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Federal Communications Commission
445 F St. NW
Washington, DC 20022

April 2, 2019

Dear FCC and ARRL Officials:

I am writing with regard to RM-11831, RM-11828, RM-11708 and NPRM 16-239, and recent comments filed by individuals associated with Amateur Radio Safety Foundation, Inc. (ARSFI).

1. About the Author

I am a technical expert in the wireless communications field, having served on the Technological Advisory Council of the FCC, and having founded and led three of the largest wireless academic research centers in the United States (at Virginia Tech, University of Texas, and New York University). I am the author or coauthor of four of the world's most popular books on wireless communications, millimeter wave wireless, smart antennas, and simulation, and, according to Google Scholar, I am the #1 cited author in the world in the areas of *wireless*, *communications*, *antennas*, *propagation*, and *5G*. I have authored or coauthored 20 books, 300 papers, hold more than 100 patents issued or pending, and am a fellow of the National Academy of Inventors. I am the founder and director of NYU WIRELESS that has led the cellular world to adopt 5G Millimeter Wave technology, and have played a major role in many of today's commercial wireless standards, from the inception of Wi-Fi, to the advent of the US digital cellular revolution. I am conducting research that is leading the world to 6G at frequencies above 100 GHz. The FCC invited me to address its open meeting on March 15, 2019, when it ratified the first rules above 95 GHz in US history. In this letter, I address the Commission, ARRL leadership, the amateur radio community, and Congressional leaders, based on my desire for the US to remain safe in the post 9/11 era, to preserve the hobby of amateur radio, and to ensure that future generations of youngsters are attracted to the hobby of amateur radio so that a pool of future technical leaders may emerge for our country.

2. The FCC should immediately adopt RM-11831 and reject NPRM 16-239

I applaud the Commission's Wireless Telecommunications Bureau for seeking public comments on RM-11831, and wholeheartedly *endorse expeditious acceptance of RM-11831 as an FCC rule*.

I also applaud the ARRL's recent acknowledgement (in its March 27, 2019 letter) of the problems of obscured data and digital aggression proffered in RM-11708/NPRM 16-239 for the amateur radio service, and its desire to discuss and hopefully cure this major problem that exists in the hobby today:

https://ecfsapi.fcc.gov/file/1032717663093/ARRL%20Ltr%202%20FCC%2016-239%2003_27_2019.pdf

Implementation of RM-11831 will safeguard the national security of the United States and will put the hobby of amateur radio on a path for growth and openness. RM-11831 solves major problems and will nurture the public's interest in the hobby, fostering technical development and advancement in the electronics art in an open, collegial environment. RM-11831 importantly also assures national security by providing transparency and self-monitoring by the public of all amateur radio transmissions in the HF spectrum that routinely cross international borders. At the same time, I urge the FCC to reject or deny NPRM 16-239, RM-11828, RM-11759, and RM-11708, since those rulemakings would simply enable much more illegal effectively-encrypted data transmissions and a massive proliferation of private/secure email and unmonitored communications on the HF bands.

3. RM-11831 cures numerous violations and is needed for the Amateur Radio Service

RM-11831 cures numerous ongoing violations such as FCC's 95-2106, 13-1918, Part 97.113(a)4, Part 97.113(a)5, and Part 97.1(a), among many other Part 97 rules. RM-11831 will reduce levels of amateur-to-amateur interference from Automated Controlled Digital Stations (ACDS) that serve a) as relay stations in a closed network and which are generally unattended (e.g. not monitored by anyone), b) which occupy a dedicated frequency at the expense of other amateur's enjoyment of the airwaves, c) induce interference by transmitting before listening, and d) which are currently used to send illegal point-to-point private email and effectively-encrypted files while operating on the US amateur radio HF spectrum. Many public videos and postings may be readily found about how to send private email with Winlink, and teach how Winlink's wideband digital "free global email service" has been embraced and abused by the boating community. I and thousands of others have provided evidence to the Commission regarding these facts in past filings and *Ex Parte* communications (see Appendices for some examples).

