6712-01

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 2, 15, 80, 90, 97, and 101

[ET Docket No. 15-99; FCC 17-33]

WRC-12 Implementation Report and Order

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: In this document, the Commission implemented allocation changes from the World Radiocommunication Conference (Geneva, 2012) (WRC-12) and updated its service rules. The Commission took this action to conform its rules, to the extent practical, to the decisions that the international community made at WRC-12. This action will promote the advancement of new and expanded services and provide significant benefits to the American public.

DATES: Effective **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, except for amendments to §§ 97.3, 97.15(c), 97.301(b) through (d), 97.303(g), 97.305(c), and 97.313(k) and (l), which contain new or modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13, that are not effective until approved by the Office of Management and Budget (OMB). The Commission will publish a document in the **Federal Register** announcing the effective date once OMB approves.

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SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Report and Order, ET Docket No. 15-99, FCC 17-33, adopted March 27, 2017, and released March 29, 2017. 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 full text may also be downloaded at: https://apps.fcc.gov/edocs_public/attachmatch/FCC-17-33A1.pdf. People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an email 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 April 23, 2015, the Commission adopted a Notice of Proposed Rulemaking (WRC-12 NPRM) in this proceeding, 80 FR 38315, July 2, 2015. In this Report and Order (WRC-12 R&O), the Commission amended the Table of Frequency Allocations (Allocation Table) in § 2.106 of its rules and a number of related service rules to implement certain radio frequency (RF) allocation decisions from the Final Acts of the World Radiocommunication Conference (Geneva, 2012) (WRC–12 Final Acts). The following are the major actions that the Commission took to support non-Federal spectrum requirements:

- Allocated the 472-479 kHz band to the amateur service on a secondary basis and amended part 97 to provide for amateur service use of this band and of the 135.7-137.8 kHz band.
- Amended part 80 to authorize radio buoy operations in the 1900-2000 kHz band under a ship station license.
- Allocated eight frequency bands in the 4 to 44 MHz range to the radiolocation service for Federal and non-Federal use, limited to oceanographic radars. The Commission also amended part 90 to provide for licensing of oceanographic radars, and required those

radars currently operating under an experimental license to conform their operations to the adopted rules within five years of the effective date of this Order.

- Reallocated the 156.7625-156.7875 MHz and 156.8125-156.8375 MHz bands to the mobile-satellite service (MSS) (Earth-to-space) on a primary basis for Federal and non-Federal use, limited to the reception of Automatic Identification Systems (AIS) broadcast messages from ships. The Commission also amended part 80 to permit ships to transmit AIS broadcast messages in these bands, and amended part 25 to permit MSS satellites to receive in these bands and in the existing AIS bands.
- Allocated the 5000-5091 MHz band to the aeronautical mobile (route) service (AM(R)S) on a primary basis for Federal and non-Federal use. AM(R)S use of the 5000-5030 MHz band extends the tuning range for the recently-established Aeronautical Mobile Airport Communications System (AeroMACS) that will support surface applications at airports. AM(R)S use of the 5030-5091 MHz band will support unmanned aircraft systems (UAS).

DISCUSSION

2. In the WRC-12 R&O, the Commission amended Parts 2, 15, 25, 80, 90, and 97 of its rules to implement specific allocations from the WRC-12 Final Acts that affect a number of frequency bands between 8.3 kHz and 3000 GHz and to adopt related service rules. These actions are described in greater detail below.

A. Amateur Radio Use of the 135.7-137.8 kHz and 472-479 kHz Bands

3. As proposed in the WRC-12 NPRM, the Commission allocated the 472-479 kHz band to the amateur service on a secondary basis and limited the maximum equivalent isotropically radiated power (EIRP) of amateur stations using this band to five watts in the United States, except for that portion of Alaska that is within 800 kilometers of the Russian Federation's borders, where the maximum EIRP is limited to one watt.

4. The amateur service will share this band with Power Line Carrier (PLC) systems, which electric utility companies use and operate in the 9-490 kHz range under part 15 of the Commission's rules on an unprotected and non-interference basis with respect to authorized radio users. While the Utilities Telecom Council (UTC) objected to the Commission's allocation proposal on the basis that an increased interference potential between amateur operations and PLC systems could deprive utilities of the flexibility needed to deploy PLC systems, the amateur radio community supported this allocation as useful for improving technical knowledge on radio propagation and because they believed that co-existence with PLC systems is possible due to existing amateur service operations on frequencies near 500 kHz under experimental licenses that have not resulted in any interference complaints.

5. The Commission agreed that adding a secondary amateur service allocation to the 472-479 kHz band will provide new opportunities for amateur operators to experiment with equipment, techniques, antennas, and propagation phenomena. The 472-479 kHz band offers amateur service operators different propagation characteristics from the 135.7-137.8 kHz band, which was allocated on a secondary basis to amateur service in the WRC-07 Report and Order. Further, a secondary allocation to the amateur service harmonizes the United States and international allocations for this band and provide new opportunities for amateur service experimentation. At the same time, the Commission recognized the importance of PLC systems and their impact on utility safety, security and reliability of utility operations, and found that co-existence between PLC systems and amateur radio operations in these bands is possible under the service rules the Commission adopted in this Order.

6. As proposed in the WRC-12 NPRM, the Commission removed several allocations from the 135.7-137.8 kHz and 472-479 kHz bands. It deleted the non-Federal fixed service (FS) and maritime mobile service (MMS) allocations from the 135.7-137.8 kHz band because there are no non-Federal stations in the FS and MMS that are licensed to operate in this band, and because it found that any future requirements for non-Federal stations in the FS or MMS can be accommodated in other frequency bands. However, because there is some limited Federal use of this band, the Commission

maintained the existing primary FS and MMS allocations in the Federal Table. The Commission deleted the Federal MMS and aeronautical radionavigation service (ARNS) allocations and the non-Federal MMS allocation from the 472-479 kHz band. NTIA has not authorized any Federal stations in the ARNS or MMS to operate in the 472-479 kHz band, and there is only limited use of the non-Federal MMS allocation. Any future requirements for non-Federal MMS stations can be accommodated in other frequency bands. However, there are two non-Federal licensees that operate three public coast stations under their current licenses on a primary basis. The Commission grandfathered operation of these stations by amending § 80.357(b)(1) to limit the use of the 472-479 kHz band to public coast stations that were licensed as of the effective date of this Report and Order and by adding a footnote to the Table of Allocations that grandfathers the following licensees to operate public coast stations on a primary basis in the 472-479 kHz band pursuant to their current radio station authorization, subject to periodic renewals: Global HF Net LLC (call signs KFS and WNU) and New England Historical Radio Society, Inc. (call sign WNE).

7. The Commission adopted service rules for the amateur radio service in the 135.7-137.8 kHz (2200 meter band) and 472-479 kHz (630 meter band) bands that will ensure the compatibility of amateur radio operations and PLC systems that operate in these bands, and promote the shared use of these bands. Under these rules, electric utilities will not be required to modify existing PLC systems to accommodate amateur operations, and previously notified amateur stations will not be required to alter their operations to accommodate new or modified PLC operations.

8. As proposed, the Commission will permit amateur stations to operate in the 135.7-137.8 kHz and 472-479 kHz bands when separated by a specified distance from electric power transmission lines with PLC systems that use the same bands. To support the operations of both the amateur service and PLC systems in these bands, the Commission adopted a minimum horizontal separation distance of one kilometer between the transmission line and the amateur station when operating in these bands.

9. Regarding operations in the 135.7-137.8 kHz band, ARRL provided a technical analysis in ET Docket No. 12-338, which concluded that PLC systems "will be sufficiently protected from amateur stations transmitting at an EIRP of 1 W with a separation distance of 1 km from the transmission lines carrying the PLC signals, beyond which there is no interference potential." UTC agreed with this conclusion and supported a separation distance of at least one kilometer for amateur operation in this band. While ARRL preferred that amateur stations have the option to be located closer to the transmission lines with PLC systems and recommended a notification procedure to address any potential interference to PLC systems, the Commission found that a one kilometer separation distance reasonably ensures that PLC systems and amateur radio stations are unlikely to experience interference. In addition, establishing a zone where amateur use is not authorized will simplify and streamline the process for determining whether an amateur station can transmit in these bands when in proximity to transmission lines upon which PLC systems operate.

