Let's Avoid Missing the FOREST for the TREES

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Some Part 97.1 "fundamental purpose[s]" involved here.

"The rules and regulations in this part are designed to provide an amateur radio service having a fundamental purpose as expressed in the following principles:

(a) Recognition and enhancement of the value of the amateur service to the public as a <u>voluntary noncommercial communication service, particularly with respect to providing emergency communications.</u>

(b) Continuation and extension of the <u>amateur's proven ability to contribute to the advancement of the radio art</u>.

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

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

(e) Continuation and extension of the amateur's unique ability to enhance international goodwill. "

[emphases added]

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Stated goal of the RM-11831 Petition ("Conclusion"):

> 15. In conclusion this petition only addresses two very specific areas of concern expressed by many amateur radio operators in prior proceedings:
>
> i) interference created by stations authorized under Part 97.221 and
>
> ii) amateur digital mode transparency, present and future.[1]

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Those sound quite reasonable!   But let's dive deeper:

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1   Kolarik: https://ecfsapi.fcc.gov/file/100918881206/PETITION FOR RULEMAKING.pdf

Goal (i):   INTERFERENCE

Petition present <u>no objective statistical data</u>, only *anecdotal claims* for "interference." **Statistical data were subsequently gathered which demonstrate any possible interference by United State principal 97.221(c) users is negligible -- nearly zero.**[2]

No one has advanced any disagreement with those objective data.

Item (i) can therefore be dismissed based on the objective evidence.

> *Until someone produces actual objective statistical data to refute the obvious*
> *implications of the only study done to date, there is nothing of substance*
> *to be "fixed" here.*

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2   Gibby (April 8 2019):   https://ecfsapi.fcc.gov/file/10408063816674/FCCRM11831-2.pdf No one has ever written to challenge this objectively gathered data.   In fact it has been referenced by the proponents of RM-11831.

Goal (ii): TRANSPARENCY

Petition requested relief for improving amateur digital mode transparency by rewriting regulation as follows:

> (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~~, <u>and the protocol used can be be monitored, in it's entirety, by 3 rd parties, with freely available open source software</u>, for the purpose of facilitating communications.[3]

The requested change would <u>erase the evidence that Proprietary Techniques (CLOVER, G-Tor) were among the examples of publicly technically characterized, approved techniques</u>.

    CLOVER and G-TOR were examples of
- <u>advancement of the radio art</u> (97.1(b))
- brought about by <u>electronics experts</u>. (97.1(d))

How do advances in the radio art affect transparency?

> "KARN's LAW"
> "Virtually anything one might do to facilitate communications and/or use the radio spectrum more efficiently will have the side effect, intended or not, of making that communication more difficult
> for some third parties to monitor "[4]

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3   Kolarik: https://ecfsapi.fcc.gov/file/100918881206/PETITION FOR RULEMAKING.pdf
4   Karn: https://ecfsapi.fcc.gov/file/10422455216228/rm11831.pdf

TWO ROUTES

There are TWO routes to successfully monitoring a new advancement of the radio art:

1. Make <u>corresponding advances in the monitoring capabilities</u>[5] OR

2. Outright **PROHIBIT** the advancement of the radio art.

Everyone assumed (1) was the proper path -- and that <u>advancing the monitoring capabilities was everyone's goal</u>....

<div align="center">Petitioner Agreed (Then)</div>

Ron Kolarik (Petitioner):   "A compressed message is obscured if there are no available means to decode the compression. **The petition simply asks a decoder be made available. "**[6] [emphasis added]

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5   Most of the exciting developments for communications are currently being accomplished using DIGITAL transmissions systems. Goals are increased time and spectral efficiency, and decreased error rate. To forbid such exciting development in amateur radio -- when that is one of the 97.1 express goals -- would be a significant mistake.

6   Ignoring for the moment the discussion whether a non-encrypted message is obscured.   Kolarik, June 1, 2019: https://forums.qrz.com/index.php?threads/new-digital-petition-at-the-fcc-rm-11831.652589/page-174#post-5085217 It remained unclear why one had never been built for technically specified modulations and fully documented systems.

