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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 2 and 97

[ET Docket No. 10-98; FCC 11-171]

Amateur Radio Use of the Allocation at 5 MHz

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document amends the Commission's rules to facilitate more efficient and effective use by the Amateur Radio Service of five channels in the 5330.5-5406.4 kHz band (the 60 meter band). Specifically, and consistent with our proposals in the Notice of Proposed Rulemaking in this proceeding, the Commission replaces one of the channels with a less encumbered one, increases the maximum authorized power amateur stations may transmit in this band, and authorizes amateur stations to transmit three additional emission designators. The Commission also adopts an additional operational rule that prohibits the use of automatically controlled digital stations and makes editorial revisions to the relevant portions of the Table of Frequency Allocations (Allocation Table) and our service rules.

DATES: Effective [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

FOR FURTHER INFORMATION CONTACT: Tom Mooring, Office of Engineering and Technology, 202-418-2450, tom.mooring@fcc.gov.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Report and Order, ET Docket No. 10-98, FCC 11-171, adopted November 16, 2011 and released November 18, 2011. The full text of this document is available for inspection and copying during normal business hours in the FCC Reference Center (Room CY-A257), 445 12th Street, SW.,

Washington, DC 20554. The complete text of this document also may be purchased from the Commission's copy contractor, Best Copy and Printing, Inc., 445 12th Street, SW., Room, CY-B402, Washington, DC 20554. The full text may also be downloaded at: www.fcc.gov.

People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

Summary of Report and Order

1. On May 4, 2010, the Commission issued an NPRM in this proceeding, in which it proposed to adopt the three rule modifications requested by the American Radio Relay League (ARRL). The Commission also identified and sought comment on four operational issues: (1) Would a transmission time limit help ensure that amateur operators transmitting the two data emissions avoid causing harmful interference to Federal users in instances where Federal agencies exercise their primary use of the 60 meter band, and if so, would 3 minutes be sufficient, or is another limit more appropriate? (2) Should amateur stations be permitted to transmit emission types in addition to those proposed in the NPRM? (3) Would a Voice-Operated Transmit (VOX) mode of operation, which ARRL recommended that we require for amateur operators transmitting phone emissions, increase the potential for interference because of its susceptibility to keying a radio to transmit under high surrounding noise environments such as might be found in an emergency operations center? (4) Should amateur operators that provide emergency communications using the 60 meter band be encouraged to add a sound card-generated Automatic Link Establishment (ALE) capability to their stations?

2. The Commission first addresses the three key rule changes identified in the NPRM that can lead to more efficient and effective use of the 60 meter band by the Amateur Radio Service: replacing one channel, increasing power limits, and adding emission designators. The

Commission then discusses modifications to specific operational rules, including several matters where it concludes that it is unnecessary to change the existing rules.

Replacement Channel

3. In its petition, ARRL requested that the Commission replace one of the five channels in the 60 meter band (5368 kHz) with a channel (5358.5 kHz) that the National Telecommunications and Information Administration (NTIA) has identified. ARRL based its request on reports from amateur operators of frequent interference from a digital signal on the existing authorized channel. The Commission concludes that its proposal to replace the 5368 kHz channel with one centered on 5358.5 kHz will benefit amateur operations in the 60 meter band and adopts this rule change.

4. The Commission notes that three commenters suggest that the new channel should be an additional channel, not a replacement channel. Because the existing model of secondary amateur radio use of five channels is acceptable to the primary Federal users in the 60 meter band and was the basis of the discussions between ARRL and NTIA that formed the outline of our proposal, the Commission did not pursue this proposal.

