower layer-based systems, including D-STAR, AX.25, and the Internet (tcp/ip). Some of its proponents even made the error of touting its "security through obscurity"²¹, which is a criticism frequently leveled at misguided WINLINK training materials. While its popularity may have waned somewhat, it is still widely used, by ARES groups,²²^{23 24 25} and there are also recent YouTube training videos.²⁶ Some persons fail to recognize that while D-RATS is often used on VHF, **it works just as well over HF** (e.g., AX.25 300 baud using soundmodem.com) and the FCC's requirements for documentation of techniques, while somewhat relaxed above HF, **still prohibit intentional obsuration** (the precise charge made so often by critics of WINLINK....but not apparently applied toward D-RATS or FLDGI/FLMSG).^{27 28 29}

It is obvious that D-RATS uses LZHUF compression. In the 2009-2010 time frame, when Windows-based computers moved to 64-bit operating systems, D-RATS users had to load a 64-bit version of LZHUF in order to keep their systems operational, as is shown in multiple announcements. It could not be more plain that the system uses compression.

In this test, I simply re-created the exact scenario that those criticizing Winlink demand:

- **Sending station**, sending compressed file to Intended Recipient; 10 meter transmission, 300 baud, packet. (Soundmodem.com)
- **Intended Recipient**, in a "connection" with the Sending Station, receives the file perfectly and the file is able to be viewed, read, printed -- all perfectly. (SSB, upper side band, 10 meter reception, 300 baud, packet, Soundmodem.com)
- Transmission over the air, using amateur radio transceivers and antennae.

21 <http://www.icomamerica.com/en/products/amateur/dstar/dstar/DRATSBrochure.pdf> See page 4, bottom of left column.

22 2018 YouTube Training Video: <https://www.bing.com/videos/search?q=ARES+D-RATS&view=detail&mid=25194CAEA3F24AC35EB525194CAEA3F24AC35EB5&FORM=VIRE>

23 http://www.clayares.org/attachmates/dstar/DRATS-Instructions_QuickStart.pdf

24 <http://dev.wc-ares.org/training/drat/>

25 <https://n4ema.wordpress.com/d-rats/>

26 <https://www.youtube.com/watch?v=mO9XmzxS8fk&app=desktop>

27 For 6 and 2 meters: "(5) A RTTY, data or multiplexed emission using a specified digital code listed in §97.309(a) of this part may be transmitted. The symbol rate must not exceed 19.6 kilobauds. A RTTY, data or multiplexed emission using an unspecified digital code under the limitations listed in §97.309(b) of this part also may be transmitted. The authorized bandwidth is 20 kHz. "

28 For 222-225 MHz, 70 cm : "(6) A RTTY, data or multiplexed emission using a specified digital code listed in §97.309(a) of this part may be transmitted. The symbol rate must not exceed 56 kilobauds. A RTTY, data or multiplexed emission using an unspecified digital code under the limitations listed in §97.309(b) of this part also may be transmitted. The authorized bandwidth is 100 kHz. "

29 97.309(b) "(b) Where authorized by §§97.305(c) and 97.307(f), a station may transmit a RTTY or data emission using an unspecified digital code, except to a station in a country with which the United States does not have an agreement permitting the code to be used. RTTY and **data emissions using unspecified digital codes must not be transmitted for the purpose of obscuring the meaning of any communication**. When deemed necessary by a Regional Director to assure compliance with the FCC Rules, a station must....." [emphasis added]

- **Monitor station**, using D-RATS software (and soundmodem.com AX.25 sound-card software) --- captures the entire transmissions, and is **unable to make the received information "readable."** (Able to read the callsigns perfectly, but not able to read the data; 10 meters, AX.25, soundmodem.com).

The Challenge

The actual monitored transmissions are reproduced in Appendix 7. **It is easy to see that D-RATS is unable to make this material "readable" to the monitoring person--the Callsigns are obvious, and the message cannot be immediately understood.** [Exactly what was noted for Winlink....] *If anyone disputes this, they merely need to decode Appendix 7 and present that to the world.* From my experience with WINLINK....you will not be able to do that without either the cut-and-paste effort of KX4O, or the software development that took me five days. This is not really difficult, because the material is NOT encrypted, nor is it "effectively encrypted" -- it is simply COMPRESSED by LZHUF, a publicly known algorithm.

We are now 3 weeks into my investigations of the claims of these persons that "Winlink is unique." **Obviously that claim is completely false.** There are at least SIX systems in this class, and here is how it stands currently: (ARQ/compression enabled where possible)

No.	Amateur Radio System	Likely Outcome	Proven outcome
1	WINLINK		Can be monitored with suitable software, which I and others have created, at no charge.
2	FLDGI/FLMSG		Cannot be read, as suitable software has not yet been created. (Appendix 5)
3	D-RATS		Cannot be read, as suitable software has not yet been created (Appendix 7)
4	PAT (including FD protocol)	Likely cannot be monitored without suitable additional software	
5	BPQ (when passing WINLINK compressed traffic)		Can now be monitored, thanks to the software that I and others created, at no charge.
6	FBB	Likely cannot be monitored without suitable additional software	

TABLE ONE:
Current Status of ARQ/Compressed Historical Amateur Radio Systems Monitoring Ability

Section 3. Lee McVey's Most Recent Filing: *Muddling Things Up*

Mr. McVey describes good reasons that he should be knowledgeable .:

"I am a retired electrical engineer. Amateur radio led me to my career path. I obtained my FCC First Class Radiotelephone license in 1965, and my first amateur license as a younger teenager in 1961. I am a Life Senior Member of the Institute of Electrical and Electronic Engineers and a retired Professional Engineer in five states."

However, his writing does not support that conclusion of being knowledgeable on this particular issue. Herein, I address five areas of incorrect understanding revealed in his most recent filing. Mr. McVey has so muddled the understanding of the 30-year old public domain LZHUF data compression algorithm, that I conclude the section with an attempt to explain what how it *really* works, for those who like delving into the world of mathematicians (and since that is not my world, I had to turn to real experts for help).

Section 3A: Incorrect Reading of 97.309

Mr. McVey claims,

"47CFR§97.309(a), et. seq., defines what standard code formats must be used in order to be allowed on the high frequency (HF) Amateur Service bands. As they are now codified, it has to be one of them: either ASCII, Baudot or AMTOR."

Mr. McVey appears to misunderstand the actual regulation:

§97.309 RTTY and data emission codes.

(a) Where authorized by §§97.305(c) and 97.307(f) of the part, an amateur station may transmit a RTTY or data emission using the following specified digital codes:

- (1) The 5-unit, start-stop, International Telegraph Alphabet No. 2, code defined in ITU-T Recommendation F.1, Division C (commonly known as "Baudot").
- (2) The 7-unit code specified in ITU-R Recommendations M.476-5 and M.625-3 (commonly known as "AMTOR").
- (3) The 7-unit, International Alphabet No. 5, code defined in IT--T Recommendation T.50 (commonly known as "ASCII").
- (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, for the purpose of facilitating communications.

All of the modern compressed techniques (with which I am familiar) **begin with ASCII**, but then employ one or another public compression. Huffman encoding replaces ASCII characters with **bits** designed to give the position of strings of characters in a table, allowing compression.³⁰ The ARRL has explained this for G-TOR (an explicitly allowed technique) as follows:

"G-TOR frames are sent in normal ASCII or are Huffman and run-length encoded, depending upon which is more efficient on a frame-by-frame basis."³¹

Mr McVey has apparently overlooked the impact of the words "**such as**" in the writing, "may use any technique whose technical characteristics have been documented publicly **such as** CLOVER, G-TOR, or PacTOR [emphasis added]

Whose documentation has not been sufficient? Pactor 3 and 4 have been replicated by competitors. This apparently didn't happen for Clover and/or G-Tor -- making *their* documentation, not that of Pactor 3/4, to be suspect. **Pactor exceeds the "such as" standard!** Thus his comment is completely fallacious, and should be totally disregarded.