RM-11831 cures the existing problem of effectively-encrypted and proprietary ARQ traffic (including Pactor 3 and other modes like WINMOR, STANAG, ARDOP) that cannot be intercepted over the air by other ham operators or the FCC. RM-11831 also notably helps to promote the use of open source or readily available software and hardware that enables transparency throughout the entire US amateur radio community (e.g. out-in-the open decoding of all messages and files) for all over-the-air transmissions. Having open source or readily accessible decoding capabilities serves the fundamental principles of amateur radio by encouraging intellectual curiosity and engagement by the public, experimentation, and the mastering the technical radio art, while ensuring all communications are "out in the open" for self-policing of the hobby, all as required by Part 97 rules. RM-11831 allows ACDS stations to continue to operate in ham radio, but simply requires them to use openly decodable transmissions in compliance with FCC rules (e.g. open source, or providing full decoding capability, where other rank and file hams can obtain the source code or decoder methods to ensure widespread eavesdropping). See FCC 95-2106, 13-1918, Part 97.113(a)4, Part 97.113(a)5, and Part 97.1(a). By deleting §97.221(c), the FCC would be correcting an error made over a decade ago, by stopping the digital bandwidth aggression and interference created by a small group of ham radio enthusiasts that have been promoting closed, secure, point-to-point email at faster speeds, used often by boat owners to avoid other readily available

commercial means for sending private email (a violation of numerous FCC rules which explicitly prohibit bypassing other commercial means and prohibit pecuniary interest). RM-11831 would no longer permit automatic control of digital emissions anywhere in the CW/RTTY sub bands, but rather would ensure all unattended ACDS store-and-forward traffic can be intercepted by others (vital for national security and self-policing of the ham radio spectrum), and would confine the ACDS transmissions to the already existing ACDS sub bands allocated in 97.221(b).

In its deliberations and expeditious enactment of RM-11831, the FCC may wish to file a Notice of Inquiry to ARSFI, to have it publicly disclose those digital modes it presently knows to be undecipherable by rank and file amateur operators, as well as digital modes it currently has under development, and to ascertain from ARSFI what percentage of its overall network traffic, and what percentage of Winlink relay stations (called RMS stations) are from COASTAL and NEAR-COASTAL locations to and from boaters. This information would shed light on the use of Winlink that has never been made public, and would provide transparency on its current networks, especially since many low cost commercial systems exist for such communication. The FCC may also wish to broaden the definition of “open source” in the original RM-11831 proposal to include “free or open over-the-air decoder solutions that are readily available at little or no cost to rank and file amateur operators.” (see Appendix A).

4. Summary

In summary, RM-11831 solves two vital problems that have been gone unaddressed and must be immediately dealt with for the safety of America and for the benefit of the amateur radio service. Thankfully, through the publication of RM-11831, the major problems of obscured point-to-point email traffic and the digital aggression of a small group of amateur radio operators that improperly operate a closed network has been recognized as a problem by FCC officials and by some of the newly elected ARRL board members. I applaud the FCC, ARRL and Congress who are looking to safeguard our country and the future of amateur radio by taking a close look at this long-standing, improper use of amateur radio. The hobby of amateur radio was created as a hobby which fosters technical growth, innovation, and international goodwill through conversation over the airwaves, and expressly forbids the use of the hobby and its spectrum for obscured messages, pecuniary interest, or the bypassing of other commercial email services. RM-11831 addresses ongoing violations and bolsters amateur radio.

RM-11831 immediately cures two major problems that exist today in the hobby and allows the hobby to self-police itself without requiring specialized “signal intelligence” equipment at the FCC, and in my technical opinion, this is vital and proper for the future of amateur radio and the safety of America.