5. Finally, in considering those comments that discuss the adjustments that amateur radio operators and equipment manufacturers will need to make to use the replacement channel, the Commission concludes that proposed § 97.303(h) requires a de minimis adjustment. This action ensures that a large installed base of equipment is not rendered technically out of compliance under our modified rules. Accordingly, the Commission amends footnote US381 and § 97.303(h) by removing 5368 kHz, by adding the center (assigned) frequency 5358.5 kHz, and by defining the 60 meter band as the 5330.5-5406.4 kHz band; and also amends § 97.303(h) by adding carrier frequencies for each of the five channels in the 60 meter band that are 1.5 kHz

below the center frequency. In addition, the Commission renumbers footnote US381 as US23 to be consistent with its current numbering system for domestic footnotes that is based on frequency order.

Power Increase

6. Section 97.313(i) states that no station may transmit with an effective radiated power (ERP) exceeding 50 W PEP on the 60 meter band and also provides a simplified means of calculating ERP. In the NPRM, the Commission proposed to increase the maximum ERP that amateur stations may transmit on channels in the 60 meter band from 50 to 100 W PEP. Based on the record, the Commission adopts its proposal.

7. The Commission believes that the examples cited by the commenters offer compelling reasons to support its tentative conclusion that an increase in maximum power would serve to facilitate many amateur radio communications with minimal risk of harmful interference. It also rejects requests for higher power limits, such as 500 W PEP. There is no indication that a greater power limit would produce substantially greater benefits or that any increased potential for harmful interference at this power limit has been fully considered. Additionally, the Commission does not believe that it would be useful to complicate the rules by establishing different power limits for different circumstances, as some commenters suggest. Because the minimal 50 W PEP increase does not significantly increase the potential for interference between stations, such a distinction is not necessary or warranted. Just as with the existing 50 W PEP power limit, a 100 W limit that applies to all channels will be straightforward, easy to understand, and easy to apply. Thus, the Commission concludes that there is a tangible benefit—greater communication abilities that will enhance amateur emergency communication activities—that will accrue if it increase the power limit to 100 W PEP and that the record shows that the costs (i.e., the increased potential for harmful interference) are

minimal. The Commission specifically rejects alternate options such as an even higher power increase or different power limits for different circumstances, because these options would introduce added costs—a significantly greater interference potential and added regulatory complexity—that would sharply reduce the overall benefits of the rule change.

8. As part of its amendment of the transmitter power standard applicable to the 60 meter band, the Commission clarifies the second sentence in § 97.313(i) by revising “dipole” to read “half-wave dipole antenna,” by removing unnecessary text, and by explicitly stating that a numeric gain of 1 is equivalent to 0 dBd. The Commission likewise corrects an errant cross-reference in § 97.313(f) of its transmitter power rules that was introduced when it recently combined two footnotes.

Additional Emissions

9. Under the existing rules, only upper sideband voice transmissions are permitted in the 60 meter band. In the NPRM, the Commission proposed to authorize the use of three additional emission designators in the band: CW emission 150HA1A, which is Morse telegraphy by means of on-off keying, and data emissions 2K80J2D and 60H0J2B. In § 97.307(f)(14)(i) of the proposed rules, the Commission restricts emission designator 2K80J2D to data using PACTOR-III technique and emission designator 60H0J2B to data using PSK31 technique. The Commission also sought comment on whether amateur stations could be permitted to transmit emission types in addition to those requested by ARRL in the 60 meter band without increasing the likelihood of interference to primary users. As discussed, the Commission adopts its proposal to allow the use of the three additional emission designators.

10. Emission Designators. Our proposal drew a wide range of responses. Although the majority of commenters fully or generally support the proposals that the Commission made in

the NPRM, many commenters expressed concerns about some or all of the proposed new emission designators. Commenters were most supportive of the proposed addition of emission designators 150HA1A and 60H0J2B. By contrast, the proposal to add emission type 2K80J2D proved much more divisive. The record also includes a few commenters who are skeptical that additional emission types are appropriate for the 60 meter band.

11. Finally, some commenters suggest limiting some or all of the proposed emissions to a specified channel or channels within the 60 meter band. While the specific channel use proposals vary by commenter, there is a general view among these commenters that such an approach would help offset possible interference between emission types or that a specific channel/mode assignment would promote efficiency.