Section 3B. Incorrect Explanation of LZHUF

Mr. McVey then attempts to explain how LZHUF functions ("as applied by ARSFI/Winlink")

"The Huffman method, as applied by ARSFI/Winlink, creates what is called a "tree" by assigning the most frequently used character the lowest bit value instead of its 5 or 7 bit TT value. A "space" for example, typically would most always be a "0". Less frequently used characters would be assigned two, three or four bit values, depending inversely on how frequently they are used in the message."

It is actually more complicated than that. The following table demonstrates the actual output of lzhuf_1 (running in a MS-DOS box on Windows 10 computer), and also the reconstructed text (to prove it was utilized properly).

Example	Input Text	Compressed Binary	Reconstructed Text	Comments
1	(20 spaces)	14 00 00 00 9d 00	(20	bolded characters

30 <http://archive.gamedev.net/archive/reference/articles/article295.html> Having explained the creation of a Huffman table, that reference then states: "Start at the top ("root") of this encoding tree, and travel to the character you want to encode. If you go left, send a "0"; otherwise send a "1". Thus, "A" is encoded by "0", "B" by "10", "C" by "11". Algotether, "ABABACA" will be encoded into ten bits, "0100100110". "

This aproved method, utilized by many approved techniques, completely disproves the assertion of Mr. McVey.

31 <http://www.arrl.org/g-tor>

		00 (7 bytes)	spaces)	are the little-endian size of the uncompressed text
2	a a a a a a a a a a (20 spaces followed by 10 repetitions of "a ")	28 00 00 00 9d 00 7b 67 00 20 (10 bytes)	a a a a a	bolded characters are the little-endian uncompressed size

As you can clearly see for the case of 20 spaces, after the opening little-endian size information, next follows only **three bytes representing the 20 spaces**: 0x9d and 0x00 and 0x00. ,

For the more complicated input file, with the same 20 spaces followed by 10 repetitions of "a ", following the opening little-endian size information, next follows the same 0x9d and 0x00, but then 0x7b, 0x67, 0x00, and 0x20. **Six bytes to represent 40 characters.**

This is obviously **not** just a replacement of more common characters by shorter bit values, as Mr. McVey asserted, which is easily seen in that (skipping the opening 4 bytes of size information) only 3 bytes were needed to transmit the 20 spaces, and with an additional 3 bytes, a considerably longer text was compressed.

Mr. McVey asks a question that may demonstrate his confusion:

"So, how is a receiving station to discern how to decompress the ARFSI/Winlink strings back into legible text?"

The obvious answer is "**by using publicly available lzihuf_1 software**", which has been available since approximately 1987.

Mr. McVey then asserts

"The "tree TT" itself must be defined in the first frame or two of each message transmission."

But this is also false -- because the "tree" information is being built, and transmitted, right alongside and interspersed with the characters of the text. It is *not* just in the first frame or two, because it hasn't even yet been completed at that point! It is still building, and with each new complexity in the incoming text to be compressed, the tree grows. And all of this was developed and made available to the general public, 30 years ago, and has been used on every continent, likely in every computer in some form or another, ever since.

Mr. McVey then asserts:

"And, it must be precisely received for accurate decompression to be possible. Fading or multi-path propagation can easily distort or omit elements of the "tree TT" such that garble would be the result, were it not for Automatic Resent Request (ARQ) that is employed by ARSFI/Winlink and others among interlinked stations."

Mr. McVey is *only* correct in the fragment that fading or multi-path can distort elements. As has been proven multiple times now...everything until that point of distortion is still readable. I have even provided readers with a way to test and prove that to themselves with their own computers. The discussion is now far past such flawed theoretical assertions from Mr. McVey, since I have provided multiple actual examples of well-received messages over a 900+ mile path, and further have demonstrated that simple diversity receiver techniques would actually work, and would likely have even received a 36,000 character transmission over a 900 mile path.

The conclusion is inescapable: if one is not satisfied by the easy availability of up to 21 days of perfectly captured Winlink messages on their free viewer, with just a bit of technical know-how and effort, one could create any desired level of accurate monitoring, and do it on their own. I'm not convinced that those making two-decades of complaints are actually willing to learn how to load free software and build monitoring stations and systems now easily possible.³² Most persons are far more likely to use the zero-effort tool already provided by the WINLINK Development Team.

Section 3C. Incorrect Grasp of the Advantages of Compression

Mr. McVey then makes other assertions about compression systems, among which is this:

"In summary, compression amounts to a *redefining* of TTs such that fewer bit values need be transmitted, and over shorter time intervals. A considerable savings, *but only if it is applied to relatively large blocks of data*. Since the Huffman "tree TT" must be sent each time, as it is unique for each message, it is, for short messages, hardly worth the effort, as the extra bits needed for the TT to be transmitted reduce or almost eliminate any advantage gained from compression."

Merely observing the data in the table that I present above demonstrates his claims are false. 20 spaces were compressed to 7 characters; 40 characters were compressed to 10 bytes. For reducing the congestion on scarce amateur radio frequencies, this is obviously a good thing.

Section 3D. Incorrect grasp of well-documented proofs

Mr. McVey then proceeds to discuss tests published by John Huggins KX40....but appears to be completely unaware of the software solution published by me³³, and the subsequent extensive testing and disclosure.³⁴

32 So far, I've seen zero discussion of utilizing the free monitoring software created by myself and Peter Helfert. No questions about setup, no discussion of results or difficulties at all.

33 Gibby: <https://ecfsapi.fcc.gov/file/10830048730238/FreeSoftwareToReadWINLINK.pdf>

34 Gibby: <https://ecfsapi.fcc.gov/file/109191626613689/InconvenientTruths.pdf>

Mr. McVey then makes an amazingly inaccurate statement,

"In so much as admitting that his software, like the LZHUF application, must obtain completely accurate content as a non-linked monitor, for results to be legible after decompression is applied."

This faulty understanding of the nature of LZHUF compression/decompression is difficult to comprehend, since the actual outcome is quite different, and has been documented multiple times. One can even perform at their own desk the simple experiment that I explained in one filing and verify that Mr. McVey's claim is false.³⁵ *The correct outcome is that you obtain good copy until the point of receiver error...and then increasingly poor reconstruction after that, as the offsets are likely off and the table now inaccurate.*

Section 3E. Incorrect Grasp of Worldwide Inclusive System

Unaware of the failures of his technical grasp of the issues, Mr. McVey proceeds to propose his own custom re-construction of the most advanced amateur radio message passing system in existence, one with 2 decades of service expertise. His major impediment is an apparent failure to understand the need to handle multiple languages, and formats other than text. Therefore his prescribed choice is based only on examining ENGLISH TEXT. It won't do the job he claims.....nearly as well as LZHUF, which has 30 years of performance history.

In my field, this would be analogous to a 4th year medical student, not even with an MD after his/her name yet, advising a 20-year attending that he is doing the heart surgery by an inferior method.

With all of these objective failures of his ex parte filing, I would urge the Commission to view anything that this author writes, with extreme caution. To date, *he has developed no software* for these issues despite years of opportunity, and *appears to have performed no documented experiments*, not even those that could be performed at his desk, and does not understand the results that have already been obtained and documented.

