6712-01

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 97

[WT Docket No. 16-239; FCC 16-96]

Amateur Radio Service Rules to Permit Greater Flexibility in Data Communications

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: In this document, the Federal Communications Commission (Commission) seeks comment on proposed amendments regarding technical standards applicable to data communications that may be transmitted in the Amateur Radio Service. Specifically, we propose to remove limitations on the symbol rate (also known as the baud rate) applicable to data emissions in certain amateur bands. We believe that this rule change will allow amateur service licensees to use modern digital emissions, thereby better fulfilling the purposes of the amateur service and enhancing its usefulness.

DATES: Submit comments on or before **[INSERT DATE 60 DAYS AFTER THE DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, and reply comments are due on or before **[INSERT DATE 90 DAYS AFTER THE DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: You may submit comments, identified by WT Docket No. 16-239, by any of the following methods:

- Federal Communications Commission's Web Site: http://apps.fcc.gov/ecfs/. Follow the instructions for submitting comments.

- Mail: Federal Communications Commission, 445 12th Street SW., Washington, DC 20554.
- People with Disabilities: Contact the FCC to request reasonable accommodations (accessible format documents, sign language interpreters, CART, etc.) by e-mail: FCC504@fcc.gov or phone: 202-418-0530 or TTY: 202-418-0432.

FOR FURTHER INFORMATION CONTACT: Scot Stone, Scot.Stone@fcc.gov, Wireless Telecommunications Bureau, (202) 418-0638, or TTY (202) 418-7233.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Notice of Proposed Rulemaking (NPRM), adopted July 27, 2016 and released July 28, 2016. The full text of this document is available for public inspection and copying during regular business hours in the FCC Reference Center, Federal Communications Commission, 445 12th Street SW, Room CY-A257, Washington, D.C. 20554. The complete text may be purchased from the Commission's copy contractor, 445 12th Street, SW, Room CY-B402, Washington, DC 20554. This document will also be available via ECFS at http://fjallfoss.fcc.gov/ecfs/. Documents will be available electronically in ASCII, Microsoft Word, and/or Adobe Acrobat. Alternative formats are available for people with disabilities (Braille, large print, electronic files, audio format) by sending an email to fcc504@fcc.gov or calling the Commission's Consumer and Governmental Affairs Bureau at (202) 418-0530 (voice), (202) 418-0432 (TTY).

I. INTRODUCTION

1. In the NPRM, we propose, in response to a petition for rulemaking filed by the AmericanRadio Relay League, Inc. (ARRL), to amend part 97 of the Commission's rules regarding technical standards applicable to data communications that may be transmitted in the Amateur Radio Service. Specifically, we propose to remove limitations on the symbol rate (also

known as baud rate)—the rate at which the carrier waveform amplitude, frequency, and/or phase is varied to transmit information—applicable to data emissions in certain amateur bands. We believe that this rule change will allow amateur service licensees to use modern digital emissions, thereby better fulfilling the purposes of the amateur service and enhancing its usefulness.

II. BACKGROUND

2. The limitations on radioteletype (RTTY) and data transmissions below 450 MHz vary depending on the frequency band, and on whether the digital code used to encode the signal being transmitted is one of the codes specified in section 97.309(a) of the Commission's rules—Baudot, AMTOR, and ASCII (the "specified digital codes"). Section 97.307(f) limits the symbol rate for the specified digital codes, and the bandwidth for unspecified digital codes, as follows: the specified digital codes may be used with a symbol rate not exceeding 300 bauds for frequencies below 28 MHz (except the 60 meter (5.3305-5.4064 MHz) band), and 1200 bauds in the 10 meter (28-29.7 MHz) band; in the 6 meter (50-54 MHz) and 2 meter (144-148 MHz) bands, the specified digital codes may be used with a symbol rate not exceeding 19.6 kilobauds, and unspecified digital codes may be used with a bandwidth not exceeding 20 kilohertz; in the 1.25 meter (219-225 MHz) and 70 centimeter (420-450 MHz) bands, the specified digital codes may be used with a symbol rate not exceeding 56 kilobauds, and unspecified digital codes may be used with a bandwidth not exceeding 100 kilohertz. An amateur station transmitting a RTTY or data emission using one of the specified digital codes may use any technique whose technical characteristics have been documented publicly, such as CLOVER, G-TOR, or PACTOR, for the purpose of facilitating communications.