12. Specific Techniques of the Data Emissions. Commenters strongly believe that the use of the emission designators 60H0J2B and 2K80J2D should not be restricted to the specific techniques of PSK31 and PACTOR-III, respectively. This approach differs from what was proposed in the NPRM.

13. The Commission adopts its proposal to authorize the use of three additional emission designators in the 60 meter band. These additional capabilities can serve to enhance amateur emergency communications and allow for greater experimentation in the band, and it believes that doing so is in the public interest. We note, however, that because “emission J2B” is specifically defined in part 97 of our rules to be a Radio Teletype (RTTY) emission, emission designator 60H0J2B must be codified as a RTTY emission in order to provide for consistency within part 97 of our rules. Accordingly, the Commission authorizes control operators to transmit the following additional emission types and designators in the 60 meter band: CW emissions, limited to emission 150HA1A (*i.e.*, Morse code telegraphy); data emissions, limited

to emission 2K80J2D (exemplified by PACTOR-III); and RTTY emissions, limited to emission 60H0J2B (exemplified by PSK31).

14. The Commission recognizes that many commenters are concerned that the addition of new emission types— data emission types in general and PACTOR-III specifically—holds the risk of reducing the utility of these channels for many amateurs, especially for those who may not readily recognize data transmissions and may avoid use of the channels out of an abundance of caution. The Commission concludes that there are ways to minimize any potential disruption that the new emission types could cause. ARRL notes that amateur “stations typically utilize relatively short transmissions in telegraphy and are able to manually detect the presence of a non-Amateur signal within the channel bandwidth while operating in that mode” and that the “same is true of 60H0J2B and 2K80J2D emissions, if careful manual operating practices are used.” Moreover, ARRL commits to the necessary dissemination of “best practices” information to the amateur community on a timely basis and to the adoption and publication of a comprehensive band plan for these channels that will maintain maximum flexibility in Amateur use without interference. Lastly, the Commission adopts certain operational rules, which will serve to ensure that the new emission types are used in a manner that promotes continued shared use of the band by all.

15. The Commission declines to adopt any emission designators beyond the three proposed in the NPRM. ARRL states that its discussions with NTIA about the additional emission types were very specific and what was endorsed by NTIA was very specifically limited to the three additional emissions requested in its petition and no others. The Commission agrees that this is the best course, as it is consistent with existing understandings between Federal and amateur radio interests. Similarly, it does not find it necessary to modify the band plan by, for example, requiring that certain emission types be used on specified channels or during specified

emergency events. The Commission believes that ARRL and the amateur community can work within the framework we establish to promote continued cooperative use of the 60 meter band and that the imposition of such complex and burdensome channel and emission use restrictions is unnecessary. In sum, the additional emission designators will benefit the amateur radio community by providing new opportunities to use the 60 meter band. While the Commission recognizes that this added flexibility means that some users could face reduced utility of the band for certain emission types, we are confident that any detrimental impact can be avoided if the amateur radio community continues its legacy of following best practices and exercising sound judgment in sharing the available spectrum.

16. Finally, the Commission agrees with commenters that limiting digital operation to a specific technique discourages the further development of additional techniques, which may be more efficient than those currently in use. Therefore, the Commission authorizes an amateur station transmitting RTTY emission 6H0J2B or data emission 2K80J2D to use any unspecified digital code, subject to the requirements of § 97.309(b). The Commission amended § 97.305(c) by inserting the 60 meter band entry, which lists “Phone, RTTY, data” under the heading “Emission types authorized.” In addition, it amended § 97.307 by adding new paragraph (f)(14) to list the emission types and designators and other restrictions.