5. Addressing the letter from ARSFI dated March 30, 2019

I shall, at a future date, address mischaracterizations and misstatements by members of the Amateur Radio Safety Foundation, Inc., in their *Ex Parte* filing dated March 30, 2019:

<https://ecfsapi.fcc.gov/file/104012122120334/30March19FCCLetter.pdf>

For the public record, herein I provide various emails and notices in the attached Appendices that are of interest to the public, FCC, the amateur radio community, and Congress, that show the long-standing intent and misstatements that have been perpetuated in an effort to promote an improper use of the HF amateur radio spectrum where other hams cannot intercept the transmissions for meaning, and where there is a consistent desire to expand the spectrum occupancy of this improper use of ham radio for private email. These appendices further illustrate why RM-11831 is vital for the future of amateur radio and for the safety of our country, and should be adopted immediately.

Sincerely,



Theodore S. Rappaport, N9NB
David Lee/Ernst Weber Chair
Director, NYU WIRELESS

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ARRL Board Members, ARRL Attorney

cc: Senators Mark Warner, Tim Kaine, Marco Rubio, Rick Scott, Chuck Schumer, Kristin Gillibrand
Congressmen Bill Posey, Jerrold Nadler, Morgan Griffith

APPENDIX A

Example of Inaccurate statements about RM-11831 by ARSFI/Winlink in public record

In FCC comments and a recent web posting, https://winlink.org/FCC_Action, ARSFI stated the following about my past filings at the FCC:

...His [Prof. Rappaport's] arguments would have the FCC remove Winlink, D*Star, Fusion, and all 'connected' modes not easily intercepted on-air by unskilled operators without a proprietary component in the monitoring equipment—before addressing the 300 symbols/second NPRM. He would set amateurs back 40 years or more with respect to the radio art and digital techniques. We don't have to say how devastating the consequences would be if Winlink and all others using similar modes disappeared from the ham bands.

FACT CHECK: D-Star and Fusion, and many other proprietary modes are able to be intercepted and monitored in real time without any exotic or expensive equipment. Many modes used in the Winlink system are NOT available to over-the-air intercept even if, in the case of Pactor 2-4, one owns the equipment. I have urged ARRL officials to verify this by using the W1AW Pactor modem and Winlink account at its Newington, CT headquarters station, but as of yet no board member has told me that they have tried to intercept Winlink ARQ traffic being sent to other stations. They likely know what I and thousands of other amateur operators know and have been publicly worried about for years -- it is virtually impossible to decode any compressed ARQ mode by an outside observer over the air. The message is obscured. Appendix B shows admission of this fact by Winlink's head, Steve Waterman, after the ARRL filed a petition RM-11708 to expand this improper digital data without first addressing the major problem of effectively-encrypted data.

ARSFI and Winlink "claim to be just like" these other modes, but that is false. These other modes are actually "out in the open" for public intercept at little or no cost:

D-star examples:

- <https://forums.qrz.com/index.php?threads/listen-to-dstar-via-the-internet.249029/>
- <https://www.broadcastify.com/listen/feed/5429>
and easily copied by owning the equipment
- <https://www.youtube.com/watch?v=QkZOFAc3c>

DMR examples:

- <https://www.youtube.com/watch?v=75-AvQJKHNE>
- <https://hose.brandmeister.network>
- <https://itunes.apple.com/us/app/dmr-monitor/id595075253?mt=8>

Fusion examples:

- https://www.youtube.com/watch?v=p_91XXgztzo
This was accomplished with a \$20 USB SDR dongle and free software.
- [http://wiki.radioreference.com/index.php/Digital_Speech_Decoder_\(software_package\)#Overview](http://wiki.radioreference.com/index.php/Digital_Speech_Decoder_(software_package)#Overview)
- <https://www.rtl-sdr.com/rtl-sdr-radio-scanner-tutorial-decoding-digital-voice-p25-with-dsd/>

Many other proprietary modes can be decoded using the above software and Software Defined Radio (SDR) dongle from HF to low microwave bands. Some of the inexpensive SDR's work to 2 GHz and above. This is NOT TRUE for Winlink or other modes being used and developed by ARSFI and used by Winlink in the ARQ mode.