SO WE SET ABOUT TO DO JUST THAT
ADVANCE THE MONITORING CAPABILITIES

On two continents, teams began to work <u>free of charge</u> to create advancements in the state of the <u>radio monitoring art</u> for the benefit of those requesting improved transparency and for the good of Amateur Radio itself:

- SCS began to develop sound-card based monitoring software for PACTOR that would perform on a simple Raspberry Pi.

- Huggins demonstrated simple cut-and-paste keyboard techniques to employ the 20-year-old techniques documented by Jean-Paul Roubelat F6FBB -- and successfully **read a winlink message**[7] [8]

- Gibby created software in a matter of days to read WINLINK using a7800 PACTOR modem and a Raspberry Pi.[9]

- Helfert vastly improved the advances by re-writing the venerable public domain LZHUF algorithm so that it produces output on the fly rather than after accumulating all the packets.[10] Freely available WINDOWS executable that is faster at producing output than ANYTHING PREVIOUS.

- Helfert / SCS have now released free software that uses a Raspberry Pi and a soundcard system to READ PACTOR 1,2,3 and on-the-fly decode WINLINK. [11]

These were unforeseen <u>developments</u> after 19 years of argument over WINLINK and PACTOR.

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7   Huggins: https://ecfsapi.fcc.gov/file/1073182572879/KX4O_Demonstration_OTA_Winlink_Decoding.pdf July 30, 2019.
8   Huggins: (Improvement) https://ecfsapi.fcc.gov/file/108140794324824/KX4O_Demonstration_OTA_Decoding_Addendum.pdf August 13, 2019.
9   Gibby: https://ecfsapi.fcc.gov/file/10830048730238/FreeSoftwareToReadWINLINK.pdf   August 30, 3019
10 Helfert: https://forums.qrz.com/index.php?threads/how-many-ham-systems-use-compression.672189/page-28#post-5195209 Sep. 14, 2019.
11 SCS: https://www.p4dragon.com/en/PMON.html October 12, 2019.

THE RESULT

There was NOT great rejoicing by those seeking transparency of digital modes.

Lee McVey: **"...Drop the compression. End of problem. "** [12] (Liked by Ron Kolarik)

Ron Kolarik had already made clear his **candid dislike of advanced systems** and
monitoring developments and his preference for ham radio of the past:[13]

> Complex protocols
> 1. identify the station, and it's location
> 2. identify the protocol
> 3. search for a WebSDR in close proximity to the station, as you've suggested, more
> than one if you want to try diversity
> 4. tune the WebSDR, or multiple WebSDR's, to the proper frequency
> 5. start decoder, if one is even available
> 5. capture the entire data stream with zero errors. By the time you've completed 1-5
> the station is either gone, or it's in the middle of the transmission, and missing
> significant data to make decoding impossible
> 6. decompress the data, if compression was used, also need to know exactly what
> compression was used. For example: Pactor native compression can be one of several
> methods applied on a per packet basis
> 7. Tequila to kill the pain
>
> Open protocols
> 1. tune signal in, start decoder, done [14]

Rappaport/ New York University :   Even if certain protocols are "claimed" to be
published, the implementation of Winlink's ARQ/adaptive compression with its data
modes makes it virtually impossible for 3rd parties to intercept messages for meaning
(See: McVey, Rappaport). (Sec. 97.309, Sec. 97.113). [15]

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12 W6EM: https://forums.qrz.com/index.php?threads/arrl-report-no-consensus-reached-for-fcc-on-"symbol-rate"-
issues.666183/page-84#post-5219943 Oct 8, 2019.
13 Although his Petition addressed TECHNIQUES, not SYSTEMS, this statement clearly addresses SYSTEMS.
14 K0IDT: https://forums.qrz.com/index.php?threads/new-digital-petition-at-the-fcc-rm-11831.652589/page-132#post-
5042496   April 23, 2019.
15 Rappaport / New York University: https://ecfsapi.fcc.gov/file/1008135726267/NYU Wireless Ex Parte Filing -
10.08.19.pdf   Oct 8 2019

And unbelievably, after weeks of accusations that WINLINK would remove the viewer....the discussion on QRZ <u>turned to reasons why even the VIEWER .....should *not* be allowed</u>!