Operational Requirements

17. Transmission time limit. The Commission also sought comment on whether to adopt a rule addressing transmission time limits. The existing rules address station identification and require each amateur station operating on the 60 meter band to transmit its assigned call sign on its transmitting channel at the end of each communication, and at least every ten minutes during a communication, for the purpose of making the source of the transmissions from the station clearly known. The Commission proposed, at a minimum, to add a rule stating that “[t]he

control operator of a station transmitting data emissions must exercise care to limit the length of transmission so as to avoid causing harmful interference to United States Government stations” but also asked whether codifying a specific time limit would help ensure that amateur licensees avoid causing harmful interference to primary Federal users.

18. The Commission declines to adopt a specific limit on transmission length and adopts the more general rule language that it proposed. Based on the clear history of successful amateur service sharing of the 60 meter band and the lack of a consensus among the commenters, the Commission finds that there is no need to adopt a specific time limit. It believes that the existing station identification rule and the new rule text, together with good amateur radio practice and the instruction and support of ARRL (including its anticipated “best practices” guide), will ensure that amateur radio operators using the data and RTTY emissions do not cause harmful interference to primary Federal users. Accordingly, the Commission amends footnote US381 (renumbered herein as US23) and § 97.307(f)(14)(ii)(B) by adding the proposed sentences (except that RTTY emissions are listed separately from data emissions).

19. Automatically Controlled Digital Stations. Section 97.221(c) permits automatic control of an amateur station while transmitting a RTTY or data emission and § 97.109 states that when a station is being automatically controlled, the control operator is not required to be at the control point. Commenters express concern that data emissions – in particular, PACTOR-III – may not effectively detect upper sideband (USB) emissions in progress and inhibit or cease transmissions when necessary when they are operating as automatic, unattended data stations. ARRL states that amateur stations typically utilize relatively short transmissions in telegraphy and are able to manually detect the presence of a non-amateur signal within the channel bandwidth while operating in that mode and that the same would be true of 60H0J2B and 2K80J2D emissions, if careful “manual” operating practices are used. The Commission finds

merit in the commenters' concerns and concludes that ARRL's underlying assumption that stations transmitting data emissions are not under automatic control should be incorporated in the Commission's rules as part of its decision to add new data emission types. The Commission's prohibition on automatically controlled stations will also help ensure that when Federal agencies need to exercise their primary use of the 60 meter band frequencies, amateur licensees will be better positioned to avoid causing harmful interference and it included this restriction in § 97.221(c).

20. Operation on Channel Centers. Section 97.303(h) currently requires that amateur operators ensure that their station's transmission occupies only 2.8 kHz centered at each of the five center frequencies. The NPRM proposed that, for amateur stations transmitting CW emissions and PSK31 data emissions, the carrier frequency shall be set to the center frequency. NTIA has requested that the Commission continue to restrict amateur service transmissions in this manner.

21. The Commission adopts the center frequency requirement as proposed in the NPRM. Because the amateur service operates in the 60 meter band on a secondary basis, the Commission pays particular attention to NTIA's position and the interests of Federal agencies that have primary status in the band. The Commission concludes that continuing to restrict amateur stations to transmitting on the center frequencies will maintain the limited number of amateur operators using the five channels at any given time and provide certainty as to where such operations can be found. By not upsetting the expectations of the Federal users of the band, it is confident that they will be able to immediately reclaim these frequencies from secondary amateur radio operations, if and when necessary. Accordingly, the Commission amends § 97.303(h) to specify that control operators of stations transmitting phone, data, and RTTY emissions (emission designators 2K80J3E, 2K80J2D, and 60H0J2B, respectively) may set the

carrier frequency 1.5 kHz below the center frequency, and that, for stations transmitting CW emissions (emission designator 150HA1A), the carrier frequency is set to the center frequency.

22. VOX Requirement. The Commission requested comment on whether amateur operators should be required to use VOX in the phone emission mode, which ARRL stated would permit a Federal user to interrupt an amateur station's transmission quickly and easily without waiting for an unpredictable end of the transmission. The Commission specifically sought comment on whether a VOX mode of operation might increase the potential for interference because of its susceptibility to keying a radio to transmit under high surrounding noise environments such as might be found in an emergency operations center.