Winlink uses amateur AND government/maritime frequencies (<https://www.winlink.org/>) and boasts about having HIPPA privacy and being nearly impossible to intercept, and being compressed to enhance privacy, and for sending private emails from one person to another (which bypasses commercial email systems), all which are **strictly forbidden** by FCC in 95-2106, 13-1918, FCC Part 97.113(a)4, Part 97.113(a)5, and Part 97.1(a), which expressly require noncommercial use and forbid “messages encoded for the purpose of obscuring their meaning” or providing “communications, on a regular basis, which could reasonably be furnished alternatively through other radio services,”

See how Winlink/ARSFI brag about their security/privacy in ham radio:

- <https://ema.arrl.org/ares/winlink-2000/>
- <http://www.arrl-mdc.net/Winlink/MDCWL2KOVwAM.htm>

Winlink admits to none of the above to the FCC or ITU in its public filings:

(e.g., see: <https://ecfsapi.fcc.gov/file/104012122120334/30March19FCCLetter.pdf>

and <https://ecfsapi.fcc.gov/file/12300483528083/Reply%20to%20comments%202.pdf>

and https://winlink.org/sites/default/files/arsfi_comments.pdf

and <https://www.rmediagroup.com/News/NewsDetails/NewsID/17804>

and https://winlink.org/FCC_Action)

Appendix B

2015 Email from Steve Waterman to Winlink Group, following ARRL's RM-11708 proposal, admitting "secure" transmissions and Winlink's aggressive data ambitions for the amateur radio spectrum

Key admissions (highlighting is mine):

"..securely transferring data like an ARQ protocol such as Pactor, Winmor.."

"Reaffirmation of such limited bandwidth because of irrational complaints, made by people who don't even operate in these spectrums is not what will grow our Amateur service"

"In my opinion, we must visit these matters, and make store and forward data available on our spectrum as it is everywhere else today."

> *Date: *February 27, 2015 at 9:26:55 PM CST

> *Subject: **[Winlink_Programs_Group] ARRL QUERY RE: ARRL Digital bandplan*

> *Reply-To: *Winlink_Programs_Group@yahoo.com

>

> All,

>

> The ARRL has asked the Amateur population to comment on their digital band
> plan proposal

>

http://www.arrl.org/files/file/About%20ARRL/Committee%20Reports/2015/January/Doc_22.pdf.

> Rather than just check a bunch of boxes that really do not cover the
> issues, I highly recommend that you provide your own wording, which is an
> option they request. Thus, here are some talking points if you wish to
> send your comments to the ARRL at bandplan@arrl.org. Regardless of your
> slant on this, please do comment. Without being heard, we will never
> advance the digital art within Amateur radio.

>

>

> 1. There has been a digital explosion since the Part 97.221 rules (below)
> were written. "(b)" are for unattended operations over 500 Hz, and under
> 500 Hz below the SSB sub-bands, which are shown in "(C)." The protocols
> that were in question at its writing are no longer used, and new enabling
> technologies have arrived. This also applies to the information contained
> within RM-11708 regarding the 300 baud symbol rate limitation. **Should the**
> **ARRL NPRM RM-11708 succeed, the explosion will continue at an**
> **ever-increasing rate, but without additional spectrum. After all, no one**
> **uses a wide band data transfer mode to interactively have a conversation.**
> **Rather, such *Data transfer *modes are mostly unattended, point-to-point.**