WHAT?????

So perhaps these filers *actually preferred Option 2*---

Roll back the clock of amateur radio advances to 1987,

before Jean-Paul Roubelat introduced error-free and time-saving advances to amateur radio data communications....

back when downloading a file was an hour of wondering...and then a disconnect and failure....

instead of taking full advantage of advanced technologies and concepts created specifically to address their concerns?

Turning Attention to the Most Recent Ex Parte[16]:

COMPARE

What Dr. Rappaport Stated	Referenced Facts Published Original Studies Free Available Software to do the "virtually impossible"
"All Data in the Amateur Radio Service must be open and cable of being readily monitored Over the Air for true meaning by third parties	A nice idea -- but NOT the current regulations. [17]
No obscured messages are allowed"	Misquote of actual regulation, which prohibits messages "encoded for the purpose of obscuring their meaning" [18]
	Actual fact is that WINLINK is quite readable using proper software.[19] [20] [21]
	FLDGI/FLARQ, D-RATS and likely others can be monitored using similar software techniques. They use same or similar legal, ARQ/compression. [22] True for years and years. *But never addressed?* *No concerns expressed?*

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16 All subsequent portions from Dr. Rappaport are from: Rappaport / New York University, https://ecfsapi.fcc.gov/file/1008135726267/NYU Wireless Ex Parte Filing - 10.08.19.pdf   October 8 2019

17 What is actually prohibited is "messages encoded for the purpose of obscuring their meaning, except as otherwise provided herein " Part 97.113(a)(4)

18 Part 97.113 (a) (4)

19 Gibby: https://ecfsapi.fcc.gov/file/10830048730238/FreeSoftwareToReadWINLINK.pdf August 30 2019

20 Gibby: https://ecfsapi.fcc.gov/file/10906223525884/ExParteMyths.pdf Sept 6, 2019

21 Gibby, demonstrating decoding over 900+ mile paths: https://ecfsapi.fcc.gov/file/109191626613689/InconvenientTruths.pdf Sept 19, 2019

22 Gibby: demonstrating need for specialized software for other systems: https://ecfsapi.fcc.gov/file/109191626613689/InconvenientTruths.pdf Sept 19 2019

"ACDS Stations interfere and provide obscured messages. The Winlink system/SW is run by ARSFI in the Amateur Radio Service, but also in government frequencies, and is a unique problem."	FALSE. TWICE. Original studies showed negligible problem for 97.221(C)[23]; original development of software reads WINLINK pactor easily; and multiple other systems have now been analyzed. [24] [25] [26]

23 Gibby, original research: https://ecfsapi.fcc.gov/file/10408063816674/FCCRM11831-2.pdf April 8 2019.
24 Gibby: original software development:
https://ecfsapi.fcc.gov/file/10830048730238/FreeSoftwareToReadWINLINK.pdf August 30, 2019.
25 Gibby: https://ecfsapi.fcc.gov/file/10906223525884/ExParteMyths.pdf Sept 6 2019.
26 Gibby: original research on D-RATS: https://ecfsapi.fcc.gov/file/10042734814100/InconvenientCorrections.pdf Oct 30 2019.

"ARSFI/Winlink refuses to adopt standard signaling codes as stipulated in Sec. 97.309,	FALSE -- a complete misreading of 97.309 which expressly approves of **techniques** meeting defined standards. [27]
and relies on automatic-request-query (ARQ) and dynamic compression to provide obscured messages in the Amateur Radio Service.	FALSE -- These advancements in the radio art are now 30 years old[28] and systems using them are popular all over the world;[29] [30] [31] they are only "obscured" to those who don't understand their public protocols. [32]
Even if certain protocols are "claimed" to be published, the implementation of Winlink's ARQ/adaptive compression with its data modes makes it virtually impossible for 3rd parties to intercept messages for meaning (See: McVey, Rappaport). (Sec. 97.309, Sec. 97.113).	The "**virtually impossible**" *we are now routinely accomplishing and publishing and demonstrating.* [33] **Anyone able to call up commercial software can demonstrate this.** [34]
	Does the author not celebrate the incredible success of the monitoring advances in the radio art, that were demanded, and subsequently produced free of charge?