23. The Commission agrees with the majority of commenters that improper operation of VOX would cause increased interference, and it therefore declines to require the use of VOX by amateur stations transmitting a phone emission in the 60 meter band. Moreover, amateur communications in the 60 meter band already successfully co-exist without a VOX requirement, and the Commission sees no reason why this cannot continue. The Commission will rely on control operators to choose between PTT and VOX operations, based on their abilities, equipment, and operating conditions.

24. ALE Capability. At the request of NTIA, the Commission solicited comment on whether amateur operators that provide emergency communications using the 60 meter band should be encouraged to add a sound card generated ALE capability to their stations. ALE is a standard for initiating and sustaining communications using High Frequency (HF) radio.

25. The Commission recognizes that ALE allows emergency control operators to use multiple channels efficiently and reduces the time spent trying to connect with another station. However, it also shares commenters' concerns that there is a potential for channel

monopolization due to periodic transmissions, which are not subject to manual control, and that users who do not have ALE capability may have no way of determining who is interfering with their operation. ARRL takes no position on whether we should encourage amateur operators to add ALE capability to their stations but does state that it would not support modifying the Commission's Rules to specifically require ALE. One commenter states that the inclusion of ALE on 60 meters is a larger issue and ought to be addressed in a separate proceeding that considers amateur ALE operation in general. The Commission further notes that ARRL and local emergency management agencies already have the latitude to encourage – and indeed require – that participants in specialized emergency communications programs (such as the Radio Amateur Civil Emergency Service (RACES) and Amateur Radio Emergency Service (ARES)) add a sound card-generated ALE capability to their stations. Because there is no consensus in the record, nor evidence that adding ALE will be beneficial in all situations, the Commission declines to make any recommendation as to its use as part of this proceeding.

26. Additional Issues Raised by Commenters. Finally, the Commission briefly discusses three issues raised by commenters that fall outside the scope of this proceeding, are not necessary to grant the relief sought by ARRL, or that are already provided for in our current rules. Commenters request that the Commission investigate expanding the 60 meter band allocation beyond the five channels that are currently allocated. The Commission notes that NTIA has recently indicated that it cannot support ARRL's request for a secondary amateur service allocation of 50 kilohertz near 5 MHz, and it did not propose such an action in the NPRM. One commenter recommends that, for routine messages, any one transmission of the two digital mode emissions be restricted to three hundred characters and that any one transmission of CW be restricted to 40 characters. No other party raised this issue, it was not within the scope of the NPRM, and it is not directly germane to providing the relief sought by ARRL. Lastly,

commenters requested that the Commission allow antenna tuning transmissions. This type of transmitting is already authorized pursuant to § 97.305(b), which authorizes amateur stations to transmit test emissions on HF and MF frequencies to, among other purposes, match transmitters to antennas.

Final Regulatory Flexibility Certification

27. The Regulatory Flexibility Act of 1980, as amended (RFA),¹ requires that an initial regulatory flexibility analysis 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.”² The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”³ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.⁴ 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).⁵

28. In this Report and Order, the Commission amends the amateur service rules in order to replace one of the channels in the 60 meter band with a less encumbered channel, to provide for additional emission designators, and to increase the maximum authorized power. Because “small entities,” as defined in the RFA, are not persons eligible for licensing in the amateur

¹ The RFA, see 5 U.S.C. 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Public Law No. 104-121, Title II, 110 Stat. 857 (1996).

² 5 U.S.C. 605(b).

³ 5 U.S.C. 601(6).

⁴ 5 U.S.C. 601(3) (incorporating by reference the definition of “small business concern” in the Small Business Act, 15 U.S.C. 632). Pursuant to 5 U.S.C. 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

⁵ 15 U.S.C. 632.

service, the proposed changes to Part 97 do not apply to “small entities.” Rather, they apply exclusively to individuals who are the control operators of amateur radio stations.