10. The Commission adopted the same separation distance for amateur operations in the 472-479 kHz band, as it did for the 135.7-137.8 kHz band, since these bands share the same considerations for co-existence of the two uses.

11. The Commission restricted amateur service operations to fixed locations and prohibited mobile operations in these bands. This restriction will ensure that amateur stations remain at the locations specified in their notification and comply with the separation distance requirements discussed below. UTC and some amateur service commenters supported this restriction. The Commission will allow temporary fixed use at sites that meet its technical rules and follow its notification requirements. In other words, the location of the amateur station must not be located within one kilometer of PLC systems and its operations must be in accordance with part 97 rules.

12. The Commission required amateur operators to notify UTC of the location of their proposed station prior to commencing operations, to confirm that the station is not located within the

one kilometer separation distance. Even though several amateur service commenters claimed that they can readily identify transmission lines and compute the separation distance, the Commission found that transmission lines are not always readily identifiable. Further, amateur operators may not be able to determine whether PLC systems operate in the relevant bands on the subject transmission lines. The notification requirement will entail notifying UTC of the operator's call sign and coordinates of the proposed station's location for confirmation that the location is outside the one kilometer separation distance, or the relevant PLC system is not transmitting on the requested bands. UTC, which maintains a database of PLC systems must respond to the notification within 30 days if it objects. If UTC raises no objection, amateur radio operators may commence operations on the band identified in their notification. The Wireless Telecommunications Bureau will issue a public notice providing the details for filing notifications with UTC.

13. The notification procedures the Commission adopted seek to strike a balance between amateur operations used for experimental purposes and PLC operation used by electric utilities for the reliability and security of electric service to the public. These procedures are the least burdensome considering the Commission seeks to ensure that no potential interference occurs from these two uses. A simple notification to UTC with a 30-day waiting period does not appear to be burdensome. Amateur operations can commence as soon as that period expires. While ARRL sought direct access to the PLC database, the Commission noted that UTC has control of the PLC database which can be updated, and found no reason to mandate its release to another party especially considering the sensitive nature of information it contains.

14. If an electric utility seeks to deploy a new or modified PLC system on a transmission line that is within one kilometer of a previously coordinated amateur station, the electric utility must employ a frequency in the 9-490 kHz range that has not been included in the amateur station's notification, as ARRL suggests. If the previously coordinated amateur station no longer operates in the band, the electric utility may deploy a PLC system in that band.

15. As discussed in the WRC-12 NPRM, the Commission adopted maximum EIRP limits and transmitter power limits for the new amateur service bands. Amateur stations may operate in the 135.7-137.8 kHz band with a maximum radiated power of one watt EIRP. The Commission found that amateur stations operating in the 135.7-137.8 kHz band should be subject only to the general part 97 limit of 1.5 kW peak envelope power (PEP). The Commission found it unnecessary to limit the transmitter power beyond what it is already provided for in its rules, because antennas used in this frequency band are highly inefficient in converting the RF power delivered to the antenna terminals.

16. The Commission also adopted the power limits proposed in the WRC-12 NPRM for amateur stations operating in the 472-479 kHz band. For such stations, the maximum radiated power will be five watts EIRP, except for stations located in the portion of Alaska that is within 800 kilometers of the Russian Federation, where the EIRP will be limited to one watt. The Commission also limited the transmitter power for amateur radio operations in the 472-479 kHz band to 500 watts PEP; provided, however, that the resulting radiated power does not exceed five watts EIRP. In other words, it may be necessary to reduce transmitter power below 500 watts PEP to avoid exceeding the five watts EIRP limit.

17. As discussed in the WRC-12 NPRM, the Commission required that the antennas used to transmit in these bands not exceed 60 meters in height above ground level, as ARRL proposed. The adoption of this height restriction will aid in the sharing of these amateur service bands with PLC systems by limiting the potential for amateurs' signals to exceed the adopted EIRP limits with longer, higher gain antennas, and could reduce the number of antenna structures that must comply with the Federal Aviation Administration notification and obstruction marking and lighting requirements in part 17 of the Commission's rules.

18. As discussed in the WRC-12 NPRM, the Commission made these bands available for Amateur Extra, Advanced and General Class licensees. Consistent with its proposal in the WRC-12 NPRM and with the existing rules in § 97.305 for the frequency bands below 30 MHz, the Commission

authorized amateur stations to transmit the following emission types throughout the new amateur bands: CW (international Morse code telegraphy), RTTY (narrow-band direct-printing telegraphy), data, phone, and image emissions. These emission types provide amateur operators with maximum flexibility, and the Commission found that additional restrictions would needlessly hinder experimentation.

19. The Commission amended § 97.303 to list the radiocommunication services that must be protected from harmful interference. Specifically, amateur stations transmitting in the 135.7-137.8 kHz band must not cause harmful interference to, and must accept interference from, stations authorized by the United States Government in the fixed and maritime mobile services and stations authorized by other nations in the fixed, maritime mobile, and radionavigation services. Amateur stations transmitting in the 472-479 kHz band must not cause harmful interference to, and must accept interference from, stations authorized by the Commission in the maritime mobile service and stations authorized by other nations in the maritime mobile and aeronautical radionavigation services.

20. The Commission declined to prohibit automatically controlled stations from operating in these bands. Further, as proposed in the WRC-12 NPRM, the Commission added definitions for the terms effective radiated power, isotropically radiated power and LF (low frequency) in section 97.3 of its rules. Finally, the Commission declined to permit previously licensed experimental stations – some of which have been authorized with significantly more radiated power than the adopted EIRP limits for these new amateur service bands – to communicate with amateur stations operating in these bands. Amateur operations in these bands currently authorized under experimental licenses should transition their operations in accordance with the adopted rules and not circumvent such rules by use of experimental licenses.

B. Radio Buoys Operating in the 1900-2000 kHz Band

21. The Commission allocated the 1900-2000 kHz band to the MMS on a primary basis for non-Federal use in ITU Regions 2 and 3, and limited the use of this allocation to radio buoys on the open

sea and the Great Lakes. Section 80.5 of the Commission's rules define open sea as the water area of the open coast seaward of the ordinary low-water mark, or seaward of inland waters. This allocation addresses the limited situations where radio buoys cannot be authorized under the radiolocation service allocation because of newer technology that uses features like GPS rather than radiodetermination.

22. In the WRC-07 R&O, the Commission recognized the public benefit associated with the use of radio buoys by the U.S. commercial fishing fleet, and in the WRC-12 NPRM the Commission proposed revisions to its rules that would provide radio buoy operators with a legitimate path to operate. In doing so, the Commission proposed to geographically limit the use of the MMS allocation, and the existing radiolocation service allocation, to radio buoys used by the U.S. commercial fishing fleet on the open sea, but sought comment on whether the geographic area should be extended to include the Chesapeake Bay, Great Lakes, or other inland waters.

23. The Commission recognized ARRL's concerns that radio buoy manufacturers will not be able to ensure where fishing vessels will be using radio buoys. However, the Commission believes that amateur radio and radio buoys can continue to share this frequency band as they have done for many years. Because radio buoys are low-power and narrow-bandwidth devices, while amateur stations tend to use much higher power, the Commission believes that they can continue to be accommodated with minimal impact on amateur radio operations. Any intermittent interference amateur operators may receive in the 1900-2000 kHz band from lower-powered radio buoys is not expected to significantly hamper amateur operations in the band because amateur operators can readily tune around these narrow radio buoy signals and because the adjacent 1800-1900 kHz band is allocated exclusively for amateur radio use. Although the Commission had requested comment on rules that would have effectively permitted radio buoys to operate on any waters where the United States exercises sovereignty, the Commission was persuaded by ARRL's comments to adopt final rules that are better tailored to the places where the commercial fishing fleet can make reasonable and productive use of

radio buoys. The Commission thus found it in the public interest to permit commercial fishing vessels to use these buoys on the open sea and the Great Lakes.