Section 3F. Correct Information: How LZHUF Actually Works

The reader is now probably so confused by all the false assertions made by Mr. McVey, that one might be wondering "Exactly how does this 30-year old LZHUF work?". Here I confess that I am not a mathematician, and this was developed by some very bright people 30 years ago. Running through the algorithm line by line for a very very simple case (four ASCII spaces) required me three pages of notes to track everything that LZHUF sets up.

The system defines multiple storage structures:

- "frequency table" (possibly to keep track of the incidence of characters or strings)
- "son" table,

35 Gibby: <https://ecfsapi.fcc.gov/file/10906223525884/ExParteMyths.pdf>

- "prnt" table (?Parent?), an
- "rson" table (?right hand side son?); and a
- "dad" table, and then a
- "textbuf" table. [Tables here refers to arrays in C-lingo.]

Initial values are loaded to all of these, and then finally the software reads in a block of characters (in this case, up to 60 if the text is long enough) and begins to encode characters, a process which apparently includes creating new nodes in some of the above tables, and then outputting characters/flags, and positions, which appear to have 12 bits. This fits well with previous information I've read about LZHUF....but without spending many many hours, I'm unlikely to even try to create some sort of "explanation" such as the flawed one produced by Mr. McVey.

A real explanation

The code itself indicates it is using LZSS compression. I found the following potentially helpful "English" explanation of how LZSS works, from a web page by a person who apparently was able to code this type of compression/decompression system. His explanation may be helpful, and far better than I am likely to do:

"Based on the discussion above, encoding input requires the following steps:

Step 1 Initialize the dictionary to a known value.

Step 2 Read an uncoded string that is the length of the maximum allowable match.

Step 3 Search for the longest matching string in the dictionary.

Step 4 If a match is found greater than or equal to the minimum allowable match length:

1. Write the encoded flag, then the offset and length to the encoded output.

2. Otherwise, write the uncoded flag and the first uncoded symbol to the encoded output.

Step 5 Shift a copy of the symbols written to the encoded output from the unencoded string to the dictionary.

Step 6 Read a number of symbols from the uncoded input equal to the number of symbols written in Step 4.

Step 7 Repeat from Step 3, until all the entire input has been encoded." ³⁶

However, the most important fact for non-mathematicians such as me, is that this is public domain, widely used in multiple amateur radio systems, and likely many non-amateur radio system, and has been so used and widely available for three decades. It is difficult to imagine that a routine which any person can run on their own computer (to compress and/or decompress their own files) would be considered "secret" or "encrypted."

36 <http://michael.dipperstein.com/lzss/>

Section 4. Janis Carson AB2RA's Most Recent Filing: *Series of Odd Criticisms*

Janis Carson AB2RA³⁷ has honorably assisted in one of the most notable achievements of amateur radio in this century --- the documented self-policing and self-enforcement of WINLINK that drove the "objectionable" traffic incidence down from an initial 1.1%, by two full orders of magnitude, to approximately 1 out of 15,000 emails.³⁸

There is no other portion of Amateur Radio that even has objective measures of objectionable behavior. It is only because WINLINK is the world's most advanced volunteer communications system, that such data can even be collected.

I have tried to consistently appreciate the efforts of Janis Carson and Ron Kolarik in participating in this worthy and incredibly successful effort. Because WINLINK is a "system" and not a "technique," current FCC regulations don't really apply. WINLINK has apparently gone "above and beyond" any of their legal obligations. Nevertheless, it was clearly in everyone's best interests to apply a combination of "sunshine" and "software" toward improving individual amateur radio operators' behaviors. This result was one of the most unlikely collaboration of 2-decade opponents in a worthy common goal, ever achieved in amateur radio.

The first portion of her extensive ex parte proposal covering multiple subjects,³⁹ concerns the ARRL and issues in which I haven't participated, so I'm not addressing those portions.

The portions which I do address can basically be characterized as a **series of odd criticisms**; misunderstandings of the target organization's actual responsibility; obsession on minor problems; proposals of awkward solutions to minute issues; a lack of grasp of the implications of her own studies and inappropriate criticisms of technology she admits she doesn't fully grasp. It all boils down to literally grasping at straws in any possible attempt to criticize or *create more work* for one of the most incredibly successful volunteer, non-profit organizations currently advancing service and technology in Amateur Radio. Let's bring some objectivity to her criticisms:

Section 4A. *Receiving* for Hours is Not a Violation!

Janis Carson makes this quite odd assertion of violation for merely *operating a receiver*:

"Winlink permanently occupies a channel for email connections in violation of: 97.101(b): "No frequency will be assigned for the exclusive use of any station." and is incompatible with other peer to peer operations in the HF amateur bands."⁴⁰

37 Website: <http://wireless-girl.com/>

38 <https://ecfsapi.fcc.gov/file/10822196770221/ReAnalysisOfWinlinkObjectionableMessages.pdf>

39 Carson: [https://ecfsapi.fcc.gov/file/1092523409086/\\$SEPTEMBER_24_19_ARRLreplyFINAL.pdf](https://ecfsapi.fcc.gov/file/1092523409086/$SEPTEMBER_24_19_ARRLreplyFINAL.pdf)

40 This claim is quite similar to a false claim on her website: "Winlink **"OWNS"** an HF channel, contrary to FCC Rules;" see http://wireless-girl.com/WinLink_legality.html

This claim is almost incomprehensible:

1. With dozens of stations LISTENING to the same frequencies within a 5 kHz narrow 97.221(b) sliver on 40 meters, and coexisting reasonably well with NTS-D, WINLINK, BBS, and ALE, it is unbelievable that one would conclude that any of these stations was given "exclusive use" of any of those frequencies.
2. Most of the 24 hour day of a Winlink (or other) ACDS station is spent LISTENING. This is the use of a RECEIVER, not the transmitter. The actual minutes spent TRANSMITTING may be in single digits for many such stations. The writer does not seem to understand that RECEIVING for 23.90 hours is not the same as having exclusive usage of the frequency. I have seen this same basic assertion by other affiliated writers.

Section 4B. Using Amateur Radio For Innocent Communications is Not Illegitimate or Backwards

Ms. Carson goes on to opine a quite odd assessment of merely using amateur radio as one desires:

"Ordering boat parts, posting to a blog, or Facebook has absolutely nothing to do with emergency communications, nor does free email advance the state of the radio art or qualify as legitimate non commercial non pecuniary activity enumerated by Part 97.1. To assert that it does is patently disingenuous. [emphasis added]"

While I'm not in favor of many of those first-listed activities, I am completely confused by her assertion that free email does not (or has not) advanced the state of the radio art. In her own submission, *she clearly indicates that she has difficulty even understanding the Winlink-developed technology!* Thus clearly it has already advanced the state of the radio art *beyond her grasp*. The suggestions that I have made for further advances (collaborative, diversity receiving systems, automated power modulation) are *far* beyond where amateur radio is currently, and even the data I have already produced appears beyond her understanding.

Radio email is obviously practiced widely as a legitimate non-commercial non-pecuniary activity by thousands, and her assertion otherwise is what is truly patently disingenuous -- as is demonstrated by the existence of the following texts and reports on activities of training or volunteer service in support of the American citizenry. Her claim is totally false.