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27 The writer misreads 97.309 (a) (4), most particularly the meaning of "such as" and the examples given: "(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. "

28 F6FBB's bulletin board, beginning in 1987:   http://www.f6fbb.org/

29 FLMSG example: https://www.gaares.org/nbems.php

30 D-RATS compressed binaries: http://www.dstarinfo.com/drats.aspx

31 PAT: https://getpat.io/

32 Karn: "Apparently unfamiliar with standard practice, Rappaport characterizes ARQ as a nefarious scheme intended to obscure communications. Nothing could be further from the truth. ARQ (Automatic Request Repeat) has been a standard, generic feature of many communication protocols above the physical layer for many decades, e.g., the AX.25 Amateur Packet Radio link level protocol. It is used in 802.11 (WiFi) wireless LANs. And it is in the 3 4 Internet's Transmission Control Protocol (TCP), which I implemented for amateur packet radio in 1986. He describes ARQ as a "code" when it is actually a simple procedure. Far from being suited only to wireline communications, ARQ is essential to reliable communications. Contrary to Rappaport's claim, forward error correction (FEC) cannot guarantee reliability; it is merely an optional performance enhancement (though a very important one on radio channels). " https://ecfsapi.fcc.gov/file/10513525129724/rm11831-rebuttal-to-rappaport.pdf May 13, 2019.

33 Gibby, demonstrations over 900 miles: https://ecfsapi.fcc.gov/file/109191626613689/InconvenientTruths.pdf

34 PMON/LZHUF for Raspberry Pi: https://www.p4dragon.com/en/PMON.html

"ARSFI/Winlink does not provide transparency to its global email system queue, and does not allow amateur operators to review emails or files before they are sent over amateur radio stations (Sec. 97.219, 97.105)."	**MISLEADING** Every amateur sees what they are entering; Control operators have complete control to permit or deny messages from specific internet addresses. By default ALL internet-originated messages are denied access to the system and are rejected with a bounce message to the sender. This has been in operation since 2005. [35] **Anyone can verify this by trying to send a message to a winlink user (if they are not already permitted mail delivery to their correspondent).** FCC Official: use your email to send a message to w3qa@winlink.org and see what happens.....you will get a reject message.
	The WINLINK system is an advancement in the radio art which makes it possible (for example) for Baptist Disaster Relief to make urgent requests for food in disaster areas -- and receive responses from suppliers even though normal systems are overwhelmed. [36]

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35 WINLINK: https://www.winlink.org/content/how_manage_your_whitelist_spamcontrol

36 Explanatory material written by Wireless Society of Southern Maine: http://www.ws1sm.com/Winlink.html These features have been *invaluable* in the testing of the monitoring system cconstructed at the request of the RM-11831 proponents...

"The Winlink system carries email from/to the **general public** over amateur radio spectrum without oversight or prior review of messages for appropriate content. [emphasis added]	FALSE: Specific operators allow specific addresses to contact them using their specific privileges -- NOT the general public as alleged. [37]
Self Policing is not possible (See EB complaint ticket #3184322)."	FALSE: Self Policing is WILDLY successful as shown by original research, *far beyond any other portion of Amateur Radio* [38] [39] [40]

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37 It is fairly obvious that if Rappaport's claim were true, *the WINLINK system would have been overwhelmed many years ago*. Correct information: https://www.winlink.org/content/how_manage_your_whitelist_spamcontrol
38 Gibby, original research: https://ecfsapi.fcc.gov/file/10723230403421/IncidenceCalculations.pdf
39 Gibby, original research: https://ecfsapi.fcc.gov/file/107301549501394/IncidenceCalculationsExParte0730.pdf
40 Gibby, original research:
    https://ecfsapi.fcc.gov/file/10822196770221/ReAnalysisOfWinlinkObjectionableMessages.pdf

"Statements by modem vendors such as SCS make clear that their protocols are proprietary, and unlike other proprietary protocols such as D-STAR, AMBE, DMR and Fusion, Winlink/ARSFI and its data modes do not offer a readily available decoding solution for over-the-air monitoring for true meaning.