24. Also, the Commission amended, as proposed, footnote NG92 to provide that the co-primary services in the 1900-2000 kHz band are protected from harmful interference only to the extent that the offending station is not operating in accordance with the technical rules. This statement clarifies that co-primary allocations in the 1900-2000 kHz band (i.e., the amateur, radiolocation, and maritime mobile services) share the same type of interference protection – one that protects only from a violation of the technical rules. Radio buoys and amateur stations have co-equal status and therefore have the same level of interference protection from each other.

25. The Commission declined to make additional spectrum available for radio buoy use. In the WRC-12 NPRM the Commission sought comment on alternative approaches that would allow continued radio buoy use by the U.S. commercial fishing fleet, including allocating additional spectrum. Several amateur radio commenters requested that new radio buoys be transitioned to another nearby frequency band. However, the Commission did not agree that additional spectrum is necessary for radio buoy operations because the 1900-2000 kHz band can be successfully shared with amateurs and the number of radio buoys does not appear to be significant enough to require a different allocation. In addition, as stated above, the 1800-1900 kHz band is already allocated for exclusive amateur use, and the record does not indicate that this exclusive allocation is insufficient and that the public interest would be served by creating an additional exclusive allocation for amateur use at 1900-2000 kHz. Therefore, it appeared unnecessary for the Commission to make additional spectrum available for exclusive amateur use at this time by relocating low-power radio buoys out of the 1900-2000 kHz band.

26. The Commission amended part 80 of its rules to authorize the use of frequencies in the 1900-2000 kHz band for radio buoy operations under a ship station license provided that the use of these frequencies is related to commercial fishing operations, the transmitter output power does not

exceed 8 watts, and the station antenna height does not exceed 4.6 meters above sea level in a buoy station or 6 meters above the mast of the ship on which it is installed.

27. In the WRC-12 NPRM, the Commission proposed to authorize buoy stations in the 1900-2000 kHz band, provided that the output power does not exceed 10 watts and the station antenna height does not exceed 4.6 meters above sea level in a buoy station or 6 meters above the mast of the ship on which it is installed. While part 90 did not establish power limits in this band, no equipment authorization has been sought with an output power over 8 watts. To address some of the amateur community's concerns over potential interference from these radio buoys, the Commission limited radio buoys transmitter output power to 8 watts.

28. The Commission found it unnecessary to provide the proposed six-month phase-out period for part 90 equipment authorizations considering that no applications for radio buoy equipment operating in the 1900-2000 kHz band have been submitted since the adoption of the WRC-12 NPRM. Hence, applications for equipment authorization of radio buoys must meet the new part 80 rules, as of the effective date of this Order. Also as proposed, the Commission grandfathered radio buoys authorized under § 90.103(b) prior to the cutoff date so they may continue to be manufactured, imported, and marketed under the previously approved equipment authorization.

C. Aviation Services Uses in the 5000-5150 MHz Band

29. The Commission took actions in support of aeronautical mobile (route) service (AM(R)S) surface applications at airports in the 5000-5030 MHz band and unmanned aircraft systems (UAS) in the 5030-5091 MHz band. As proposed, the Commission allocated the 5000-5030 MHz bands to the AM(R)S on a primary basis for Federal and non-Federal use, for systems operating in accordance with international aeronautical standards, limited to surface applications at airports (i.e., AeroMACS). AeroMACS refers to a collection of high data rate wireless networks that are used for airport surface operations (i.e. ground-to-ground communications) to provide broadband communications between aircraft and other ground vehicles, as well as between critical fixed assets. AeroMACS is designed to

support a wide variety of services and applications, including Air Traffic Control/Air Traffic Management and infrastructure functions, as well as airline and airport operations.

30. In the WRC-07 R&O, the Commission made the globally harmonized 5091-5150 MHz band available for AeroMACS, expecting that it will be the main frequency band for deployment of AeroMACS. The Commission found that there is a need for additional spectrum, especially at the nation's busiest airports. This action extended the tuning range for AeroMACS to include the 5000-5030 MHz band in the United States.

31. The Commission allocated the 5030-5091 MHz band to the AM(R)S on a primary basis for Federal and non-Federal use and added international footnote 5.443C to this band limiting the use to internationally standardized aeronautical systems and setting limits for unwanted emissions from AM(R)S stations to adjacent band radionavigation-satellite service (RNSS) downlinks to an EIRP density of -75 dBW/MHz. The WRC-12 NPRM proposal, which was based on the U.S. Proposals for WRC-12, noted that the 5030-5091 MHz band would be appropriate to satisfy the terrestrial, line-of-sight, spectrum requirements for command and control of UAS in non-segregated airspace. The Commission adopted the AM(R)S allocation to support the anticipated growth of UAS and promote their safe operation. Technical and operational rules relating to altitude, weight, or other requirements will be addressed in the service rules for this band, which will be promulgated in a separate proceeding.

32. As proposed, the Commission added an entry in the U.S. Table that reflects the primary aeronautical mobile-satellite (R) service (AMS(R)S) allocation in the 5000-5150 MHz band, previously reflected in a footnote. Further, the Commission adopted two international footnotes that limit the AMS(R)S allocation to internationally standardized aeronautical systems.

D. Protecting Passive Sensors in the 86-92 GHz Band

33. The Commission did not adopt proposed footnote US162, which would have encouraged fixed service operators transmitting in the adjacent bands (81-86 GHz and 92-94 GHz) to

take all reasonable steps to ensure that their unwanted emissions power in the 86-92 GHz passive band does not exceed WRC-12's non-mandatory unwanted emissions levels.

34. The 86-92 GHz band is allocated to the Earth exploration-satellite service (EESS) (passive), radio astronomy service, and space research service (passive). WRC-12 sought to protect the EESS passive sensors that receive in this band, proposed non-mandatory protection requirements from out-of-band emissions from active services in adjacent bands and "urge[d] administrations to take all reasonable steps to ensure" that such emissions do not exceed the recommended maximum levels. The WRC-12 NPRM proposed the adoption of a footnote that would "encourage operators of fixed stations […] to take all reasonable steps to ensure that their unwanted emissions in the 86-92 GHz does not exceed WRC-12's non-mandatory unwanted emission levels" (emphasis added).

35. The Commission recognized that the proposed footnote US162 provides emission limits that are significantly more stringent than those in part 101 and concluded that adoption of the footnote would be confusing for incumbent users of the adjacent bands and would not provide any meaningful protection for the EESS passive sensors in the 86-92 GHz band beyond that already required under part 101 of the rules. Further, the adoption of the underlying emission limits for the protection of the EESS passive sensors in the 86-92 GHz band, an action supported by CORF, would require a proceeding in order to develop a record that could support changes to the existing rules. The current proceeding does not provide the appropriate proper framework to address such changes. In addition, there are other proceedings underway addressing part 101 emission mask rules governing fixed operations in these bands that may be better suited in examining these considerations.

E. Passive Use of Bands Above 275 GHz

36. As proposed, the Commission extended the U.S. Table of Allocations past the 275-1000 GHz band to 3000 GHz. These bands are "not allocated" to specific services, though passive services such as the EESS, space research service (SRS), and radio astronomy service already utilize portions of the 275-3000 GHz range for scientific observation. The Commission adopted a revised footnote US565

which incorporates language of the new international footnote 5.565 and of the proposed footnote US565.

37. WRC-12 revised international footnote 5.565 to identify an additional 226 gigahertz of spectrum for passive spaceborne sensor use in the 275-990 GHz range. The footnote further urges administrations, when making those frequencies available for active service applications to take all practicable steps to protect these passive services from harmful interference, until the date when the Table of Frequency Allocations is established in the 275-1000 GHz frequency range. CORF, in its comments, generally supported the sharing of frequency allocations where practical, stating that technical factors associated with radio transmission in these high frequencies may well support shared use in many cases. However, CORF objected to the proposed U.S. footnote because it appears to be at odds with international footnote 5.565's "explicit goal of protecting passive uses."