- **Hurricane Michael After Action Report: Alachua County 2018** <https://www.amazon.com/Hurricane-Michael-After-Action-Report/dp/1729341918>
- **2019 Alachua County Hurricane Dorian After Action Report / Improvement Plan** <https://www.amazon.com/Alachua-County-Hurricane-Dorian-Improvement/dp/1692586807>
- **Cascadia Rising 2016 ARRL – Final Report** [http://www.arrl.org/files/file/Public Service/ARES/Cascadia Rising 2016 - Final Report.pdf](http://www.arrl.org/files/file/Public%20Service/ARES/Cascadia%20Rising%202016%20-%20Final%20Report.pdf)

- **Amateur Radio Digital and Voice Emergency Communications: Build your community group's assets & expertise** 2nd Edition <https://www.amazon.com/Amateur-Radio-Digital-Emergency-Communications/dp/1548004340>

Section 4C. WINLINK Developers are Not Responsible For Slow Government Systems or Concerned Amateurs' Failure To Use Published Information

Carson asserts a quite odd view of the responsibilities of a non-paid volunteer group to perform the policing normally handled by sovereign national governments:

"That it has been tolerated by the ARRL and FCC or practiced widely by even unlicensed persons who are not properly authenticated by the gateways to the Winlink system does not justify its continuation. Widespread long term violation of law does not logically support abolishment of law; rather it demands vigorous enforcement and effective regulation."⁴¹

WINLINK is a "system," not even currently regulated by the FCC, and likely has only the most modest of responsibilities in any of this. I have never managed a system of many thousands of members, with licenses going in and out of applicability, from potentially hundreds of nations, some likely without even the barest of electronic database capability for cataloging amateur radio licenses. I would not presume to tell persons who had managed such a system for 2 decades, "how it should be done." Ms. Carson apparently is unaware of the difficulties posed by checking on amateur radio licensure in various nations' databases that may display serious latencies, and fuzzy even on their responsibilities. It might be more helpful for her to take on stopping pirate broadcast stations, for example.

But what is most curious about her complaint in this area is what is MISSING.

It obviously first requires illegal transmissions on expensive and possibly very complicated transmitters in order to *even begin to access the WINLINK system*. Many licensed American amateurs have not mastered this skill. *Where is Ms. Carson's discussion of their impostors's national government in preventing illegal transmissions, or enforcing their own laws which DO apply to the impostor?*

I don't see any of that in her discussion.

Nor do I see any review explanation of the current systems utilized by WINLINK; no explanation of her grasp of those difficulties; no explanation of the delays or failures of various of those governments (who aren't effectively enforcing their own laws, from her complaint).

All I see is that she feels WINLINK should be better at doing the job at which entire sovereign nations are not apparently succeeding up to her standards.

⁴¹ This claim, from her FCC filing, is quite similar to an unsubstantiated and false claim on her website: "Winlink does not validate internet email users as amateur operators properly to comply with FCC rules " See: http://wireless-girl.com/WinLink_legality.html The writer does not even show where such validation is even required.

The writer continues with a moot argument:

"IMPORTANT CONCLUSION: All of this evidence demonstrates that the LACK of the ABILITY TO ADEQUATELY MONITOR AND DISPLAY ALL CONTENT has enabled this to occur over the course of 20 years." [emphasis original]

It is embarrassing that the author would bring up this subject, when apparently the author *took no action to bring about the type of software necessary to implement 30-year old decompression*, carefully explained by Jean-Paul Roubelat by 1999. As is widely known now, it took a struggling novice programmer (me) only 5 days of "off hours" work to write the software after gaining the ability to read the USB output of a PACTOR modem. **There just isn't any excuse for blaming this on anything other than a lack of willingness to create the monitoring desired, by these interested persons, at any time in their 20 years.** *Embarrassing.*

And furthermore, her complaint doesn't even "fit".. Suppose Ms. Carson, and all of her followers, take advantage of the free software that I have written to allow them to read email. *How exactly do they propose to determine which signals come from unlicensed persons from any given nation on earth? If they can come up with a better system than WINLINK utilizes, I'm sure it would be of interest to the unpaid WINLINK volunteers.*

Section 4D. With a Commercial Product Available, How Long Will It Take For the Writer to Realize Reading Winlink Over The Air Is ALREADY Possible?

In Section D, the author appears to be unaware of the actual conclusions of 86 pages of detailed filings of experiment evidence filed by me with the FCC.⁴² While I welcome and appreciate the thanks provided by the author, for the development work I did at no charge for her and others, the author does not seem to have grasped what has now been clearly proven:

- Perfectly adequate decoding for monitoring has been demonstrated over a 900 mile path with severe fading and modest signals.⁴³
- The concept of diversity receivers has been validated by the experimental evidence⁴⁴ [recall that the author indicated no advances would occur from email...]
- The author seems to find LZHUF and other extraordinarily well-documented compression systems, utilized in FBB, WINLINK, PAT, and D-RATS as "obscure" when the literature is

42 Gibby: <https://ecfsapi.fcc.gov/file/109191626613689/InconvenientTruths.pdf>

43 Gibby: <https://ecfsapi.fcc.gov/file/109191626613689/InconvenientTruths.pdf>

44 Gibby: <https://ecfsapi.fcc.gov/file/109191626613689/InconvenientTruths.pdf>

replete with the D-RATS participants changing over to new versions as 64-bit computers became the norm around 2010. ^{45 46 47}

- The author appears not to understand hexadecimal printouts of digital data, and does not understand that the software is available even with an instruction manual from a well respected technology firm, for a cost of \$0. ⁴⁸ If that isn't adequately easy to use, I am at a loss.

Section 4E. Carson Herself Did the Baseline Data Capture

Next, Carson appears to misunderstand how even her own data applies to important questions. The explanations of her own group were utilized to understand that they had drawn their observations of potential violations on the first day the Winlink Viewer was available. *Since no known receiver can look into the FUTURE, her data had to come from the PAST* --- before anyone knew of the installation of the WINLINK Viewer. Thus her claim of "limited by inability to view the Winlink data base prior to the installation of the Winlink Viewer" is faulty --- her data would have covered a reasonable period of time before anyone knew of the viewer, and thus should be well representative of the situation in 2019. ⁴⁹ No one has alleged any non-homogeneity in the violation patterns across time....until the rapid improvements brought about after the WINLINK Viewer. Her own sample set thus suffices for the baseline, the "control."

Thus it is bizarre that she would go on to claim that there is any different "case" than precisely what the ARRL stated: "To the extent that self-enforcement relies upon being able to read the content of digital transmissions, it appears that appropriate rules are in place to accomplish that objective." Except for the fact that Carson appears unaware that WINLINK is NOT unique, and that amateurs are **unable to monitor FLDGI/FLMSG ARQ/Compressed messages**, and likely *any* such compressed/ARQ messages via FBB, or PAT or D-RATS. Those who have claimed otherwise, I have requested to decode Appendix 5 of my previous work -- and no one has done so yet. Some have painfully misconstrued this to mean that FLDGI/FLMSG are accused of being "encrypted". Nothing is further from the truth, and only illustrates their utter confusion. The fact is, that completely unencrypted messages cannot easily be read....**if the proper software for the setting of the transfer ("monitored" is distinctly different from "connected") has not yet been written**. The error of the writer and others was to fail to understand that, for 30 years, such systems *were not immediately readable*. All of them.

I have previously provided my recommendations to avoid another 19-year interminable argument.

45 <http://www.dstarinfo.com/drats.aspx>

46 <http://digitalhamireland.com/index.php/features/module-positions/drats>

47 http://drivenelementsarg.org/d_rats_software.html

48 https://www.qsl.net/nf4rc/Tech/RaspberryPiWinlinkDecoder/CurrentWindowsSoftware/pmon_lzh_v_1_0_7.zip

49 Gibby; <https://ecfsapi.fcc.gov/file/107301549501394/IncidenceCalculationsExParte0730.pdf>

Section 4F. Will They Ever Admit 30-Year Old Compression Is Not Encryption?