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41 SCS: https://www.p4dragon.com/en/PMON.html

	Pactor traffic right off the air: https://www.qsl.net/nf4rc/Tech/RaspberryPiWinlinkDecoder/CurrentWindowsSoftware/pmon_lzh_v_1_0_7.zip **RASPBERRY PI** (Novice Source Code) TERM[42] https://www.qsl.net/nf4rc/Tech/RaspberryPiWinlinkDecoder/0903/term.c READCAPTURE[43] https://www.qsl.net/nf4rc/Tech/RaspberryPiWinlinkDecoder/0907/readcapture0907a.c LZHUF[44] https://www.qsl.net/nf4rc/Tech/RaspberryPiWinlinkDecoder/lzhufuniv8.c *(Compile with free gzip compiler for your version of raspberry pi.)* THIRD INDEPENDENT DEVELOPER Additional software being finished by John Trites -- completely independent development.[45]
This is in contrast to other HF data modes in the Amateur Radio Service, thus providing an expectation of privacy that leads to violations of the intent and purpose of amateur radio."	FALSE -- Although an easy target for Dr. Rappaport, it has already been proved multiple times that Winlink is NOT a "unique" system. Equal effort will allow other systems to be monitored just as well as the new tools recently developed, allow Winlink messages to be monitored. [46] [47] [48] The ARRL explained this in depth.[49]

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42 Re adjust this to read VARA or ARDOP or WINMOR.   All WINLINK technique use the same higher layers.
43 This, the most important code, pulls out the headers and prepares ANY winlink technique for decompression by lzhuf
44 Simply based on the original public domain code, with corrections provided years later for operating systems of different word size (e.g. 32 bit versus 64 bit WINDOWS)
45 Personal communication, John Trites; successful printed output demonstrated at ARES meeting, Alachua County, October 9, 2019
46 Gibby: https://ecfsapi.fcc.gov/file/10906223525884/ExParteMyths.pdf
47 Gibby: https://ecfsapi.fcc.gov/file/109191626613689/InconvenientTruths.pdf
48 Gibby: https://ecfsapi.fcc.gov/file/10042734814100/InconvenientCorrections.pdf
49 ARRL: https://ecfsapi.fcc.gov/file/10918259487629/ARRL 16-239%2C RM-11759%2C RM-11828%2C RM-11831.pdf

"ARSFI/Winlink also violates ARRL's own interpretation of Sec. 97.309(a)4 requiring documentation to: (a) recognize the technique or protocol when observed on the air, (b) determine call signs of stations in communication and read the content of the transmissions."	FALSE -- in multiple ways 1. Anyone who has an ear can recognize the distinctive FSK calling sounds of PACTOR; 2. anyone with a DRAGON and can type PMON *can read everything*;[50] 3. anyone with any SCS pactor modem **can read the callsigns;**[51] 4. **anyone who can copy CW can likely read the callsigns;** [52] 5. **anyone with a raspberry pi and a soundcard can read the text using free software** [53]

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50 SCS: Dragon PMON command
https://www.p4dragon.com/download/Update_Info_DR7X00_Version_1_17_English.pdf (This merely adds additional formatting to the output of other commands provided in earlier generations of PACTOR modems.)
51 Robust connect using 2-FSK, readable by all SCS modems.
52 Winlink, going well beyond requirements, sets the default to create CW ID despite this being a "technically specified" modulation.
53 SCS: PMON for Linux: https://www.p4dragon.com/en/PMON.html

"In the ARSFI/Winlink global email system, transmissions cannot be decoded for true meaning over the air by third parties. ARSFI/Winlink data modes employ dynamic compression with ARQ which obscures messages and provides expectations of privacy with documented violations and decades of opposition. This would be prohibited through adoption of RM-11831. "	**FALSE......*amazingly* so.** The advancement of the radio art by WINLINK went unmatched by corresponding advancement in monitoring capabilities for YEARS until volunteers wrote free software for the WINLINK detractors....in a matter days. [54] It could have been written any time in the last 19 years that anyone seriously wanted it. All the information is on a 1999 document from F6FBB[55] and documents from WINLINK.[56] Multiple examples of monitoring now exist -- even done over hundreds of miles. [57] [58] [59] [60] [61] Even with a Raspberry Pi, this is not difficult at all. [62] The FCC can easily load the software for themselves and verify its function.[63]

54 Gibby: Initial disclosure of software to read WINLINK Pactor: https://ecfsapi.fcc.gov/file/10830048730238/FreeSoftwareToReadWINLINK.pdf August 1930 20 This could have been done at any time in the past 2 decades.