III. DISCUSSION

3. Symbol rate limit. We tentatively agree with ARRL that the baud rate limits should be eliminated, and propose to amend part 97 accordingly. As ARRL notes, digital emissions were "in their early stages and experimentation with them was limited" at that time, and "the state of the art in HF digital communications has advanced substantially" since then. Indeed, the Commission observed in 1993 that "as technology progresses the rules may become unnecessarily restrictive, particularly with regard to the permissible baud rate." For example, ARRL points out that PACTOR 3, which has a data rate of up to 3600 bits per second and a symbol rate of 100 bauds, is permitted in the HF bands; but PACTOR 4, which is capable of a data rate of 5800 bits per second without occupying any more spectrum, is prohibited at HF by the current rules because it has a symbol rate of 1800 bauds. Thus, ARRL argues, the current baud rate limits permit, if not actually encourage, inefficient spectrum utilization.

4. Many commenters agree that the baud rate restriction should be eliminated, and we seek comment on the reasons supporting such a view. For example, one commenter states that "part of the purpose of the amateur radio service is the advancement of radio and communications technology. Denying the ability to research and implement higher symbol rates directly contradicts the very purpose for amateur radio." Another commenter notes that "[t]he rest of the amateur radio operators in the world do not have this restrictive symbol rate requirement that is in the current part 97" and eliminating this restriction will allow the Emergency Communications Community to "benefit by being better able to meet its mission." Many commenters cite permitting PACTOR 4 at HF as a reason for changing the rule, particularly to facilitate more efficient transmission of emergency communications. Other commenters, however, are concerned that facilitating faster data throughput will actually increase congestion by encouraging the transmission of larger amounts of data and new types of content.

5. We tentatively agree that a baud rate restriction has become unnecessary due to advances in modulation techniques, and no longer serves a useful purpose. Our rules do not impose a symbol rate limit on data emissions in any other amateur bands or in any other radio service. In addition, removing the baud rate restriction could encourage individuals to more fully utilize the amateur service in experimentation and could promote innovation, more efficient use of the radio spectrum currently allocated to the amateur service, and the ability of the amateur service to support public safety efforts in the event of an emergency. Facilitating the ability of the amateur service to transmit and experiment with technologies currently used in consumer and commercial products furthers this goal. Consequently, we propose to remove the baud rate limits in section 97.307(f). We seek comment on this proposal. In particular, we seek comment on whether eliminating the baud rate limits would improve amateur communications, or would instead increase congestion. Regarding the likelihood that eliminating the baud rate limitation would increase congestion, we seek comment on whether the costs of such an increase are outweighed by the benefits that are likely to flow from the elimination of the limits, and whether there are ways to mitigate these costs without losing the benefits of the proposed initiative. More generally, we seek comment on whether there are other costs and benefits to the proposal and, when weighing all the factors, whether the benefits of the proposal outweigh its costs. Commenters opposed to eliminating the baud rate limits should also explain whether their concerns relate to all of the bands at issue, or only certain spectrum.

6. We decline, however, to propose to add a 2.8 kilohertz bandwidth limitation for RTTY and data emissions in the MF/HF bands as requested by the ARRL Petition. ARRL cites the 60 meter band as precedent for imposing a 2.8 kilohertz bandwidth limitation on data emissions, which ARRL states "would accommodate the HF data emissions that are in common use today." The commenters who support eliminating the baud rate restriction also generally

agree with the ARRL's requested 2.8 kilohertz bandwidth limitation, but others who support eliminating the baud rate restriction favor a narrower bandwidth limitation in order to protect low-bandwidth modes of communication.

7. After reviewing the record, we tentatively conclude that a specific bandwidth limitation for RTTY and data emissions in the MF/HF bands is not necessary. We note that only the digital codes specified in section 97.309(a) may be used for MF/HF data emissions, and our rules do not impose any specific bandwidth limitation on use of the specified digital codes in any frequency band other than the 60 meter band. The 60 meter band cited by ARRL is a special case, however, given that amateur operators are permitted to operate only on specific frequencies rather than across the entire band, and are permitted to use only particular data and RTTY emission designators, in order to protect primary Federal voice operations in the band. Section 97.307(a) of the Commission's rules already provides that no amateur station transmission shall occupy more bandwidth than necessary for the information rate and emission type being transmitted, in accordance with good amateur practice, and section 97.307(c) already prohibits interference from spurious emissions (i.e., emissions outside the necessary bandwidth). The methods to be used in calculating the necessary bandwidth of various emissions are specified in section 2.202 of the Commission's rules. We tentatively conclude that such rules are sufficient to help protect against inefficient use or other abuse of the spectrum identified by commenters, and will accomplish ARRL's stated reason for proposing a bandwidth limitation of facilitating sharing among amateur licensees.