Oddly, Carson never appears to acknowledge that nothing prevented HER from working to decode 30-year old compressed protocols:

"IMPORTANT CONCLUSION: All of this evidence demonstrates that the LACK of the ABILITY TO ADEQUATELY MONITOR AND DISPLAY ALL CONTENT has enabled this to occur over the course of 20 years." [emphasis original]

Having complained that email is "not advancing the art" (see above) --- it is difficult to fathom Carson's inability to even catch up to the state of the art of Roubelat of 1999. Why didn't she or her followers solve this in those 20 years and be done with it? *Who precisely has the technological failing?*

The ARRL attempted to provide educational and historical clarity in its recent filing,⁵⁰ which apparently still did not complete the task of explaining 30-year old LZHUF sufficient to some writers.

The ARRL has strongly affirmed the traditional usage of publicly known compression, in amateur radio, just as it is utilized all over the world in so many other spheres of digital computing. Why the author would feel that there is some need for further alteration of 97.113(a)(4) is completely beyond me. What is really needed is for some persons to come up to speed on 30 year old technology.

...

Some commenters argue that one or more of the digital modes employed worldwide by Radio Amateurs licensed by a variety of countries constitute "obscured" or "encrypted" communications, and therefore licensees using the identified modes violate international treaty obligations and domestic rules that govern Amateur operation. If this actually were the case, the League would be among those objecting.

The heart of the matter appears to be a concern by some commenters that some of the digital modes employed worldwide by Amateurs were designed and are being used to obscure content rather than to improve communications, and therefore violate the rules. The applicable provisions are Article 25.2A of the International Radio Regulations treaty²³ and domestic implementation thereof at Section 97.113(a)(4) of the Commission's Rules.²⁴ Both provisions use identical wording to prohibit Amateur Radio transmissions that are "encoded for the purpose of obscuring their meaning"²⁵

These commenters appear to misconstrue the difference between prohibited "encryption" of messages – which generally is understood to refer to a process intended to ensure that only the addressed (authorized) parties can access the message -- and the encoding of messages that converts data into a standard format so that it can be digitally transmitted and received and, in

⁵⁰ ARRL: https://ecfsapi.fcc.gov/file/10918259487629/ARRL_16-239%2C_RM-11759%2C_RM-11828%2C_RM-11831.pdf

some instances, compress the data for efficient transmission. Pursuant to the Commission's Rules, any Radio Amateur operator is authorized to transmit data using an authorized digital code. 26 When doing so, an operator can "use any technique whose technical characteristics have been documented publicly ... for the purpose of facilitating communications."27

The use of digital transmission techniques in the Amateur Service has been considered by the Commission on multiple occasions and the rules are explicit: new digital techniques must be documented publicly.28 The condition of public documentation generally has been accomplished by publication on the Web where the documentation is available to everyone. For example, the League itself long has hosted a number of such documents on its website. 29 The Commission approvingly noted several of the descriptions published on the League's site when it adopted this rule in 1995. This established clear examples of accepted descriptions that today continue to serve as valid references for documentation of new techniques.30

Section 4G. Is the World Largest Database of All Legitimate Potential New Amateur Radio Operators Necessary or Feasible?

DISCLAIMER: I am not part of the WINLINK Development Team and I do not know all the techniques that they have developed over the years to spot impostors.

Carson demonstrates a quite odd obsession with only ONE illegal action of impostors, and seemingly ignores the responsibilities of NATIONS versus non-paid volunteer organizations.

Carson is amazingly concerned over the potential for someone to acquire a thousand dollars or more of amateur radio-compatible equipment, violate the law of their home nation, get on the air illegally as an impostor, and manage to sneak into the WINLINK digital email system (something that many licensed amateurs struggle to succeed), potentially at sea, and then get away with that feat for a number of days before being caught.

To solve this problem, Carson then proposes *sending post cards all over the world*, to the physical addresses of persons in over 300 nations, perhaps to ask if they are really an amateur radio operator, or did they know their call may have been hijacked? This is a quaint and certainly very "speedy" suggestion, designed to frustrate legitimate usage by legal persons at sea or elsewhere on land, having perhaps only recently obtained their license. "You can use SSB, or FM or CW or RTTY, but you cannot use this *one system* if you don't respond to this postcard." would be the implied message. The author (perhaps aware of the kludge her proposed system would be) further proposes to effectively give a "pass" to members of various named organizations, presumably whose personnel are either more likely to be honest, or more likely to actually wish to get a ham radio license --- but this itself **would require yet another herculean amount of work.** Even IDENTIFYING the "verified members" of AUXCOMM, ARES, Red Cross, the Salvation Army, or other NGOs would be a daunting task.... Can you tell me who is currently a member of your County's RACES organization? Or who has taken AUXCOMM? Is all of this necessary?

But what is most confusing is what the author did not address: It is far easier to pick up a microphone and call upon other impostor friends, or into a Maritime net using an assumed callsign, than to learn how to do WINMOR or ARDOP or PACTOR and succeed at something that takes me a couple hours of one on one training to get most licensed hams to learn how to do.

And FAR easier to purchase a Baofeng from Amazon for \$25 and program it for simplex or local repeater frequencies --- had the author considered how to prevent these far more likely cases of unlicensed operation? There is no indication that the author gave any thought to anything beyond the relatively rare instance of a non-amateur succeeding at WINLINK. (Something that apparently some of the most published detractors have not yet demonstrated.) Sure, it can and probably does happen until the WINLINK administrators, who apparently work hard at catching impostors, catch up to them. But the world didn't end, and the author provides zero data on the incidence of such operation on SSB nets or FM repeaters. The author appears to have an obsession with WINLINK.

Perhaps the author should be more satisfied that the rate of untoward transmissions is now in the range of 1 out of 15,000, and turn attention to the far more common inappropriate transmissions on 75 meter SSB or 2 meter FM.

Section 4H. Does Carson Seriously Believe That Amateur Radio Operators Must Always Use Any Available Commercial Radio System Rather Than Amateur Radio?

Carson then turns attention to "commercial carriage of undesirable content"⁵¹, and raises again the issue of "communications on a regular basis, which could reasonably be furnished alternatively through other radio services"⁵²

This is a **very odd argument, which if followed to its logical conclusion, would make most RTTY, SSB and 2 meter FM illegal.**

It would be more helpful if the author would tackle instead the **usage of 75 meter SSB or 2 meter repeater traffic to evade cell-phone charges**, which are obviously perfectly analogous communications on a regular basis which could reasonably be furnished by AT&T or Verizon cell phone service. This might truly clear out some space on amateur radio, if everything that could possibly be done through some other form of radio, were stricken from the airwaves. I believe potentially 90% of amateur radio communications would vanish and then there would be plenty of room left. There is no need for RTTY when text messaging is available, right? Does she propose to abolish RTTY?

This is a patently absurd argument.

51 The definition of a commercial carrier obviously proves that WINLINK is not a commercial carrier.

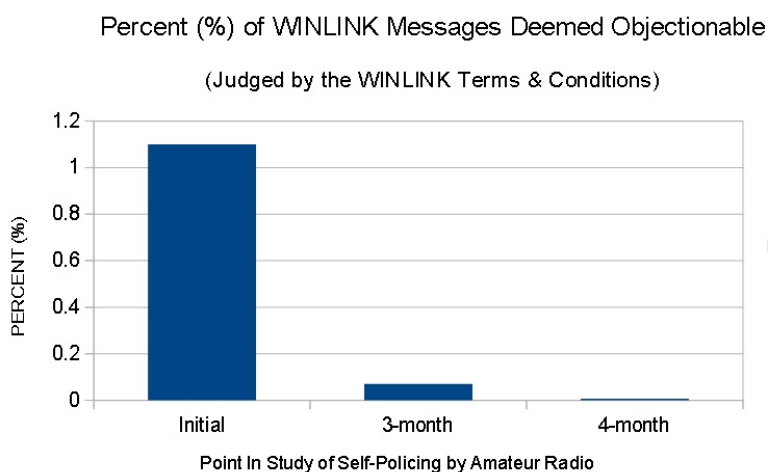
52 This claim, from her filing, is similar to a false and incredibly generalized claim on her website; "Winlink is a **commercia** use of amateur radio for free HF email for yachts and others " See: http://wireless-girl.com/WinLink_legality.html

Section 4I. Grasping At Straws

The author makes such an out-of-date assertion, that it suggests a complete lack of grasp of the many advances in the past few months;

"In the instance of Winlink, the issue of purchase of non amateur related items, such as beer or engine parts, or management of a Pizza business has become common."