38. The Commission did not agree with CORF's interpretation and was concerned that the text of international footnote 5.565 could be construed as placing a reservation for future passive service allocations in the U.S. Table, which would inhibit development of other radiocommunication services in this spectrum. Consistent with its tentatively conclusion in the WRC-12 NPRM, the Commission found that it is premature to establish a specific allocation in the U.S. Table in this frequency range and that it is unnecessary to place spectrum use restrictions in these frequencies. Instead, maintaining spectrum flexibility in these bands will encourage the development of new uses in the future.

39. The Commission recognized that the 275-3000 GHz frequency range is used – and may be used more extensively in the future – for experimentation with, and development of, an array of active service applications. Because international footnote 5.565 can be interpreted as establishing an "allocation" for passive uses only, the Commission found that the text of this international footnote must be clarified. In particular, the Commission was not prepared to determine whether the frequency

bands identified for use by passive service applications in international footnote 5.565 are entitled to interference protection from a yet-to-be proposed active service. For these reasons, the Commission revised existing footnote US565 to identify expected passive uses of the 275-1000 GHz range and to clarify that this footnote does not establish any priority of use in the U.S. Table, and does not preclude or constrain any active service use or future allocation of frequency bands in the 275-3000 GHz range. This clarifying text is sufficient, given that passive and active services can share frequencies above 275 GHz without constraints, especially considering the atmospheric absorption at these frequencies and the narrowness of the antenna beamwidths, which make sharing among different services possible.

F. Rulemaking Proposals That Did Not Receive Any Specific Comments

40. The Commission amended §§ 2.100, 2.102, 2.106, 80.215, 80.373, 80.871, 90.7, 90.103, and 90.425 of its rules to implement proposals in the WRC-12 NPRM that were not addressed by any of the commenters. It found these proposals implement important U.S. policy goals and serve the public interest for the reasons stated in the WRC-12 NPRM.

41. Passive Systems for Lightning Detection (8.3-11.3 kHz). The Commission allocated the 8.3-9 kHz and 9-11.3 kHz bands to the meteorological aids service on a primary basis for Federal and non-Federal use. The Commission also adopted international footnote 5.54A, limiting use of these frequency bands to passive use only. Consequently, the Commission revised Section 2.102(a) to require that the assignment of frequencies between 8.3 kHz and 275 GHz be in accordance with the Allocation Table.

42. Maritime Mobile Service Use of the Frequency 500 kHz. The Commission allocated the 495-505 kHz band to the maritime mobile service, removes the aeronautical mobile and land mobile service portions of the existing allocation, and removes the existing distress and calling restriction.

43. Oceanographic Radar Applications in the 4-44 MHz Range. The Commission allocated seven frequency bands (4.438-4.488 MHz, 5.25-5.275 MHz, 16.1-16.2 MHz, 24.45-24.65 MHz,

26.2-26.42 MHz, 41.015-41.665 MHz, and 43.35-44 MHz) to the radiolocation service (RLS) on a primary basis for Federal and non-Federal use, and allocate the 13.45-13.55 MHz band to the RLS on a secondary basis for Federal and non-Federal use. The Commission added footnotes to the U.S. Table that prohibit oceanographic radars transmitting in these bands from causing harmful interference to, or claiming protection from, existing and future stations in the incumbent fixed and mobile services. The Commission also raised to primary status the secondary mobile except aeronautical mobile service allocation in the 5.25-5.275 MHz band, so that existing and future stations in this service can also be protected from interference from oceanographic radars. Next, the Commission amended part 90 of its rules by adding the oceanographic radar bands to the Radiolocation Service Frequency Table and took other associated actions that incorporate WRC-12's operational requirements for oceanographic radars and allowed licensees of existing experimental stations to apply for part 90 licenses. Finally, the Commission required that all oceanographic radar licensees currently operating under part 5 of the rules transition their operations to frequencies within an allocated band within five years of the effective date of this Report and Order.

44. Improved Satellite-AIS Capability. To improve satellite detection of messages from maritime Automatic Identification Systems (AIS), the Commission reallocated two bands – 156.7625-156.7875 MHz (AIS 3) and 156.8125-156.8375 MHz (AIS 4) – to the mobile-satellite service (MSS), restricted to Earth-to-space (uplink) operations, on a primary basis for Federal and non-Federal use. The Commission revised footnote US52 to restrict the use of these MSS uplink allocations to the reception of long-range AIS broadcast messages from ships. The Commission removed the primary MMS allocation from these bands and amends the relevant rules to remove references to these MMS frequencies. The Commission further revised footnote US52 to grandfather the single MMS licensee (BKEP Materials, LLC) until the expiration date of its licenses (August 26, 2019). The Commission amended Section 80.203 to clarify that it will no longer accept applications for certification of non-AIS VHF radios that include channels 75 (156.775 MHz) and 76 (156.825 MHz) as of the effective date of this

Report and Order. Finally, the Commission added to Section 80.393 the simplex channels at 156.775 MHz (AIS 3) and 156.825 MHz (AIS 4) and it added to Section 25.202 these bands and the existing AIS bands (161.9625-161.9875 MHz and 162.0125-162.0375 MHz).

45. Allocating the 22.55-23.15 GHz and 25.5-27 GHz Bands to the Space Research Service. The Commission amended the U.S. Table to allocate the 22.55-23.15 GHz band to the SRS (Earth-to-space) on a primary basis for both Federal and non-Federal use and to add a reference to international footnote 5.532A. In addition, the Commission added a primary non-Federal SRS (space-to-Earth) allocation to the companion 25.5-27 GHz band, which currently is allocated to the SRS (space-to-Earth) only for Federal use.

46. Deletion of Aeronautical Mobile Service from the 37-38 GHz Band. The Commission amended the U.S. Table to limit the existing primary mobile service allocation in the 37-38 GHz band only to the land mobile and maritime mobile services. In other words, this primary allocation entry will read "MOBILE except aeronautical mobile" service.

47. Allocating the 7850-7900 MHz Band to the Federal Meteorological-Satellite Service. The Commission allocated the 7850-7900 MHz band to the meteorological satellite-service (MetSat) (space-to-Earth) on a primary basis for Federal use and adopt international footnote 5.461B restricting use of the allocation to non-geostationary systems. As consequence of this action, the larger 7750-7900 MHz band is now allocated to the fixed service and the meteorological satellite-service (space-to-Earth) on a primary basis for Federal use, and per international footnote 5.461B, MetSat use of this band is limited to non-geostationary satellite systems.

48. Allocating the 15.4-15.7 GHz Band to the Federal Radiolocation Service. The Commission allocated the 15.4-15.7 GHz band to the RLS on a primary basis for Federal use. The Commission also added international footnotes 5.511E and 5.511F to the Federal Table, which require that RLS stations operating in the 15.4-15.7 GHz band not cause harmful interference to, or claim

protection from, stations operating in the aeronautical radionavigation service, and not exceed the power flux-density level of −156 dB(W/m^2) in a 50 MHz bandwidth in the 15.35-15.4 GHz band, at any radio astronomy observatory site for more than 2 percent of the time. Also, the Commission adopted footnote US511E, which limits RLS use of the 15.4-15.7 GHz band to Federal systems requiring a necessary bandwidth greater than 1600 MHz that cannot be accommodated within the band 15.7-17.3 GHz, except that radar systems requiring use of the band 15.4-15.7 GHz for testing, training, and exercises may be accommodated on a case-by-case basis.

49. Other Administrative Matters. The Commission adopted its proposal to update footnote NG49 and renumbered this footnote as NG16. Specifically, the Commission no longer lists the individual frequencies within the footnote, and it removed the geographic restriction from this footnote. These updates will bring the U.S. Table in line with existing service rules. The Commission also amended Section 2.100 of its rules to state that the ITU Radio Regulations, Edition of 2012, have been incorporated to the extent practicable in part 2.