29. As of April 1, 2011, the Commission has issued the following types of licenses in the 5330.5-5406.4 kHz band (60 meter band): (1) 91 call signs to 41 licensees in the Conventional Industrial/Business Pool Radio Service (IG); (2) five call signs to four licensees in the Coastal Group Radio Service (MC); and (3) one call sign in the Aeronautical and Fixed Radio Service (AF).

30. IG Licensees. We note that, while the 91 call signs list the 5005-5450 kHz band, these IG licensees are actually authorized to operate only on the 13 carrier frequencies (with a maximum necessary bandwidth of 2.8 kHz) listed in footnote US22 of the Allocation Table (i.e., 5046.6, 5052.6, 5055.6, 5061.6, 5067.6, 5074.6, 5099.1, 5102.1, 5135, 5140, 5192, 5195, and 5313.6 kHz) and that none of these frequencies are within the 60 meter band. Therefore, we find that the 41 IG licensees are not affected by the rule changes that we adopt today.

31. MC Licensees. With regard to the four MC licensees (Globe Wireless, CruiseEmail, XNet Yacht Association, and Richard C Giddings), we note that only one licensee is authorized to transmit within the allocated channel bandwidth of a 60 meter band frequency. Specifically, CruiseEmail is authorized (pursuant to call sign [KDS](#)) to operate a public coast station (station class FC) in Olympia, Washington. We note that the necessary bandwidth (5330-5332.8 kHz) of this primary station overlaps the 5332 kHz channel (5330.6-5333.4 kHz), which is allocated to the amateur service on a secondary basis.

32. AF Licensees. With regard to the sole AF licensee, we note that this licensee (Aviation Spectrum Resources Inc) is authorized (pursuant to call sign [KNE96](#)) to operate at the Agana NAS Guam International Airport in Agana, Guam. We further note that the necessary

bandwidth (5370-5372.8 kHz) of this primary aeronautical fixed station (station class AX) overlaps the 5373 kHz channel (5371.6-5374.4 kHz), which is allocated to the amateur service on a secondary basis.

33. Accordingly, the Commission certifies that the rules adopted in this Report and Order will not have a significant economic impact on a substantial number of small entities. The Commission will send a copy of this Report and Order including a copy of this Final Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the SBA.⁶

Congressional Review Act

34. The Commission will send a copy of this Report and Order to Congress and the Government Accountability Office pursuant to the Congressional Review Act, see 5 U.S.C. 801(a)(1)(A).

Ordering Clauses

35. Pursuant to Sections 4(i), 301, 302(a), 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 301, 302a(a) 303(c), 303(f), 303(g), and 303(r), this Report and Order IS ADOPTED and parts 2 and 97 of the Commission's Rules ARE AMENDED as set forth in Final Rules, effective **[30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

36. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Report and Order, including the Final Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the Small Business Administration.

⁶ See 5 U.S.C. 605(b).

Report to Congress

37. The Commission will send a copy of the Report and Order, including this FRFA, in a report to Congress pursuant to the Congressional Review Act.⁷ In addition, the Commission will send a copy of the Report and Order, including this FRFA, to the Chief Counsel for Advocacy of the SBA.⁸

Ordering Clauses

List of Subjects in 47 CFR Parts 2 and 97

Communications equipment, Radio.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch,
Secretary.

⁷ See 5 U.S.C. 801(a)(1)(A).

⁸ See 5 U.S.C. 604(b).

Final Rules

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 2 and 97 to read as follows:

PART 2 -- FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

1. The authority citation for part 2 continues to read as follows:

Authority: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended to read as follows.

a. Page 8 is revised.

b. In the list of United States (US) Footnotes, footnote US23 is added and footnote US381 is removed.

§ 2.106 Table of Frequency Allocations.