The actual truth is that it has been *exceedingly rare*.⁵³ Apparently the author has not recognized recent filings in this matter, so I will again provide the graph of the actual data in this issue (from the reference just cited):



I submit that at this point, any further argument about such infrequent objectionable emails is really grasping at straws.

53 Gibby: <https://ecfsapi.fcc.gov/file/10822196770221/ReAnalysisOfWinlinkObjectionableMessages.pdf>

Section 5. The Psychology of False Accusations, and How They Must Be Resolved

Doubling Down: Applying a False Test, In a Prejudiced Manner

Important Definitions

Bias	prejudice in favor of or against one thing, person, or group compared with another, usually in a way considered to be unfair. http://english.oxforddictionaries.com/bias
Prejudice	preconceived opinion that is not based on reason or actual experience http://english.oxforddictionaries.com/prejudice
Persecution	hostility and ill-treatment, especially because of race or political or religious beliefs. persistent annoyance or harassment. http://english.oxforddictionaries.com/persecution

As has been shown multiple times now, by myself and by a world-renowned communications expert, the "test" used to condemn WINLINK transmissions as "encrypted" or "effectively encrypted" was fallacious. The ARRL also made it exquisitely clear this is not encryption.⁵⁴

What is so striking now, however, is that the persons who so harshly criticized WINLINK operators, creators, and users, did not appear to apply their (false) test uniformly to all such systems in the class of ARQ/compressed systems.⁵⁵ Now I am demonstrating, system by system, week by week in FCC filings, that *WINLINK is certainly not unique in any way as regards monitorability*. However, the treatment given WINLINK *was apparently VERY unique*. That treatment demonstrates BIAS, PREJUDICE and qualifies as persecution, without merit in the area of "encryption".

These were provably false claims advanced over years and years, by multiple means, in multiple forums.⁵⁶ As discussed above, they were not apparently ever tested on other similar systems. Some of the persons making these claims, also claim to be "experts."

I have had some difficulty finding literature on understanding the psychology of people who make false accusations. Wikipedia discusses false accusations that are made in criminal and in non criminal issues. Those false accusations made against WINLINK seem to have characteristics of both.

54 ARRL: [https://ecfsapi.fcc.gov/file/10918259487629/ARRL 16-239%2C RM-11759%2C RM-11828%2C RM-11831.pdf](https://ecfsapi.fcc.gov/file/10918259487629/ARRL%2016-239%2C%20RM-11759%2C%20RM-11828%2C%20RM-11831.pdf)

55 See previous discussion of fruitless Google searches by me; further, in all of the papers and opinions which I have read in RM-11831, I have seen no allegations that FLDGI/FLMSG, and D-RATS or other such systems, are obscured, or encrypted, even though it is now demonstrated that they will fail the "test" used to condemn WINLINK/PACTOR.

56 Attempts by some to squelch honest discussion of this bias and prejudice, will ultimately fail. One can close threads and ban participants, but the truth will eventually become known.

Wikipedia discusses the following possible causes of false accusations:⁵⁷

- intentional lying
- confabulation
- faulty interviewing techniques
- workplace bullying ("Research by the Workplace Bullying Institute, suggests that "falsely accused someone of 'errors' not actually made" is the most common of all bullying tactics experienced, in 71 percent of cases)
- Workplace Mobbing: ("Workplace mobbing can be considered as a "virus" or a "cancer" that spreads throughout the workplace via [gossip](#), [rumour](#) and unfounded accusations ")
- Narcissistic rage
- Psychological Projection

Most of these aren't "good things."

I found a paucity of advice on the web for how to prevent false accusations, but a plethora of advice for how to respond to them -- suggesting that they are more common than one would like, and that many of us will have to respond to people who falsely accuse us.⁵⁸ As early as the biblical text of Exodus, there were prescriptions of how to deal with false accusations.⁵⁹

Janis Carson states,

"I would like to take this opportunity to thank all of them, as well as other contributors for their work. I refrain from lengthy hexadecimal print outs and research on obscure compression techniques and note this lengthy complicated work was not a simple exercise anyone could have done. Current understanding of this matters most, **and retractions and apologies are unproductive.**"⁶⁰ [emphasis added.]

Carson's "lengthy complicated work" refers to software that a novice programmer wrote in 5 days. The main c file has approximately 235 lines of code, exclusive of comment lines.

That software provided the final nail in the coffin of the belief that WINLINK was "encrypted", and opened the door to understanding the bias, prejudice, and persecution that had been going on for so many years. **Retractions and apologies are now VERY much in order, as I will show in this section.**

From our days in kindergarten we are taught that when we had accused someone falsely, we should apologize⁶¹ In this case, not only were people accused falsely, but there was apparent bias and

57 https://en.wikipedia.org/wiki/False_accusation

58 <https://psychcentral.com/blog/the-quandary-of-being-falsely-accused-and-how-to-deal-with-it/>

59 <https://www.gotquestions.org/Bible-false-accusations.html>

60 [https://ecfsapi.fcc.gov/file/1092523409086/\\$SEPTEMBER_24_19_ARRLreplyFINAL.pdf](https://ecfsapi.fcc.gov/file/1092523409086/$SEPTEMBER_24_19_ARRLreplyFINAL.pdf)

61 Item 7: "Say you're SORRY when you HURT somebody." Fulghum, R:
<https://www.goodreads.com/work/quotes/2399046-all-i-really-need-to-know-i-learned-in-kindergarten>

prejudice in the false accusation --- because had it been applied evenly, the same false accusations would have been made against FLDGI/FLMSG, D-RATS and likely additional systems. To my knowledge, accusations against those other systems (now being proved to have the same difficulties) were never made. If anyone has evidence to the contrary, please notify me immediately!

A quality of good leaders, is that they take ownership of their mistakes, and they make sincere apologies for wrongs said or done. Rose Sherman points out,

*"When leaders make mistakes and judge too quickly, they may feel that their followers will get over it quickly and their actions were inconsequential. Nothing is could be further from the truth...."*⁶²

Sherman elaborates with four sentences that leadership expert Michael Hyatt says true leaders need to have in their vocabulary:

1. *I'm sorry.*
2. *I know that hurt.*
3. *I was wrong.*
4. *Will you forgive me?*

Carey Nieuwhof says that two of the most powerful words a Leader can utter are, "**I apologize.**"⁶³

Erika Andersen penned a Forbes article entitled, "Courageous Leaders Don't Make Excuses....They Apologize." She points out the incredible power of a forthright apology.⁶⁴

Tucker et al., argue against the notion that apologies signify weakness in leaders, suggesting instead that research indicates leaders who apologize are more transformational than others.⁶⁵

"Instead of denying their mistakes, ethical leaders apologize, make amends, and take steps to avoid repeating transgressions in the future. Indeed, some popular writers have recently argued that apologizing is a prerequisite for high quality leadership (Blanchard and McBride, 2003; Lazare, 2004; Timson, 2003). Although providing a genuine apology can be a humbling experience, particularly for individuals in leadership positions, research evidence is beginning to suggest (e.g., Kim et al., 2004) that apologies are critical in rebuilding and sustaining long-term relationships."