FINAL REGULATORY FLEXIBILITY CERTIFICATION

50. The Regulatory Flexibility Act of 1980, as amended (RFA)[1] requires that a regulatory flexibility analysis be prepared for rulemaking proceedings, unless the agency certifies that "the rule will not have a significant economic impact on a substantial number of small entities."[2] The RFA generally defines "small entity" as having the same meaning as the terms "small business," "small organization,"

[1] The RFA, *see* 5 U.S.C. 601 et. seq., has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[2] 5 U.S.C. 605(b).

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]

51. In this Report and Order, the Commission took three actions that will cause a direct cost to regulated entities. First, the Commission required that all commercial fishing vessels that operate radio buoys in the 1900-2000 kHz band be authorized under a ship radio station license. Based on the comments of ITM Marine in ET Docket No. 12-338, there are between 750 and 1000 active commercial fishing vessels that operate such radio buoys.[6] The Commission expects that some of these fishing vessels are owned by small businesses that do not already have a ship radio station license. Because the

[3] 5 U.S.C. 601(6).

[4] 5 U.S.C. 601(3) (incorporating by reference the definition of "small business concern" in 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] Small Business Act, 15 U.S.C. 632.

[6] See Amendment of Parts 1, 2, 15, 74, 78, 87, 90, and 97 of the Commission's Rules Regarding Implementation of the Final Acts of the World Radiocommunication Conference (Geneva, 2007) (WRC-07), Other Allocation Issues, and Related Rule Updates, ET Docket 12-338, Comments of Steve Beaver (March 4, 2013) at 1 ("We estimate that there are at least 500 active [high seas migratory species fishing] vessels, and possible 250-500 more in the USA, which are using radio buoys.").

total cost for a ship radio station license is $215, the Commission found that the direct cost of this requirement will be far less than one percent of revenue for any future small business licensee.

52. Second, the Commission required that oceanographic radars, which currently operate under experimental license authority, operate in accordance with the adopted part 90 rules within five years of the effective date of this Report and Order. Based on its review of licenses in the Commission's Experimental Licensing System, the adopted rules will affect nine universities and one manufacturer. Based on information provided by the National Oceanic and Atmospheric Administration, the Commission believes that, in most cases, existing oceanographic radars can transition to the nearest allocated band without major hardware modification.[7] The Commission noted that only two of these universities are private institutions (Cornell University and San Francisco University) that meet the definition of small organization, *see* 5 U.S.C. 601(4). The Commission further noted that there "are 1,600 private, nonprofit institutions nationwide,"[8] and the great majority of these are clearly small organizations. Therefore, the Commission found that requiring oceanographic radars to operate under the adopted part 90 rules will impact far less than one percent of private, nonprofit academic institutions that are small organizations. The Commission also believes that the single licensee that is a manufacturer (CODAR Ocean Sensor, Ltd.) will be positively impacted because it has committed to

[7] See National Oceanic and Atmospheric Administration, Summary of WRC-12 HF Radar Frequency Outcomes (Jan. 26, 2012) ("In most cases, transitioning to the nearest allocated band should not require major hardware modification"), http://www.ioos.noaa.gov/hfradar/summary_wrc_12outcomes.pdf.

[8] See "Quick Facts About Private Colleges" by the National Association of Independent Colleges and Universities (http://www.naicu.edu/about/page/quick-facts-about-private-colleges#Institution).

"produce, sell, and support [oceanographic radars] that operate in all of the ITU allocated bands and conform to any local regulations."[9]

53. Third, the Commission reallocated the 156.7625-156.7875 MHz and 156.8125-156.8375 MHz bands from MMS to the mobile-satellite service, and requires that MMS operations in these bands cease as of August 26, 2019. There is a single licensee (BKEP Materials, LLC) authorized to operate three private coast stations in these bands. Based on its review of licenses in the Commission's Universal Licensing System, the Commission has issued 2770 licenses for private coast stations to operate in the 156-157.1 MHz band. The Commission estimated that at least 1000 of these licensees are small entities. Therefore, the Commission found that these reallocations will impact far less than one percent of the total number of small entities operating in the 156-157.1 MHz band.

54. Therefore, the Commission certified that the requirements of 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 this final certification, in a report to Congress pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996, see 5 U.S.C. 801(a)(1)(A). In addition, the Report and Order and this certification will be sent to the Chief Counsel for Advocacy of the Small Business Administration, and will be published in the Federal Register. See 5 U.S.C. 605(b).

PAPERWORK REDUCTION ANALYSIS

55. This Report and Order contains new information collections subject to the PRA, Public Law 104-13. It will be submitted to OMB for review under Section 3507(d) of the PRA. The Commission will publish a separate notice in the Federal Register inviting comment on the new information

[9] See "Outcome of the 2012 World Radiocommunication Conference: Oceanographic HF Radars Officially Recognized by ITU," March 2012, by CODAR Ocean Sensors (http://www.codar.com/news_03_2012_2.shtml).

collection requirements adopted herein. The requirements will not go into effect until OMB has approved it and the Commission has published a notice announcing the effective date of the information collection requirements. In this document, the Commission has assessed the potential effects of the prior notification requirement for amateur service operations in the 135.7-137.8 kHz and 472-479 kHz bands, and found that there will in the great majority of instances be a de minimis paperwork burden for amateur service licensees resulting from the collection of information by the Utilities Telecom Council. Finally, the Commission noted that, because "small entities," as defined in the Regulatory Flexibility Act of 1980, as amended, are not persons eligible for licensing in the amateur service, this rule does not apply to "small entities." Therefore, the requirement in the Small Business Paperwork Relief Act of 2002, Public Law 107-198, 44 U.S.C. 3506(c)(4), that the Commission seek to further reduce this information requirement burden for small business concerns with fewer than 25 employees does not apply.

Congressional Review Act

56. 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

57. Pursuant to sections 1, 4, 301, 302, and 303 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154, 301, 302a, and 303, this Report and Order is hereby ADOPTED and the Commission's rules ARE AMENDED as set forth below.

58. The rule amendments adopted herein SHALL BE EFFECTIVE 30 days after date of Federal Register publication of the Report and Order, except for §§ 97.3, 97.15(c), 97.301(b) through (d), 97.303(g), 97.305(c), and 97.313(k) and (l), because § 97.303(g)(2) contains a new information collection requirement that requires approval by OMB under the PRA. These rules sections SHALL BE EFFECTIVE

after the Commission publishes a notice in the Federal Register announcing such approval and the relevant effective date.

59. 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.

60. IT IS FURTHER ORDERED that the Commission SHALL SEND a copy of this Report and Order in a report to be sent to Congress and the General Accounting Office pursuant to the Congressional Review Act, see 5 U.S.C. 801(a)(1)(A).

List of Subjects

47 CFR Part 2

Radio, telecommunications.

47 CFR Parts 15, 80, 90, and 97

Radio, reporting and recordkeeping requirements.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch,

Secretary.

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 2, 15, 25, 80, 90, and 97 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. Revise §2.100 to read as follows:

§ 2.100 International regulations in force.

The ITU Radio Regulations, Edition of 2012, have been incorporated to the extent practicable in this part.

3. In § 2.102, revise paragraph (a) to read as follows:

§ 2.102 Assignment of frequencies.

(a) Except as otherwise provided in this section, the assignment of frequencies and bands of frequencies to all stations and classes of stations and the licensing and authorizing of the use of all such frequencies between 8.3 kHz and 275 GHz, and the actual use of such frequencies for radiocommunication or for any other purpose, including the transfer of energy by radio, shall be in accordance with the Table of Frequency Allocations in §2.106.