55 Fully discussed herein: Gibby: https://ecfsapi.fcc.gov/file/10808597817982/ExParteCommunicationAug8.pdf

56 WINLINK: B2F protocol: https://www.winlink.org/B2F

57 Gibby: data from 900 mile paths: https://ecfsapi.fcc.gov/file/109191626613689/InconvenientTruths.pdf September 19, 2019.

58 Examples read from September 3 2019: https://www.qsl.net/nf4rc/Tech/RaspberryPiWinlinkDecoder/0903/

59 Examples read from September 6 2019: https://www.qsl.net/nf4rc/Tech/RaspberryPiWinlinkDecoder/0906/

60 Examples read from September 8 2019: https://www.qsl.net/nf4rc/Tech/RaspberryPiWinlinkDecoder/0908/

61 Examples read from September 10 2019: https://www.qsl.net/nf4rc/Tech/RaspberryPiWinlinkDecoder/0910/

62 A simple example of WINLINK PACTOR read using a raspberry pi 4 and a Signalink: https://forums.qrz.com/index.php?threads/free-pactor-1-2-3-monitoring-software-for-raspberry-pi-available.676467/page-2#post-5225809

63 SCS software for Raspberry Pi: https://www.p4dragon.com/en/PMON.html

Two Decades OF PROGRESS!

Advances by the Proponents	Advances by the WINLINK/SCS
• Petition before the FCC • Hundreds to thousands of comments	Vast network[64] of • volunteer • unpaid technologically advanced electronics experts Advanced PACTOR gateways Short-range VHF/UHF stations
	Advanced New Sound Card Modulation Techniques • WINMOR[65]

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64   WINLINK RMS Gateways: https://winlink.org/RMSChannels

	• ARDOP[66]
	Widespread advancement of skills in the communications and technical phases of the art Breathed new life into em. comm. groups. **Amateur Radio Digital & Voice Emergency Communications - 2nd Ed.** *Gordon L. Gibby KX4Z BEE MS MD & Barry Isbelle N2DB*
	Disaster Service -- multiple events
	Development of remote networked multi-modal receiver with 21-day history[67]
	Development of free monitoring software[68]
	Development of free PACTOR

65 Muething 2008 TAPR Presentation. https://www.tapr.org/pdf/DCC2008-WINMOR-KN6KB.pdf

66 Windows: https://ardop.groups.io/g/users   Linux: http://www.cantab.net/users/john.wiseman/Documents/ARDOPC.html ; source code available in multiple versions, including: http://www.cantab.net/users/john.wiseman/Downloads/Beta/ardopc

67 WINLINK: https://cms.winlink.org:444/MessageViewer.aspx

68 Gibby: https://ecfsapi.fcc.gov/file/10830048730238/FreeSoftwareToReadWINLINK.pdf

	receiving software on Raspberry Pi[69]
	  PMON - a PACTOR® Monitoring Utility for Linux PMON allows the thorough observation and documentation of all presently available PACTOR-1/2/3 transmissions (PACTOR-4 will follow in early 2020). PMON covers all PACTOR levels with the appropriate Speedlevels and packet variations. PMON will read in parallel PACTOR-2 and PACTOR-1. The very wide receiving range (frequency offset ±200 Hz), as well as the automatic sideband recognition, ease routine operation of PMON with PACTOR-2 and PACTOR-3 considerably. PMON automatically decompresses LZHUF compressed messages on the fly. This is very useful for monitoring Winlink email transfers. **Note**: LZHUF compression is not inherent to PACTOR, it is not the internal PACTOR Huffman/PMC compression but an external compression variant utilized by some application software, e.g. Winlink. Nevertheless, as LZHUF is widely used, PMON supports decompression even of that third party compression type. **This tool is strictly for private use only!** This means non-commercial applications, by private persons, e.g. radio amateurs. The monitored data may be published without restriction by those
	Development of on-the-fly decompression technique[70]