Former Medtronic CEO Arthur D. Collins wrote that leaders who fail to apologize lose credibility for themselves and their organizations, while an honest apology can enhance a leader's reputation.^{66 67}

62 Sherman: <https://www.emergingnleader.com/the-power-of-apologies-in-leadership/>

63 <https://careynieuwhof.com/5-keys-to-a-great-apology-and-why-leaders-need-to-apologize-first/>

64 Andersen: <https://www.forbes.com/sites/erikaandersen/2014/12/03/great-apologies-make-great-leaders/#214e4afe40a7>

65 Tucker, Sean; Turner, Nick; Barling, Julian; Reid, Erin and Elving, Cecilia. Apologies and Transformational Leadership. Journal of Business Ethics, 01/01/2006. Accessed at: https://www.researchgate.net/profile/Julian_Barling/publication/225822507_Apologies_and_Transformational_Leadership/links/53fddb3a0cf2364ccc091c09/Apologies-and-Transformational-Leadership.pdf

66 Collins: <https://knowledge.wharton.upenn.edu/article/honest-apologies-can-help-leaders-organizations-rebound/>

67 I had my own opportunity to retract an incorrect statement, when I recognized in Ron Kolarik's recent filing that Ria Jairam had indeed been correct that the ARRL would work on properly sizing 97.221(b) segments at the same time as

Ending Feuds

Dr. Cedar Barstow MEd, CHT, DPI discusses the difference between inauthentic apologies, and the kind of authentic apology that changes bad situations for the better:

"Authentic and effective apology is the very core of healing, clarifying, and restoring relationships, from interpersonal to organizational to cross-cultural ones. A real and well-thought-out apology can, like forgiveness, cut the cycle of anger, revenge, and hatred. However, making a genuine apology causes the giver to be extremely vulnerable. You are admitting directly to another that you did something that caused harm. This is very humbling!"⁶⁸

Public retractions can serve to bring a solid end to decades-old feuds. Hundreds to thousands of followers who don't take the time or cannot understand the meat of the issues, can recognize that their champion has admitted a flaw in their views. This avoids countless further arguments and hard feelings.

Furthermore there are known legal advantages to retracting statements that one discovers to have been made in error.^{69 70}

It is time for the healing to begin,
and it should begin with an acknowledgment of the truth.
That requires real apologies and retractions.

advocating for removing 97.221(c); and thus sent a retraction.

68 Barstow: <https://www.goodtherapy.org/blog/saying-youre-sorry-part-i-apologies-that-heal-0401144>

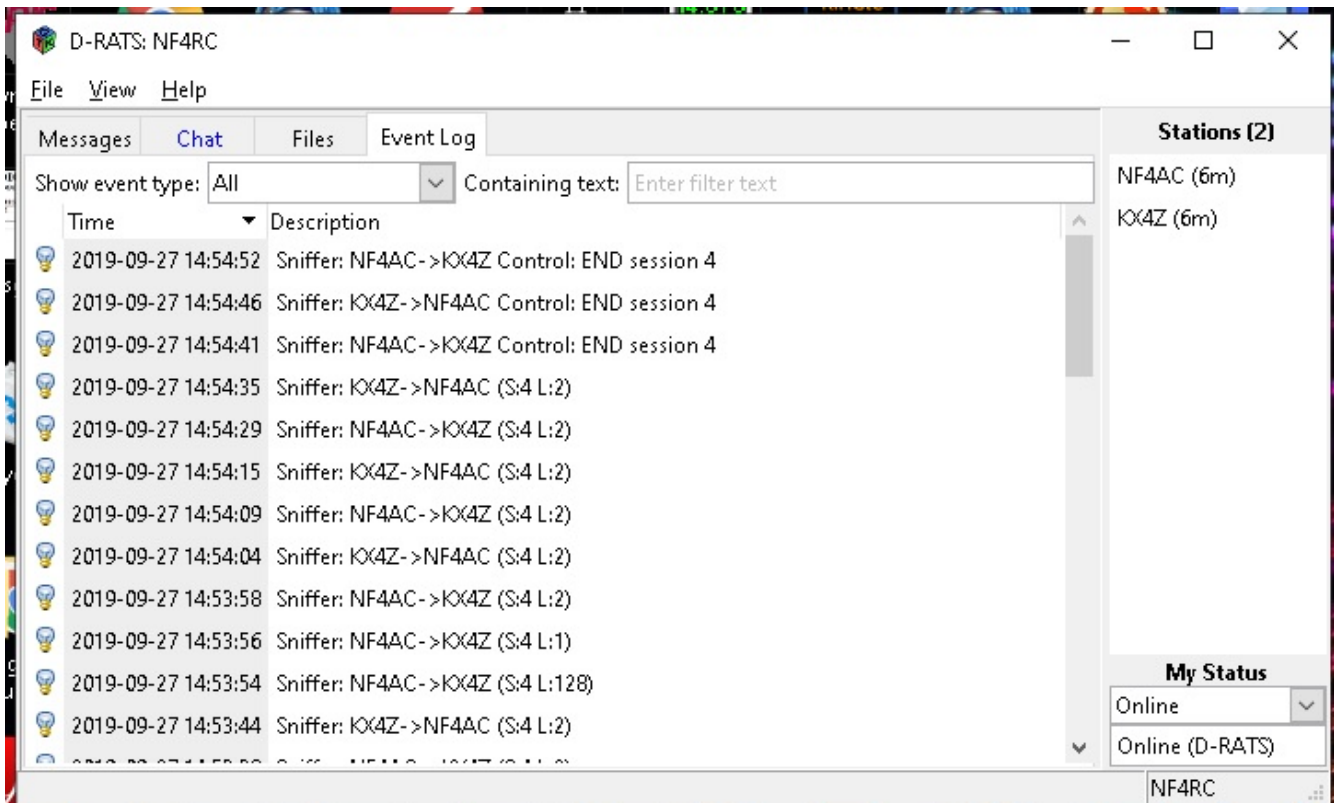
69 Electronic Frontier Foundation: <https://www EFF.org/issues/bloggers/legal/liability/defamation>

70 Concerned by a statement made on eham.net, I had occasion to immediately post on two forums asking anyone who was aware of any false statement I had made about any person to immediately notify me: "If you know of anything that I've written that is UNTRUE, please present it now,-- IMMEDIATELY--- so that i can apologize for it. Saying anything UnTRUE about anyone is the last thing I would want to do. " No one did. My post related to that request was apparently removed (among a section) by administration at QRZ but remains on eham.net. See: <https://www.eham.net/articles/43490>

APPENDIX 7 : MONITORED D-RATS FILE TRANSFER

Challenge: Can you recover the message sent here by this well-known unencrypted system?