* * * * *

The additions and revisions read as follows:

4.063-4.438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132			4.063-4.438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 US82	Maritime (80) Aviation (87)	
5.128			US296 US340		
4.438-4.65 FIXED MOBILE except aeronautical mobile (R)	4.438-4.65 FIXED MOBILE except aeronautical mobile		4.438-4.65 FIXED MOBILE except aeronautical mobile (R) US22 US340	Maritime (80) Aviation (87) Private Land Mobile (90)	
4.65-4.7 AERONAUTICAL MOBILE (R)			4.65-4.7 AERONAUTICAL MOBILE (R) US282 US283 US340	Aviation (87)	
4.7-4.75 AERONAUTICAL MOBILE (OR)			4.7-4.75 AERONAUTICAL MOBILE (OR) US340		
4.75-4.85 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	4.75-4.85 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113	4.75-4.85 FIXED BROADCASTING 5.113 Land mobile	4.75-4.85 FIXED MOBILE except aeronautical mobile (R) US340	Maritime (80) Private Land Mobile (90)	
4.85-4.995 FIXED LAND MOBILE BROADCASTING 5.113			4.85-4.995 FIXED MOBILE US340	4.85-4.995 FIXED US340	Aviation (87) Private Land Mobile (90)
4.995-5.003 STANDARD FREQUENCY AND TIME SIGNAL (5 MHz)			4.995-5.005 STANDARD FREQUENCY AND TIME SIGNAL (5 MHz)		
5.003-5.005 STANDARD FREQUENCY AND TIME SIGNAL Space research			US1 US340		
5.005-5.06 FIXED BROADCASTING 5.113			5.005-5.06 FIXED US22 US340	Aviation (87) Private Land Mobile (90)	
5.06-5.25 FIXED Mobile except aeronautical mobile			5.06-5.45 FIXED US22 Mobile except aeronautical mobile		Maritime (80) Aviation (87) Private Land Mobile (90) Amateur Radio (97)
5.133					
5.25-5.45 FIXED MOBILE except aeronautical mobile			US23 US212 US340		
5.45-5.48 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5.45-5.48 AERONAUTICAL MOBILE (R)	5.45-5.48 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5.45-5.68 AERONAUTICAL MOBILE (R)		Aviation (87)
5.48-5.68 AERONAUTICAL MOBILE (R)					
5.111 5.115			5.111 5.115 US283 US340		

UNITED STATES (US) FOOTNOTES

* * * * *

US23 In the band 5330.5-5406.4 kHz (60 m band), the assigned frequencies 5332, 5348, 5358.5, 5373, and 5405 kHz are allocated to the amateur service on a secondary basis. Amateur service use of the 60 m band frequencies is restricted to a maximum effective radiated power of 100 W PEP and to the following emission types and designators: phone (2K80J3E), data (2K80J2D), RTTY (60H0J2B), and CW (150HA1A). Amateur operators using the data and RTTY emissions must exercise care to limit the length of transmissions so as to avoid causing harmful interference to Federal stations.

* * * * *

PART 97 – AMATEUR RADIO SERVICE

3. 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.

4. Section 97.221 is amended by revising paragraph (c) to read as follows:

§ 97.221 Automatically controlled digital station.

* * * * *

(c) Except for channels specified in § 97.303(h), a station may be automatically controlled while transmitting a RTTY or data emission on any other frequency authorized for such emission types provided that:

(1) The station is responding to interrogation by a station under local or remote control; and

(2) No transmission from the automatically controlled station occupies a bandwidth of more than 500 Hz.

5. Section 97.303 is amended by revising paragraph (h) to read as follows.

§ 97.303 Frequency sharing requirements.