> **store and forward operations, and not narrow, low speed FEC (or no error**
 > **correcting) modes used to *‘‘chat.’’* ‘‘Chat’’ is reserved for PSK, MT63,**
 > **CW,RTTY etc. They are broadcast protocols used for that purpose, and not**
 > **securely transferring data like an ARQ protocol such as Pactor, Winmor on**
 > HF or Packet or TCP/IP on VHF/UHF. Today, ARQ protocols such as Pactor and
 > others are linked with high speed digital systems such as HAMNET, etc., and
 > provide a truly interoperable network of systems that can be used for many
 > purposes, including emergency communications (with or without the
 > Internet.) They have their own resting places and should be out of the way
 > of those who want to chat interactively (see Part 97.221 below).
 >
 > 2. Growth of unattended data transfer operations, even on the ham bands,
 > has skyrocketed. **Just with Winlink alone, the RMS population has gone from**
 > **40 plus, Worldwide in 2004 to *well *over 300 plus on HF in the US alone**
 > (over 1200 passive scan RF RMS gateways, Worldwide). Where can they set up
 > and operate? Certainly gets crowded within the Part 97.221 space (see
 > below), and it appears that the new band plan will eliminate current space
 > below the US SSB ‘‘phone’’ bands, where unattended operations with modes of
 > 500 HZ or less fall outside the Part 97.221 auto-subbands. **Either way, it**
 > **is not adequate for the growth. This growth is factual, regardless of**
 > **opinions. Reaffirmation of such limited bandwidth because of irrational**
 > **complaints, made by people who don’t even operate in these spectrums is not**
 > **what will grow our Amateur service.**
 >
 > 4. *Point-to-Point data Transfer protocols are very different than
 > conversational broadcast modes *and thus, are used for a very different
 > purpose. Separating the ‘‘data by purpose’’ seems like a more logical step,
 > but not when it costs a piece of what little spectrum we now have. How many
 > 2.4 KHz signals can concurrently operate (as an example) within the 40
 > Meter Part 97.221 5 allowable KHz? Not many. Remember, Pactor 3 = 2.4 KHz,
 > Winmor wide mode = 1.6 KHz, and under RM-11708, now under consideration, we
 > are talking about 2.8 KHz, all with no increase in spectrum (see Part
 > 97.221 (b) below. The squeeze is not just on 40 meters!
 >
 > 5. **Today, store and forward data communications is the name of the game**
 > **everywhere you look but not yet in Amateur radio. How many digital**
 > **real-time interactive digital conversations do you have per day compared to**
 > **e-mail, messaging on your phone, Skype, Reflectors, Facebook, and even**
 > **voice mail. It is the wave of the present and certainly, the future. Such**
 > **store and forward communications dwarf real-time, interactive voice/digital**
 > **conversations in just about any communications arena, but within the US**
 > **Amateur spectrum, such technologies have not been fairly dealt with to**
 > **date. Only in Amateur radio is such growth being ignored, and I see no**
 > **plans for any expansion, only reaffirmation of current restrictions.** If we
 > want change to our radio art, we must let those who have some influence in
 > US Amateur spectrum allocations know our desires. OR, we can continue to

> ignore modern communications principles, continue to not attract the
> interest of the younger population, and not make any difference. **In my
> opinion, we must visit these matters, and make store and forward data
> available on our spectrum as it is everywhere else today.**

>
> I am certain that there are many other points of view and attitudes toward
> this subject. Whatever they may be, please let the ARRL know what you think
> about their proposal and the rate at which digital communications is being
> enhanced by our representative organization.

>
>
>
> Thanks,

>
>
> Steve Waterman, K4CJX
> Winlink network Administrator
> Winlink Development Team
> FEMA Region IV RECCWG AuxComm Committee Chair
> DHS NCC SHARES Member (SHARES Winlink Network Administrator)
> TEMA Comm Reserve
> TN Homeland Sec. Dist. 5 Comm. Committee
> Williamson County, TN Reserve
> President, ARSFI (Winlink Development Team)

Appendix C

Some Past filings at the FCC that document Winlink's/ARSFI's desire to neglect the "obscured messaging" aspect of its ARQ protocols while pursuing legalized encryption and increased bandwidth of digital data in the amateur radio spectrum