* * * * *

4. In § 2.106, the Table of Frequency Allocations is amended as follows:

a. Pages 1-2, 4-5, 7-8, 11-13, 15-20, 23-24, 41-42, 45, 51, 53-54, 57, and 67-68 are revised.

b. In the list of United States (US) Footnotes, footnotes US52, US231, US246, and US565 are revised; footnotes US115, US132A, and US511E are added; and footnote US367 is removed.

c. In the list of non-Federal Government (NG) Footnotes, footnotes NG8 and NG16 are added, footnote NG49 is removed, and footnote NG92 is revised.

The revisions and additions read as follows:

§ 2.106 Table of Frequency Allocations.

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International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
Below 8.3 (Not Allocated) 5.53 5.54			Below 8.3 (Not Allocated) 5.53 5.54		
8.3-9 METEOROLOGICAL AIDS 5.54A 5.54B 5.54C			8.3-9 METEOROLOGICAL AIDS 5.54A		
9-11.3 METEOROLOGICAL AIDS 5.54A RADIONAVIGATION			9-11.3 METEOROLOGICAL AIDS 5.54A RADIONAVIGATION US18 US2		
11.3-14 RADIONAVIGATION			11.3-14 RADIONAVIGATION US18 US2		
14-19.95 FIXED MARITIME MOBILE 5.57 5.55 5.56			14-19.95 FIXED MARITIME MOBILE 5.57 US2	14-19.95 Fixed US2	
19.95-20.05 STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)			19.95-20.05 STANDARD FREQUENCY AND TIME SIGNAL (20 kHz) US2		
20.05-70 FIXED MARITIME MOBILE 5.57			20.05-59 FIXED MARITIME MOBILE 5.57 US2	20.05-59 FIXED US2	
			59-61 STANDARD FREQUENCY AND TIME SIGNAL (60 kHz) US2		
5.56 5.58			61-70 FIXED MARITIME MOBILE 5.57 US2	61-70 FIXED US2	
70-72 RADIONAVIGATION 5.60	70-90 FIXED MARITIME MOBILE 5.57 MARITIME RADIONAVIGATION 5.60 Radiolocation	70-72 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59	70-90 FIXED MARITIME MOBILE 5.57 Radiolocation	70-90 FIXED Radiolocation	Private Land Mobile (90)
72-84 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56		72-84 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60			
84-86 RADIONAVIGATION 5.60		84-86 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59			

86-90 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56	5.61	86-90 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60	US2	US2	
90-110 RADIONAVIGATION 5.62 Fixed 5.64			90-110 RADIONAVIGATION 5.62 US18 US2 US104		Aviation (87) Private Land Mobile (90)
110-112 FIXED MARITIME MOBILE RADIONAVIGATION 5.64	110-130 FIXED MARITIME MOBILE MARITIME RADIONAVIGATION 5.60 Radiolocation	110-112 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	110-130 FIXED MARITIME MOBILE Radiolocation		Private Land Mobile (90)
112-115 RADIONAVIGATION 5.60		112-117.6 RADIONAVIGATION 5.60 Fixed Maritime mobile			
115-117.6 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.66		 5.64 5.65			
117.6-126 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64		117.6-126 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64			
126-129 RADIONAVIGATION 5.60		126-129 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.65			
129-130 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	 5.61 5.64	129-130 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	 5.64 US2		
130-135.7 FIXED MARITIME MOBILE 5.64 5.67	130-135.7 FIXED MARITIME MOBILE 5.64	130-135.7 FIXED MARITIME MOBILE RADIONAVIGATION 5.64	130-135.7 FIXED MARITIME MOBILE 5.64 US2		Maritime (80)
135.7-137.8 FIXED MARITIME MOBILE Amateur 5.67A 5.64 5.67 5.67B	135.7-137.8 FIXED MARITIME MOBILE Amateur 5.67A 5.64	135.7-137.8 FIXED MARITIME MOBILE RADIONAVIGATION Amateur 5.67A 5.64 5.67B	135.7-137.8 FIXED MARITIME MOBILE 5.64 US2	135.7-137.8 Amateur 5.67A US2	Amateur Radio (97) Page 2

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435-472 MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 5.82	5.78 5.82		435-472 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.82 US2 US231	435-472 MARITIME MOBILE 5.79 5.79A 5.82 US2 US231	
472-479 MARITIME MOBILE 5.79 Amateur 5.80A Aeronautical radionavigation 5.77 5.80 5.80B 5.82			472-479 US2	472-479 Amateur 5.80A 5.82 US2 NG8	Amateur Radio (97)
479-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77 5.82	479-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77 5.80 5.82		479-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.82 US2 US231	479-495 MARITIME MOBILE 5.79 5.79A 5.82 US2 US231	Maritime (80)
495-505 MARITIME MOBILE			495-505 MARITIME MOBILE		Maritime (80) Aviation (87)
505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	505-510 MARITIME MOBILE 5.79	505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Land mobile	505-510 MARITIME MOBILE 5.79		Maritime (80)
	510-525 MARITIME MOBILE 5.79A 5.84 AERONAUTICAL RADIONAVIGATION		510-525 MARITIME MOBILE (ships only) 5.79A 5.84 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18 US14 US225		Maritime (80) Aviation (87)
526.5-1606.5 BROADCASTING	525-535 BROADCASTING 5.86 AERONAUTICAL RADIONAVIGATION	526.5-535 BROADCASTING Mobile 5.88	525-535 MOBILE US221 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18 US239		Aviation (87) Private Land Mobile (90)
	535-1605 BROADCASTING	535-1606.5 BROADCASTING	535-1605	535-1605 BROADCASTING NG1 NG5	Radio Broadcast (AM)(73) Private Land Mobile (90)
5.87 5.87A	1605-1625 BROADCASTING 5.89	1606.5-1800 FIXED MOBILE RADIOLOCATION RADIONAVIGATION	1605-1615 MOBILE US221 G127 1615-1705	1605-1705 BROADCASTING 5.89	Radio Broadcast (AM)(73) Alaska Fixed (80) Private Land Mobile (90)
1606.5-1625 FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	5.90				
1625-1635 RADIOLOCATION 5.93	1625-1705 FIXED MOBILE BROADCASTING 5.89 Radiolocation				
1635-1800 FIXED MARITIME MOBILE 5.90 LAND MOBILE	5.90		US299	US299 NG1 NG5	
	1705-1800 FIXED MOBILE RADIOLOCATION AERONAUTICAL RADIONAVIGATION		1705-1800 FIXED MOBILE RADIOLOCATION		Alaska Fixed (80) Private Land Mobile (90)
5.92 5.96		5.91	US240		Page 4

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
1800-1810 RADIOLOCATION 5.93	1800-1850 AMATEUR	1800-2000 AMATEUR FIXED MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation	1800-2000	1800-2000 AMATEUR	Maritime (80) Amateur Radio (97)
1810-1850 AMATEUR 5.98 5.99 5.100					
1850-2000 FIXED MOBILE except aeronautical mobile 5.92 5.96 5.103	1850-2000 AMATEUR FIXED MOBILE except aeronautical mobile RADIOLOCATION RADIONAVIGATION 5.102	5.97		NG92	
2000-2025 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	2000-2065 FIXED MOBILE		2000-2065 FIXED MOBILE	2000-2065 MARITIME MOBILE	Private Land Mobile (90)
2025-2045 FIXED MOBILE except aeronautical mobile (R) Meteorological aids 5.104 5.92 5.103					
2045-2160 FIXED MARITIME MOBILE LAND MOBILE 5.92			US340	US340 NG7	
	2065-2107 MARITIME MOBILE 5.105 5.106		2065-2107 MARITIME MOBILE 5.105 US296 US340		Maritime (80)
2160-2170 RADIOLOCATION 5.93 5.107	2107-2170 FIXED MOBILE		2107-2170 FIXED MOBILE US340	2107-2170 FIXED MOBILE except aeronautical mobile US340 NG7	Maritime (80) Private Land Mobile (90)
2170-2173.5 MARITIME MOBILE			2170-2173.5 MARITIME MOBILE (telephony) US340	2170-2173.5 MARITIME MOBILE US340	Maritime (80)
2173.5-2190.5 MOBILE (distress and calling) 5.108 5.109 5.110 5.111			2173.5-2190.5 MOBILE (distress and calling) 5.108 5.109 5.110 5.111 US279 US340		Maritime (80) Aviation (87)
2190.5-2194 MARITIME MOBILE			2190.5-2194 MARITIME MOBILE (telephony) US340	2190.5-2194 MARITIME MOBILE US340	Maritime (80)

