

4. Advanced protocols capable of carrying email-like message content and file attachments depend upon protocol techniques like Automatic Reply Request (ARQ) and dynamic data compression to provide error-free transfers and the efficient use of the spectrum. Radio protocols that are not error-correcting and have low-payload capacity are rarely useful in real emergency responses. Any kind of advanced protocol enhancement will make it technically more difficult to monitor two connected stations as a third party. ARQ is complex: connected stations negotiate between themselves to re-send only part of a packet, etc. A monitor not privy to the connected station's negotiations may miss a packet containing information needed to successfully decompress the entire payload. As computers and radio merge, become software-defined and more sophisticated, new advanced techniques will arrive and those like ARQ and compression inevitably will become more sophisticated and complex, further challenging a third-party trying to eavesdrop over the air. Requiring only over-the-air monitoring, other than ID, will stifle technical progress, and unreasonably deny valuable, life-saving communication tools of high utility from the US amateur radio community.

5. Should all people be able to decode every amateur radio digital signal, regardless of equipment, skill, or cost? The herein proposed standard of disclosure reasonably allows the use of a foreign language, morse code, or 'specified' digital codes and techniques that some do not understand. Although today's debate is about digital modes that require a rare understanding of DSP to implement decoders, tomorrow's discussion may be different. The RM-11831 petitioner's solution to apply an 'open-source and free software' standard is unlikely to survive technological changes: e.g. What if someone publishes open source written in a language that I can not run, because I lack appropriate hardware, and do not understand because I am not trained in its use? A 'skilled in the art' standard, however, will survive evolutionary changes.

6. The petitioner's demand that “...*digital mode developers must be required, by Part 97 rule, to provide the means to fully decode their product in amateur radio use to enable monitoring and self-policing.*”³ is unnecessary overreach, subject to becoming ineffective with age, and a disincentive for creative contributors to the radio art. Furthermore, with technical characterizations of modes disclosed to a reasonable standard, and whether the technique is open-source or proprietary, this demand means 1) he doesn't want to pay the owner of the intellectual property for the hardware and/or software they developed, 2) he doesn't want to do the work, or support the work to use the technical characterization and produce a decoder, and 3) he wants to be given free software. To require this from a developer of advanced digital modes is a significant burden, and a good incentive not to proceed with or begin a project. The requirement is overreach because stations can be readily identified by monitoring, and because Amateur radio data systems can and do provide a more efficient, less expensive, accessible and fully documented method to monitor communications than listening on-air.⁴ Specifying on-air eavesdropping as the only acceptable means of monitoring digital stations is excessively restrictive and may result in incomplete results that aren't accurate. It also will not stand the test of time amid continuing improvement of the state of the radio art.

7. With regard to amateur-amateur interference, the RM-11831 petitioner fails to acknowledge, and claims otherwise⁵ that an ACDS station is always activated to transmit by a human operator (client station) who is bound to listen on frequency for activity, and call the ACDS station when clear.⁶ He

3 RM-11831, paragraph 12.

4 For example, see https://winlink.org/content/amateur_radio_message_viewer . Full message content, including all attached files are available to view with documented date and time, source, gateway and destination, software used, etc. Since message content is openly available, this is proof of no “intent to obscure”, which defines “encryption” according to the FCC. “Effective encryption” is a false claim if all content is easily available and readable by anyone. Furthermore, this monitoring method entirely meets the requirements of Parts §97.113(a)(4) and §97.119(a). Digital station session logs at each radio endpoint also record transmission and session information.

5 RM-11831, paragraph 7.

6 §97.221(c)(1)

also fails to acknowledge the busy-detectors⁷ used in software of both client and ACDS stations, where transmissions are prohibited unless the software detects a clear channel. He also does not acknowledge the FEC and CW/FSK transmissions of ID by all stations. Identification of all transmissions is already required in the rules.⁸ Requiring free, open-source software for monitoring is not necessary to identify those who may cause harmful interference, and it won't aid anyone monitoring a rogue station that refuses to identify.

8. The petitioner's remedy for interference is the deletion of §97.221(c), which forces all US ACDS stations regardless of their signal bandwidths into the same narrow subbands defined in §97.221(b).⁹ Though the petitioner and his proponents think this will reduce the potential for interference, the ITU rules and the rules of other countries and our neighbors Canada and Mexico do not limit and allocate spectrum for digital emissions like the US does, so the potential for interference is not alleviated by any change of US rules. The RM-11831 proposed changes will make the USA an island within the ITU rules, offending our neighbors.

9. The proposed deletion of §97.221(c) will displace ACDS signals less than 500 Hz in bandwidth from operating with other highly compatible signals of similar narrow bandwidths, to operate among incompatible wideband (2.4 kHz) signals inside the §97.221(b) subbands. This action only increases the potential for interference within the subbands, will pollute these frequencies for ourselves and our ITU Region 2 neighbors, and leaves vacated spectrum underutilized.¹⁰ This is entirely counter to the principle of keeping signals of similar bandwidth together to reduce mutual interference and increase spectral utility. Narrow-band ACDS operation will be made unusable in the USA. This will seriously hinder amateur radio public service and disaster communications.

10. The proposed deletion of §97.221(c) will also remove §97.221(c)(1), which requires ACDS stations to respond only to another station under local or remote control. Without the requirement for a vigilant human control operator to initiate an ACDS station's transmissions, interference potential grows quickly.

11. In conclusion, we urge the FCC to dismiss RM-11831 in its entirety because:

(a) Its proposed revision of §97.309(a)(4) is unnecessary because current rules are adequate. The proposed 'open source free software' clause is a remedy that is unlikely to survive technological change and its broad application will likely have unintended consequences.

(b) Its proposed deletion of §97.221(c) will certainly cause additional interference within 97.221(b) subbands, and it groups incompatible stations of widely differing bandwidths together. Vacated spectrum, successfully shared for over twenty years without a known FCC complaint action will be underutilized.

We respectfully request that the Commission consider amending §97.309(a)(4) as suggested in paragraph 2 above. This will eliminate the present ambiguity about what constitutes 'publicly documented technical characteristics' by providing a clear, enabling standard of disclosure.

7 PR Docket 94-59, paragraph 6, "novel technical and operational" solutions to interference.

8 §97.119, §97.219(d)

9 RM-11831, paragraphs 5, 8.

10 Gordon Gibby analysis: <https://ecfsapi.fcc.gov/file/10408063816674/FCCRM11831-2.pdf>

Respectfully submitted,

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For the Board of Directors