8. We also observe that while a 2.8 kilohertz bandwidth limitation would accommodate HF data emissions that are in common use today, such a limitation could, at the same time, undermine the goal—fundamental to the amateur service—of encouraging advances in technology if amateur radio operators were thereby prevented from stepping beyond today's

radio science. Imposing a maximum bandwidth would result in a loss of flexibility to develop and improve technologies as licensees' operating interests change and new technologies are developed. We seek comment on these tentative conclusions.

9. While we tentatively conclude that a specific bandwidth limitation for RTTY and data emissions in the MF/HF bands is not necessary, we nonetheless request comment on whether we should establish emission bandwidth standards for amateur service MF/HF RTTY and data emissions. Commenters favoring such action should address what the maximum bandwidth should be, the basis for the particular limitation the commenter proposes, and whether the limit should apply across the bands or only in particular subbands. Commenters should explain the grounds for departing from the generally applicable standards.

IV. CONCLUSION

10. In summary, we believe that the public interest may be served by revising the amateur service rules to eliminate the current baud rate limitations for data emissions consistent with ARRL's Petition to allow amateur service licensees to use modern digital emissions, thereby furthering the purposes of the amateur service and enhancing the usefulness of the service. We do not, however, propose a bandwidth limitation for data emissions in the MF and HF bands to replace the baud rate limitations, because the rules' current approach for limiting bandwidth use by amateur stations using one of the specified digital codes to encode the signal being transmitted appears sufficient to ensure that general access to the band by licensees in the amateur service does not become unduly impaired.

V. PROCEDURAL MATTERS

11. Initial Regulatory Flexibility Certification. The Regulatory Flexibility Act (RFA) requires an initial regulatory flexibility analysis to be prepared for notice and comment

rulemaking proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities." The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction." In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act. A "small business concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).

12. In the NPRM, we propose to amend the amateur service rules to change a technical rule applicable to data emissions that an amateur radio operator may use in his or her communications with other amateur radio operators. Because "small entities," as defined in the Regulatory Flexibility Act, do not include a "person" as the term is used in this proceeding or an individual, the proposed rules do not apply to "small entities." Rather, they apply exclusively to individuals who hold certain Commission authorizations. Therefore, we certify that the proposal in this NPRM, if adopted, will not have a significant economic impact on a substantial number of small entities.

13. Paperwork Reduction Analysis. This document does not contain proposed information collection(s) subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. In addition, therefore, it does not contain any new or modified information collection burden for small business concerns with fewer than 25 employees, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. 3506(c)(4).

VI. ORDERING CLAUSES

14. IT IS ORDERED that, pursuant to Sections 4(i), 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 303(r), and 403, that this Notice of Proposed Rulemaking is HEREBY ADOPTED.

15. IT IS FURTHER ORDERED that, pursuant to section 1.407 of the Commission's rules, 47 CFR 1.407, the Petition for Rulemaking, RM-11708, filed by the American Radio Relay League, Inc., on November 15, 2013 IS GRANTED to the extent indicated herein, and is otherwise DENIED.

16. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the Small Business Administration.

List of Subjects in 47 CFR part 97

Radio.

FEDERAL COMMUNICATIONS COMMISSION.

Gloria J Miles,
Federal Register Liaison Officer.
Office of the Secretary.

Proposed Rules

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR part 97 as follows:

PART 97—AMATEUR RADIO SERVICE

1. The authority citation for part 97 continues to read as follows:

Authority: 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. 151-155, 301-609, unless otherwise noted.

2. Section 97.305 is amended by revising the entry for 28.0-28.3 MHz in the table in paragraph (c) to read as follows:

§ 97.305 Authorized emission types.

* * * * *

(c) * * *

Wavelength band	Frequencies	Emission types authorized	Standards see §97.307(f), paragraph:
* * * * * * *			
HF:			
* * *			
10 m	28.0-28.3 MHz	RTTY, data	(3).
* * * * * * *			

3. Section 97.307 is amended by revising paragraph (f)(3), removing and reserving paragraph (f)(4), and revising paragraphs (f)(5) and (6) to read as follows:

§ 97.307 Emission standards.

* * * * *

(f) * * *

(3) Only an RTTY or data emission using a specified digital code listed in § 97.309(a) of this part may be transmitted.

(4) [Reserved]

(5) An RTTY, data or multiplexed emission using a specified digital code listed in § 97.309(a) of this part may be transmitted. An 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, provided the bandwidth does not exceed 20 kHz.

(6) An RTTY, data or multiplexed emission using a specified digital code listed in § 97.309(a) of this part may be transmitted. An 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, provided the bandwidth does not exceed 100 kHz.

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