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International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
3.23-3.4 FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116 5.118			3.23-3.4 FIXED MOBILE except aeronautical mobile Radiolocation US340		Maritime (80) Aviation (87) Private Land Mobile (90)
3.4-3.5 AERONAUTICAL MOBILE (R)			3.4-3.5 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
3.5-3.8 AMATEUR FIXED MOBILE except aeronautical mobile 5.92	3.5-3.75 AMATEUR 5.119 3.75-4 AMATEUR FIXED MOBILE except aeronautical mobile (R)	3.5-3.9 AMATEUR FIXED MOBILE	3.5-4	3.5-4 AMATEUR	Amateur Radio (97)
3.8-3.9 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE					
3.9-3.95 AERONAUTICAL MOBILE (OR) 5.123		3.9-3.95 AERONAUTICAL MOBILE BROADCASTING			
3.95-4 FIXED BROADCASTING		3.95-4 FIXED BROADCASTING			
	5.122 5.125	5.126	US340	US340	
4-4.063 FIXED MARITIME MOBILE 5.127 5.126			4-4.063 FIXED MARITIME MOBILE US340		Maritime (80)
4.063-4.438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128			4.063-4.438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 US82 US296 US340		Maritime (80) Aviation (87)
4.438-4.488 FIXED MOBILE except aeronautical mobile (R) Radiolocation 5.132A 5.132B	4.438-4.488 FIXED MOBILE except aeronautical mobile (R) RADIOLOCATION 5.132A	4.438-4.488 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	4.438-4.488 FIXED MOBILE except aeronautical mobile (R) RADIOLOCATION 5.132A US340		Maritime (80) Private Land Mobile (90)
4.488-4.65 FIXED MOBILE except aeronautical mobile (R)		4.488-4.65 FIXED MOBILE except aeronautical mobile	4.488-4.65 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 5.133			5.06-5.25 FIXED US22 Mobile except aeronautical mobile US212 US340		Maritime (80) Aviation (87) Private Land Mobile (90)
5.25-5.275 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A 5.133A	5.25-5.275 FIXED MOBILE except aeronautical mobile RADIOLOCATION 5.132A	5.25-5.275 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	5.25-5.275 FIXED MOBILE except aeronautical mobile RADIOLOCATION 5.132A US340		Maritime (80) Private Land Mobile (90)
5.275-5.45 FIXED MOBILE except aeronautical mobile			5.275-5.45 FIXED US22 Mobile except aeronautical mobile US23 US340		Maritime (80) Aviation (87) Private Land Mobile (90) Amateur Radio (97)
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		
5.68-5.73 AERONAUTICAL MOBILE (OR) 5.111 5.115			5.68-5.73 AERONAUTICAL MOBILE (OR) 5.111 5.115 US340		
5.73-5.9 FIXED LAND MOBILE	5.73-5.9 FIXED MOBILE except aeronautical mobile (R)	5.73-5.9 FIXED Mobile except aeronautical mobile (R)	5.73-5.9 FIXED MOBILE except aeronautical mobile (R) US340		Maritime (80) Aviation (87) Private Land Mobile (90)

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International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
11.175-11.275 AERONAUTICAL MOBILE (OR)			11.175-11.275 AERONAUTICAL MOBILE (OR) US340		
11.275-11.4 AERONAUTICAL MOBILE (R)			11.275-11.4 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
11.4-11.6 FIXED			11.4-11.6 FIXED US340		Private Land Mobile (90)
11.6-11.65 BROADCASTING 5.134 5.146			11.6-12.1 BROADCASTING 5.134		International Broadcast Stations (73F)
11.65-12.05 BROADCASTING 5.147					
12.05-12.1 BROADCASTING 5.134 5.146			US136 US340		
12.1-12.23 FIXED			12.1-12.23 FIXED US340		Private Land Mobile (90)
12.23-13.2 MARITIME MOBILE 5.109 5.110 5.132 5.145			12.23-13.2 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82 US296 US340		Maritime (80)
13.2-13.26 AERONAUTICAL MOBILE (OR)			13.2-13.26 AERONAUTICAL MOBILE (OR) US340		
13.26-13.36 AERONAUTICAL MOBILE (R)			13.26-13.36 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
13.36-13.41 FIXED RADIO ASTRONOMY 5.149			13.36-13.41 RADIO ASTRONOMY US342 G115	13.36-13.41 RADIO ASTRONOMY US342	
13.41-13.45 FIXED Mobile except aeronautical mobile (R)			13.41-13.45 FIXED Mobile except aeronautical mobile (R) US340	13.41-13.45 FIXED US340	Private Land Mobile (90)

13.45-13.55 FIXED Mobile except aeronautical mobile (R) Radiolocation 5.132A 5.149A	13.45-13.55 FIXED Mobile except aeronautical mobile (R) Radiolocation 5.132A	13.45-13.55 FIXED Mobile except aeronautical mobile (R) Radiolocation 5.132A US340	13.45-13.55 FIXED Radiolocation 5.132A US340	
13.55-13.57 FIXED Mobile except aeronautical mobile (R) 5.150		13.55-13.57 FIXED Mobile except aeronautical mobile (R) 5.150 US340	13.55-13.57 FIXED 5.150 US340	ISM Equipment (18) Private Land Mobile (90)
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13.6-13.8 BROADCASTING				
13.8-13.87 BROADCASTING 5.134 5.151		US136 US340		
13.87-14 FIXED Mobile except aeronautical mobile (R)		13.87-14 FIXED Mobile except aeronautical mobile (R) US340	13.87-14 FIXED US340	Private Land Mobile (90)
14-14.25 AMATEUR AMATEUR-SATELLITE		14-14.35	14-14.25 AMATEUR AMATEUR-SATELLITE US340	Amateur Radio (97)
14.25-14.35 AMATEUR 5.152		US340	14.25-14.35 AMATEUR US340	
14.35-14.99 FIXED Mobile except aeronautical mobile (R)		14.35-14.99 FIXED Mobile except aeronautical mobile (R) US340	14.35-14.99 FIXED US340	Private Land Mobile (90)
14.99-15.005 STANDARD FREQUENCY AND TIME SIGNAL (15 MHz) 5.111		14.99-15.01 STANDARD FREQUENCY AND TIME SIGNAL (15 MHz)		
15.005-15.01 STANDARD FREQUENCY AND TIME SIGNAL Space research		5.111 US1 US340		
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16.1-16.2 FIXED Radiolocation 5.145A 5.145B	16.1-16.2 FIXED RADIOLOCATION 5.145A	16.1-16.2 FIXED Radiolocation 5.145A	16.1-16.2 FIXED RADIOLOCATION 5.145A US340		
16.2-16.36 FIXED			16.2-16.36 FIXED US340		
16.36-17.41 MARITIME MOBILE 5.109 5.110 5.132 5.145			16.36-17.41 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82 US296 US340		Maritime (80)
17.41-17.48 FIXED			17.41-17.48 FIXED US340		Private Land Mobile (90)
17.48-17.55 BROADCASTING 5.134 5.146			17.48-17.9 BROADCASTING 5.134		International Broadcast Stations (73F)
17.55-17.9 BROADCASTING			US136 US340		
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17.97-18.03 AERONAUTICAL MOBILE (OR)			17.97-18.03 AERONAUTICAL MOBILE (OR) US340		
18.030-18.052 FIXED			18.03-18.068 FIXED		Maritime (80) Private Land Mobile (90)
18.052-18.068 FIXED Space research			US340		
18.068-18.168 AMATEUR AMATEUR-SATELLITE 5.154			18.068-18.168 US340	18.068-18.168 AMATEUR AMATEUR-SATELLITE US340	Amateur Radio (97)
18.168-18.78 FIXED Mobile except aeronautical mobile			18.168-18.78 FIXED Mobile US340		Maritime (80) Private Land Mobile (90)