Exemplar historical FCC filings by Winlink/ARSFI advocates

RM-11306:

<https://ecfsapi.fcc.gov/file/6518324273.pdf>

<https://www.fcc.gov/ecfs/filing/5513461509>

<https://ecfsapi.fcc.gov/file/6519114260.pdf>

<https://ecfsapia.fcc.gov/file/6518308936.pdf>

RM-11708

<https://www.fcc.gov/ecfs/filing/10806082279684>

<https://ecfsapi.fcc.gov/file/7520959842.pdf>

<https://www.fcc.gov/ecfs/filing/6017479557>

PSHSB-17344

<https://ecfsapi.fcc.gov/file/10123298305905/%2017-344.pdf>

<https://ecfsapi.fcc.gov/file/1022302842747/PS%20Docket%2011-344%20Reply%20Comment.pdf>

<https://www.fcc.gov/ecfs/filing/10223111684700>

NPRM 16-239

https://ecfsapi.fcc.gov/file/120566997404/ARSFI_Comments.pdf

https://ecfsapi.fcc.gov/file/100873087058/RM11708_16-239.pdf

RM-11828

<https://ecfsapi.fcc.gov/file/104012122120334/30March19FCCLetter.pdf>

Appendix D

Some of my past filings at the FCC that document ARRL's or Winlink's/ARSFI's desire to neglect the "obscured messaging" aspect of its ARQ protocols while pursuing legalized encryption and increased bandwidth of digital data in the amateur radio spectrum

RM-11708

<https://ecfsapi.fcc.gov/file/7521095484.pdf>

<https://ecfsapi.fcc.gov/file/60001039573.pdf>

NPRM 16-239

<https://ecfsapi.fcc.gov/file/1116597429048/FCC%20Letter%20Nov.%202015%202018%2016-239.pdf>

<https://ecfsapi.fcc.gov/file/1111110314487/FCC%20EX%20PARTE%2016-239%20Eric%20Burger%20Nov%202011%202018.pdf>

<https://www.fcc.gov/ecfs/filing/10806876707999>

<https://www.fcc.gov/ecfs/filing/1092719005718>

<https://www.fcc.gov/ecfs/filing/10925839109476>

PSHSB-17344

<https://ecfsapi.fcc.gov/file/102221007912824/FCC%20PS%2017-344%20Reply%20to%20ARRL%20and%20Steve%20Waterman%20from%20N9NB.pdf>

RM-11828

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

Appendix E

Email I sent to ARRL on today's date, April 2, 2019, asking them to immediately correct inaccuracies on their public website regarding RM-11831

From: Theodore S. Rappaport [mailto:tr51@nyu.edu]

Sent: Tuesday, April 2, 2019 5:21 PM

To: tsr@nyu.edu; David Siddall; - B2X W2Ru; hopengarten@post.harvard.edu; N5AUS@n5aus.com; rjairam@gmail.com; hdwhite@charter.net; ab2ra@htva.net; rkolarik@neb.rr.com; lee.mcvey@prodigy.net; k3lr@k3lr.com; Robert B. Famiglio Esq.; Evan McWalters; mark@mrw.org; va09mgima@mail.house.gov

Cc: Sandi Wendelken; Rick Merritt; Drew FitzGerald; mark.righter@nyu.edu; Kurt H. Becker

Subject: RM-11831 Final letter: Important: obscured data in amateur radio

Importance: High

Dear Colleagues: I had sent 3 emails in a row earlier today regarding the ARRL's public announcement of RM-11831, and wanted to clarify those 3 emails with one, single, consolidated and correct email, for the record, that I shall file with the FCC and many congressional officials today.

Here is the proper email – please consider this one as my final, official email. I will submit it publicly on the FCC website today, as well. Please disregard the other 3 emails, as they were piecemeal and contained errors which are clarified below.