* * * * *

(h) 60 m band: (1) In the 5330.5-5406.4 kHz band (60 m band), amateur stations may transmit only on the five center frequencies specified in the table below. In order to meet this requirement, control operators of stations transmitting phone, data, and RTTY emissions (emission designators 2K80J3E, 2K80J2D, and 60H0J2B, respectively) may set the carrier frequency 1.5 kHz below the center frequency as specified in the table below. For CW emissions (emission designator 150HA1A), the carrier frequency is set to the center frequency. Amateur operators shall ensure that their emissions do not occupy more than 2.8 kHz centered on each of these center frequencies.

60 M BAND FREQUENCIES KHZ)

Carrier	Center
5330.5	5332.0
5346.5	5348.0
5357.0	5358.5
5371.5	5373.0
5403.5	5405.0

(2) Amateur stations transmitting on the 60 m band must not cause harmful interference to, and must accept interference from, stations authorized by:

(i) The United States (NTIA and FCC) and other nations in the fixed service; and

(ii) Other nations in the mobile except aeronautical mobile service.

* * * * *

6. Section 97.305 is amended by revising the table in paragraph (c) by inserting the new entry “60 m” between the “75 m” and “40 m” entries to read as follows.

§ 97.305 Authorized emission types.

* * * * *

(c) * * *

Wavelength band	Frequencies	Emission types authorized	Standards see §97.307(f), paragraph:
* *	* *	*	* *
HF:			
80 m.....	Entire band.....	RTTY, data.....	(3), (9).
75 m.....	Entire band.....	Phone, image...	(1), (2).
60 m.....	5.332, 5.348, 5.3585, 5.373 and 5.405 MHz	Phone, RTTY, data	(14).
40 m.....	7.000-7.100 MHz.....	RTTY, data.....	(3), (9).
* *	* *	*	* *

7. Section 97.307 is amended by adding paragraph (f)(14) to read as follows.

§ 97.307 Emission standards.

* * * * *

(f) * * *

(14) In the 60 m band:

(i) A station may transmit only phone, RTTY, data, and CW emissions using the emission designators and any additional restrictions that are specified in the table below (except that the use of a narrower necessary bandwidth is permitted):

60 M BAND EMISSION REQUIREMENTS

Emission type	Emission designator	Restricted to:
Phone	2K80J3E	Upper sideband transmissions (USB)
Data	2K80J2D	USB (for example, PACTOR-III)
RTTY.....	60H0J2B	USB (for example, PSK31)
CW	150HA1A	Morse telegraphy by means of on-off keying

(ii) The following requirements also apply:

(A) When transmitting the phone, RTTY, and data emissions, the suppressed carrier frequency may be set as specified in § 97.303(h).

(B) The control operator of a station transmitting data or RTTY emissions must exercise care to limit the length of transmission so as to avoid causing harmful interference to United States Government stations.

8. Section 97.313 is amended by revising paragraphs (f) and (i) to read as follows.

§ 97.313 Transmitter power standards.

* * * * *

(f) No station may transmit with a transmitter power exceeding 50 W PEP on the UHF 70 cm band from an area specified in paragraph (a) of footnote US270 in § 2.106, unless expressly authorized by the FCC after mutual agreement, on a case-by-case basis, between the District Director of the applicable field facility and the military area frequency coordinator at the applicable military base. An Earth station or telecommand station, however, may transmit on the 435–438 MHz segment with a maximum of 611 W effective radiated power (1 kW equivalent isotropically radiated power) without the authorization otherwise required. The transmitting antenna elevation angle between the

lower half-power (−3 dB relative to the peak or antenna bore sight) point and the horizon must always be greater than 10°.

* * * * *

(i) No station may transmit with an effective radiated power (ERP) exceeding 100 W PEP on the 60 m band. For the purpose of computing ERP, the transmitter PEP will be multiplied by the antenna gain relative to a half-wave dipole antenna. A half-wave dipole antenna will be presumed to have a gain of 1 (0 dBd). Licensees using other antennas must maintain in their station records either the antenna manufacturer's data on the antenna gain or calculations of the antenna gain.

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