SNIFFER CAPTURE FROM D-RATS



CAPTURED PACKETS FROM SOUNDMODEM MONITOR:

```
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:50:00T]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=63> [14:50:01T]
[SOB]Ý=@=@'=@NF4RC~~~~CQCQCQ~~xU3ôİÉÉIKUĐpÑ
r
Ó=@*Æ*[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:51:01R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=63> [14:51:03R]
[SOB]Ý=@=@=>A=@NF4AC~~~~KX4Z~~~~xÚpvÈİİöÉ,ñÊO'=@)¿:[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:51:08R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=49> [14:51:10R]
```

[SOB]Y=@μ=@KX4Z~~~NF4AC~~~xÚ=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:51:22R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=58> [14:51:24R]
[SOB]Y=@=@=@SÄ=@NF4AC~~~KX4Z~~~xÚc (J-6Ô+@=(=@t*[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:51:28R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:51:30R]
[SOB]Y=@=@=@úf=@KX4Z~~~NF4AC~~~xÚca=@=@=@ [EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:51:45R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=58> [14:51:47R]
[SOB]Y=@=@=@SÄ=@NF4AC~~~KX4Z~~~xÚc (J-6Ô+@=(=@t*[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:51:51R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:51:53R]
[SOB]Y=@=@=@úf=@KX4Z~~~NF4AC~~~xÚca=@=@=@ [EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:51:57R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=61> [14:52:00R]
[SOB]Y=@=@ç=@NF4AC~~~KX4Z~~~xÚkdf (J-6Ô+@=(=@=@p[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:52:02R]
[SOB]Y=@=@=@QÇ=@ NF4AC~~~KX4Z~~~xÚc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:52:05R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:52:07R]
[SOB]Y=@=@F#=@KX4Z~~~NF4AC~~~xÚó+=@=@è=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:52:09R]
[SOB]Y=@=@Ò@=@ KX4Z~~~NF4AC~~~xÚc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:52:11R]
[SOB]Y=@=@è<=@ KX4Z~~~NF4AC~~~xÚc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:52:14R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:52:16R]
[SOB]Y=@=@QÇ=@ NF4AC~~~KX4Z~~~xÚc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:52:18R]
[SOB]Y=@=@5ð=@ NF4AC~~~KX4Z~~~xÚc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:52:20R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=179> [14:52:26R]
[SOB]Y=@Æä=@NF4AC~~~KX4Z~~~xÚc=@ =?xÚmTMoÚ6½È ċF@UÚ"b,vÓmáliá%#SÁG%@U"áBÚ7a²1Š¼Pgb¼+†× üz
·Ww ĩrovì.è==á°œXŃŃaw yllí...nő·đłkíézw,ßÝ|póÝ_Ý ùòÀßçðb6U_Hİ[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=182> [14:52:31R]
[SOB]Y=@â=@NF4AC~~~KX4Z~~~xÚc=@ =?L ŽŋeÝèZÁWđ(8ÈÚ%#†đöáŋ'1É9&Ú'ž]UÚÈ~@E=S=?Sf'í-
↳0]>r ßŌÇ_i_+è09Y'±É~fl yùð^=)D&@#†#S'Ō-ä%'jfm',*£É,'R}k,aÇu0ÉS×£.0.2>ÁuØB[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:52:33R]
[SOB]Y=@=@?†=@NF4AC~~~KX4Z~~~xÚcd=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:52:35R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:52:37R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:52:39R]
[SOB]Y=@=@?†=@NF4AC~~~KX4Z~~~xÚcd=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:52:42R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:52:45R]
[SOB]Y=@=@Ò@=@ KX4Z~~~NF4AC~~~xÚc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:52:47R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:52:49R]
[SOB]Y=@=@è<=@ KX4Z~~~NF4AC~~~xÚc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:52:51R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:52:53R]
[SOB]Y=@=@ÂN=@KX4Z~~~NF4AC~~~xÚcd=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:52:55R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:52:57R]
[SOB]Y=@=@ÂN=@KX4Z~~~NF4AC~~~xÚcd=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:53:01R]
[SOB]"=@=@=@=>7È=@!~~~~~[EOB]

1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=188> [14:53:07R]
[SOB]Y=@èÁ=@NF4AC~KX4Z~xÚé=@=?-ÀÚÏÖ+d<i =SiAK==o~æpzlÓsh{o}U=Sllāz6fñ=)YÑ[tEf,,Hð(Ðl'ZeF===-vn
'===@T-ÖR=ZÖeF|'ã=Q,L=ZHæ@,R³ '&ÐÓ[sk:æ|š1 -KæøYf2ÖM/g™zèÁ-Àµ-=>[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=181> [14:53:12R]
[SOB]Y=@+m=@NF4AC~KX4Z~xÚé=@=?d#-Ö-ZÜuJmSK-Æi×F²ø,ÄQBÂd1A7@z CEò2øÆ''4øP?D=?
silfv8|9);ðQÜ-;€«ÜADQiÖ2øæD&:™Áp)é fÁ™=Q'Ú2'5'7é-RAS:e=j;çRD# †5+|[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:53:15R]
[SOB]Y=@=@WÉ=@NF4AC~KX4Z~xÚcf=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:53:19R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:53:21R]
[SOB]Y=@=@j=@=@KX4Z~NF4AC~xÚcf=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:53:25R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=184> [14:53:30R]
[SOB]Y=@=@=?=@NF4AC~KX4Z~xÚé=@=?;Ú#2->@4H')cL&q6|)IYÑchWh=>1»°UP'š,,^|nlí'óe¶!-â8èð#=#)£àCEpmÚ@³-
zÑbpÁÖÉ\$ì rF:'tÁfÁã =S:ü fÆ=Z€Æi-™;‰=Q>R)aj¥CE|Z'YÉÁ6ÆÇ\$Z#F?N[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=181> [14:53:36R]
[SOB]Y=@,H=@NF4AC~KX4Z~xÚé=@=?m;â@)ÛP-Ç æi@^i1ØçÖÆ/ENÎú3h-Ú&, 'ðB(í
òdÖTOã«Ð,™zY4 öÖA¶Á&í=QDi-0ÚÍ0ú@eÑ-í;Dpíul«w³o2n_Óá¶||²q=@áGE×Ve;¾ÚÚt:o=Z,ÉA6ÜYÛ, MH@ç[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:53:38R]
[SOB]Y=@=@í=@NF4AC~KX4Z~xÚce=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:53:42R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:53:44R]
[SOB]Y=@=@!\$=@KX4Z~NF4AC~xÚce=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:53:48R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=178> [14:53:54R]
[SOB]Y=@í=@NF4AC~KX4Z~xÚé=@=?UqÄOY8¶5)ÄzU(ÏÉ
"i
Gš çfabèä@8èÖLÚÍ_à+?çèúú»žPÇŠFF
(lq°SEqž&,\$Gç,*"-@pV[?y_Žö'/×6lce>&³YakK]â2Ök)?ð99"ávS/çª €@i9;"[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=49> [14:53:56R]
[SOB]Y=@çÁ=@ NF4AC~KX4Z~xÚÉ=@=@m=@m[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:53:58R]
[SOB]Y=@=@
k=@NF4AC~KX4Z~xÚcc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:54:02R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:54:04R]
[SOB]Y=@=@0ç=@KX4Z~NF4AC~xÚcc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:54:07R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:54:09R]
[SOB]Y=@=@
k=@NF4AC~KX4Z~xÚcc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:54:13R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:54:15R]
[SOB]Y=@=@0ç=@KX4Z~NF4AC~xÚcc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:54:27R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:54:29R]
[SOB]Y=@=@
k=@NF4AC~KX4Z~xÚcc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:54:33R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=52> [14:54:35R]
[SOB]Y=@=@0ç=@KX4Z~NF4AC~xÚcc=@=@=@=@[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:54:39R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:54:41R]
[SOB]Y=@=@=@i=@ NF4AC~KX4Z~xÚ3=@=@5=@5[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:54:44R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:54:46R]
[SOB]Y=@=@=@_=@ KX4Z~NF4AC~xÚ3=@=@5=@5[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=48> [14:54:50R]
[SOB]"=@=@=@=>7É=@!~~~~~!~~~~~[EOB]
1:Fm SRC To CQ Via RELAY <I R F R1 S7 Pid=F0 Len=51> [14:54:52R]

[SOB]Ý=@=@=@i“=@ NF4AC~~~KX4Z~~~~xÚ3=@=@5=@5[EOB]