I apologize for the three emails that confuse an already confusing topic for many (this is NOT my day job, yet it's a hobby that is near and dear to my heart, as it is for many of you, and I and thousands of others are deeply concerned about our national security and the future of ham radio!).

Thanks for your forbearance and for accepting this final email to summarize my request to ARRL on its website.

I would be grateful for your immediate attention to correct your public statement of the ARRL announcement of RM-11831.

With kind regards, ted

-----Final version of email, please use this and respond – -----

Dear ARRL officials:

Thank you for alerting the ham radio community regarding public comments about RM-11831, and for your interest in solving the digital aggression and lack of open transmissions in the amateur radio service:

<http://www.arrl.org/news/petition-for-rule-making-calls-for-amateur-digital-mode-transparency>

I write to ask you to please immediately correct your public statement at the above link and in all ARRL publications, as I am concerned it inadvertently mischaracterizes the RM-11831 "digital transparency" petition that the FCC published recently for public comment.

Importantly, the Kolarik proposal does not seek to eliminate ACDS everywhere, as could be inferred by the current wording in your web posting, but rather the petition simply seeks to contain ACDS transmissions to within the already allocated ACDS subbands, and to disallow them from operating throughout the entire the RTTY/Data subbands.

This is a critical point that you appear to have overlooked in your public posted comment, since the petition does not eradicate the ACDS transmissions, but merely contains them into already existing ham bands for that purpose.

Your Official website omits this important point, and also has a glaring rule error (your post cites a non-existing FCC rule). I urge you to immediately correct these points by amending the following paragraph (in yellow) in your public statement to properly reflect the facts:

REQUIRED EDIT TO ARRL WEB ANNOUNCEMENT OF RM-11831:

Kolarik said his petition also aims to reduce levels of amateur-to-amateur interference from Automated Controlled Digital Stations (ACDS) on HF operating under §97.221(d)(2). (There is no 97.221 (d)(2)???) Kolarik wants the FCC to delete §97.221(c), which permits automatic control of digital emissions anywhere in the CW/RTTY sub bands, outside of the ACDS sub bands as defined by 97.221(b), provided the station "is responding to interrogation by a station under local or remote control, and [n]o transmission from the automatically controlled station occupies a bandwidth of more than 500 Hz." ACDS stations would thus be required to operate only in the ACDS sub bands, under Mr. Kolarik's proposal.

Also, in your last paragraph of the web posting, I note that ARRL has still not acknowledged the problems of the "obscured" data in pending NPRM 16-239, or in ARRL's proposed 2.8 KHz bandwidth limit through its RM-11708 proposal. I ask again, has anyone at ARRL attempted to eavesdrop another Winlink ARSFI ARQ data protocol transmission (such as Pactor 2, Pactor 3, Winmor or ARDOP) intended for another station by using the W1AW Winlink account in the ham radio bands?

This would inform the board of ARRL whether or not this email traffic can or cannot be intercepted over the air, and would inform the ARRL board if these transmissions are obscured for meaning to others, in violation of part 97 rules and which harm public participation of the hobby and which jeopardizes our national security as no one else can eavesdrop the on-air transmissions.

I urge ARRL to immediately correct the noted errors in its website, to clarify the facts about the petition.

I and the hobby are deeply grateful for your support in this matter, and for your role in determining the use of the HF spectrum for the future of amateur radio.

The minority view, that has enjoyed unfettered and inappropriate use of the HF spectrum for the last 20 years, clearly does not like my position on this matter (see link below), so it's critical that ARRL deal in facts, and that the board determine whether my position or the position by ARSFI below is accurate.

<https://ecfsapi.fcc.gov/file/104012122120334/30March19FCCLetter.pdf>

With kind regards,
Ted

Prof. Theodore (Ted) S. Rappaport
David Lee/Ernst Weber Professor
Founding Director NYU WIRELESS

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