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69 SCS: https://www.p4dragon.com/en/PMON.html
70 Helfert: https://forums.qrz.com/index.php?threads/how-many-ham-systems-use-compression.672189/page-28#post-5195209 Sep. 14, 2019.
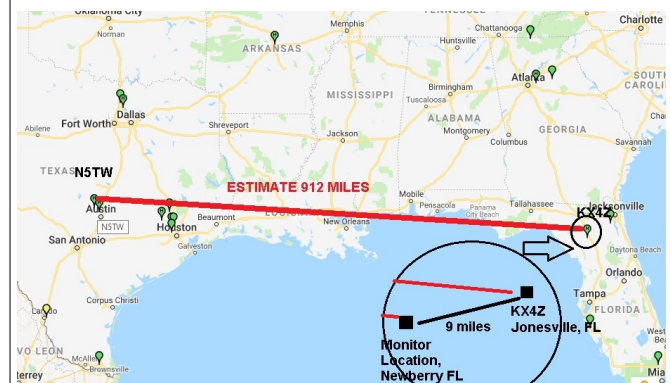
PMON_Izh.exe

User Manual   V 1.0.1 (14/Sep/2019)

© 2019 SCS Spezielle Communications Systeme GmbH & Co. KG

Initial study of advanced Diversity Receiving techniques[71]

ESTIMATE 912 MILES

N5TW

KX4Z
Jonesville, FL

9 miles

Monitor
Location,
Newberry FL

Demonstrated dramatic benefit! Advancement of the radio art.

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71 Gibby: https://ecfsapi.fcc.gov/file/109191626613689/InconvenientTruths.pdf

Now Lets Review NINE TRUE Statements:

1. The time-honored understanding

   "Amateur radio communications should be readable for persons with adequate signal and appropriate hardware and software. "[72]

2. WINLINK is not at all unique.   EASY TARGET -- but same type software work can be done to make FLDGI/FLMSG, D-RATS, FBB just as monitorable. All were ADVANCES IN THE RADIO ART, well-received and much appreciated. [73]

3. **PACTOR (a well-specified technique) is <u>completely readable</u>,** and *always has been using HOSTMODE option.*[74]

4. Amateurs and the FCC have always recognized the benefit of both proprietary and open-source hardware and software in the development of the radio art. [75] This included Slow-Scan and RTTY development. [76] [77] [78]

5. WINLINK is now the **most self-policed, most-compliant and <u>only</u> objectively documented** *system* **of all of Amateur Radio.** [79] No such data: RTTY, SSB, CW, or FM techniques.

6. Failure to adopt freely developed improvements in radio monitoring? Demanding removal of Advancements?   Antithetical to 97.1.....<u>should be rejected</u>.

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72 Even Mr Kolarik has agreed to the idea that signals must be HEARD, and that there might be OWNERSHIP of relevant equipment.

73 Gibby: explanation of LZHUF myths: https://ecfsapi.fcc.gov/file/10906223525884/ExParteMyths.pdf; Gibby, explanation of ancient publicly described encoding: https://ecfsapi.fcc.gov/file/10808597817982/ExParteCommunicationAug8.pdf

74 SCS, PTC-II manual: http://www.p4dragon.com/download/SCS_Manual_PTC-IIusb_4.0.pdf See Section 5.14, and Chapter 10 The WA8DED Hostmode is an ancient technique. Additional commands also allow monitoring.

75 FCC Part 97.309(a)(4) includes two proprietary modes as EXAMPLES.   "(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. "

76 http://www.smecc.org/rtty_ratt_radio_teletype.htm Demonstrates multiple proprietary hardware systems and their prices in the dollars of that day.

77 An advertisement for early Slow Scan proprietary hardware: https://forums.qrz.com/index.php?threads/capturing-winlink-fc-em-pactor-messages-over-the-air-decoding.670930/page-3#post-5175316

78 https://forums.qrz.com/index.php?threads/capturing-winlink-fc-em-pactor-messages-over-the-air-decoding.670930/page-2#post-5175239 noting HAL proprietary FSK modem for RTTY with equivalent today's dollars price of $2800

79 Gibby: https://ecfsapi.fcc.gov/file/10822196770221/ReAnalysisOfWinlinkObjectionableMessages.pdf

7. <u>Unchallenged statistical objective evidence</u>: *no need whatsoever* to change or remove 97.221(c),[80]   Petitioner & ARRL: *provided no statistical evidence at all.* 97.221(c) preserves historical evidence of proprietary and public systems well serving Amateur Radio.[81]

8. All TECHNIQUES in common discussion: quite technically documented-- some even source code! SCS: above and beyond, free reader for Raspberry Pi!! [82]

9. The RM-11831 issue has been unnecessarily blurred by mistaken claims that WINLINK system is in some way encrypted[83] [84] [85] by using advanced techniques that have been common, and documented, for three decades[86], and are in wide usage in multiple other same-class systems.[87]   Demonstrated: modest amount research / development -- can monitor as much as desired.   Advanced techniques explained to complement advanced systems. [88] Recommendations already made: centralized reading vs monitoring solutions.

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80 Gibby, original research demonstrating that transmissions of WINLINK 97.221(c) 500 Hz stations outside of 97.221(b) allotted spaces were in the hundredths (0.01) to thousandths (0.001) of even ONE percent of available time-spectrum. https://ecfsapi.fcc.gov/file/10408063816674/FCCRM11831-2.pdf

81 Proprietary CLOVER and G-TOR -- one of which apparently was never duplicated by any other firm.

82 SCS: Raspberry Pi reader for PACTOR and for WINLINK combined   https://www.p4dragon.com/en/PMON.html

83 Rappaport: "effectively encrypted" "national security" https://ecfsapi.fcc.gov/file/1040322516387/FCC Letter RM 11831 final.pdf

84 Rappaport: "Winlink and ARSFI have never admitted this, but you can see below how the Winlink community has always enjoyed and expected its private, effectively encrypted data transmissions! They expect this and enjoy it, even though such data transmissions are forbidden in 13-1918 and 95-2106 and FCC part 97.113, and elsewhere." https://ecfsapi.fcc.gov/file/1053062773273/Dear FCC letter.docx

85 A person using the callsign of Scott Craver claimed that being asked to give only certain characters of your WINLINK password (in clear text, no less) with 3 other characters to log in constitutes encryption: "In my opinion this clearly crosses the encryption line. You should never communicate anything on the bands that isn't "in the clear," and you shouldn't be using any cryptographic protocol for the express purpose of keeping any information private or secret. " https://forums.qrz.com/index.php?threads/expectation-of-privacy.666437/page-20#post-5227488

86 F6FBB -- Click on "Technical Info"   Source code available on mirrored server.   http://www.f6fbb.org/

87 FLDGI/FLMSG; PAT; D-RATS; FBB

88 Gibby: first data on efficacy of diversity receiving (a concept as old as World War II) contained within: https://ecfsapi.fcc.gov/file/109191626613689/InconvenientTruths.pdf

4 QUESTIONS THE FCC MIGHT WISH TO ASK

QUESTION	ANSWER
1. Monitoring advances have been now made freely available. What are your plans to implement a monitoring system using these techniques?	**?**
2. Given that so many messages have now been demonstrably read, why do you still assert it is virtually impossible?	**?**
3. What prevents the creation of a small diversity receiving system (2-station pilot) using the existing Internet as proposed in filings and theoretically underpinned by Helfert?	**?**
4. What prevents you from taking the clear technical specifications and software of the ARDOP and WINMOR techniques, and linking them to the provided monitoring software?	**?**

Sent by Email:

Marlene H. Dortch
Chairman Ajit Pai
Commissioner Michael O'Rielly
Commissioner Brendan Carr
Matthew Berry
Don Stockdale
Julie Knapp
Eric Burger
Will Adams
Bill Davenport
Aaron Goldberger
Umair Javed
Erin McGrath
Suzanne Tetreault
Roger Noel
Scot Stone
Michael Ha
Paul Murray
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