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23.2-23.35 FIXED 5.156A AERONAUTICAL MOBILE (OR)			23.2-23.35 AERONAUTICAL MOBILE (OR) US340		
23.35-24 FIXED MOBILE except aeronautical mobile 5.157			23.35-24.45 FIXED MOBILE except aeronautical mobile	23.35-24.45 FIXED US340	Private Land Mobile (90)
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24.45-24.6 FIXED LAND MOBILE Radiolocation 5.132A 5.158	24.45-24.65 FIXED LAND MOBILE RADIOLOCATION 5.132A	24.45-24.6 FIXED LAND MOBILE Radiolocation 5.132A	24.45-24.65 FIXED MOBILE except aeronautical mobile RADIOLOCATION 5.132A US340	24.45-24.65 FIXED RADIOLOCATION 5.132A US340	
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24.89-24.99 AMATEUR AMATEUR-SATELLITE			24.89-24.99 US340	24.89-24.99 AMATEUR AMATEUR-SATELLITE US340	Amateur Radio (97)
24.99-25.005 STANDARD FREQUENCY AND TIME SIGNAL (25 MHz)			24.99-25.01 STANDARD FREQUENCY AND TIME SIGNAL (25 MHz)		
25.005-25.01 STANDARD FREQUENCY AND TIME SIGNAL Space research			 US1 US340		
25.01-25.07 FIXED MOBILE except aeronautical mobile			25.01-25.07 US340	25.01-25.07 LAND MOBILE US340 NG112	Private Land Mobile (90)
25.07-25.21 MARITIME MOBILE			25.07-25.21 MARITIME MOBILE US82 US281 US296 US340	25.07-25.21 MARITIME MOBILE US82 US281 US296 US340 NG112	Maritime (80) Private Land Mobile (90)

25.21-25.55 FIXED MOBILE except aeronautical mobile			25.21-25.33 US340	25.21-25.33 LAND MOBILE US340	Private Land Mobile (90)
			25.33-25.55 FIXED MOBILE except aeronautical mobile US340	25.33-25.55 US340	
25.55-25.67 RADIO ASTRONOMY 5.149			25.55-25.67 RADIO ASTRONOMY US74 US342		
25.67-26.1 BROADCASTING			25.67-26.1 BROADCASTING US25 US340		International Broadcast Stations (73F) Remote Pickup (74D)
26.1-26.175 MARITIME MOBILE 5.132			26.1-26.175 MARITIME MOBILE 5.132 US25 US340		Remote Pickup (74D) Low Power Auxiliary (74H) Maritime (80)
26.175-26.2 FIXED MOBILE except aeronautical mobile			26.175-26.2 US340	26.175-26.2 LAND MOBILE US340	Remote Pickup (74D) Low Power Auxiliary (74H)
26.2-26.35 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A 5.133A	26.2-26.42 FIXED MOBILE except aeronautical mobile RADIOLOCATION 5.132A	26.2-26.35 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	26.2-26.42 RADIOLOCATION US132A US340	26.2-26.42 LAND MOBILE RADIOLOCATION US132A US340	Remote Pickup (74D) Low Power Auxiliary (74H) Private Land Mobile (90)
26.35-27.5 FIXED MOBILE except aeronautical mobile	26.42-27.5 FIXED MOBILE except aeronautical mobile	26.35-27.5 FIXED MOBILE except aeronautical mobile	26.42-26.48 US340	26.42-26.48 LAND MOBILE US340	Remote Pickup (74D) Low Power Auxiliary (74H)
			26.48-26.95 FIXED MOBILE except aeronautical mobile US340	26.48-26.95 US340	
			26.95-27.41	26.95-26.96 FIXED 5.150 US340	ISM Equipment (18)
				26.96-27.23 MOBILE except aeronautical mobile 5.150 US340	ISM Equipment (18) Personal Radio (95)
				27.23-27.41 FIXED MOBILE except aeronautical mobile	ISM Equipment (18) Private Land Mobile (90) Personal Radio (95)
5.150	5.150	5.150	5.150 US340	5.150 US340	

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27.5-28 METEOROLOGICAL AIDS FIXED MOBILE			US340	US340	
			27.54-28 FIXED MOBILE	27.54-28	
			US298 US340	US298 US340	
28-29.7 AMATEUR AMATEUR-SATELLITE			28-29.7	28-29.7 AMATEUR AMATEUR-SATELLITE	Amateur Radio (97)
			US340	US340	
29.7-30.005 FIXED MOBILE			29.7-29.89	29.7-29.8 LAND MOBILE	Private Land Mobile (90)
				US340	
				29.8-29.89 FIXED	
			US340	US340	
			29.89-29.91 FIXED MOBILE	29.89-29.91	
			US340	US340	
			29.91-30	29.91-30 FIXED	
			US340	US340	
30.005-30.01 SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH			30-30.56 FIXED MOBILE	30-30.56	
30.01-37.5 FIXED MOBILE			30.56-32	30.56-32 FIXED LAND MOBILE	Private Land Mobile (90)
				NG124	
			32-33 FIXED MOBILE	32-33	
			33-34	33-34 FIXED LAND MOBILE	Private Land Mobile (90)
				NG124	

			34-35 FIXED MOBILE	34-35	
			35-36	35-36 FIXED LAND MOBILE	Public Mobile (22) Private Land Mobile (90)
			36-37 FIXED MOBILE US220	36-37 US220	
			37-37.5	37-37.5 LAND MOBILE NG124	Private Land Mobile (90)
37.5-38.25 FIXED MOBILE Radio astronomy 5.149			37.5-38 Radio astronomy US342	37.5-38 LAND MOBILE Radio astronomy US342 NG59 NG124	
			38-38.25 FIXED MOBILE RADIO ASTRONOMY US81 US342	38-38.25 RADIO ASTRONOMY US81 US342	
38.25-39 FIXED MOBILE	38.25-39.986 FIXED MOBILE	38.25-39.5 FIXED MOBILE	38.25-39 FIXED MOBILE	38.25-39	
39-39.5 FIXED MOBILE Radiolocation 5.132A 5.159			39-40	39-40 LAND MOBILE NG124	Private Land Mobile (90)
39.5-39.986 FIXED MOBILE		39.5-39.986 FIXED MOBILE RADIOLOCATION 5.132A			
39.986-40.02 FIXED MOBILE Space research		39.986-40 FIXED MOBILE RADIOLOCATION 5.132A Space research			
		40-40.02 FIXED MOBILE Space research	40-41.015 FIXED MOBILE 5.150 US210 US220	40-41.015 5.150 US210 US220	ISM Equipment (18) Private Land Mobile (90)
40.02-40.98 FIXED MOBILE 5.150					

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41.015-42 FIXED MOBILE 5.160 5.161 5.161A			41.015-41.665 FIXED MOBILE RADIOLOCATION US132A US220	41.015-41.665 RADIOLOCATION US132A US220	Private Land Mobile (90)
			41.665-42 FIXED MOBILE US220	41.665-42 US220	
42-42.5 FIXED MOBILE Radiolocation 5.132A 5.160 5.161B	42-42.5 FIXED MOBILE 5.161		42-43.35	42-43.35 FIXED LAND MOBILE NG124 NG141	Public Mobile (22) Private Land Mobile (90)
42.5-44 FIXED MOBILE 5.160 5.161 5.161A			43.35-44 RADIOLOCATION US132A	43.35-43.69 FIXED LAND MOBILE RADIOLOCATION US132A NG124	
				43.69-44 LAND MOBILE RADIOLOCATION US132A NG124	Private Land Mobile (90)
44-47 FIXED MOBILE 5.162 5.162A			44-46.6	44-46.6 LAND MOBILE NG124 NG141	
			46.6-47 FIXED MOBILE	46.6-47	
47-68 BROADCASTING	47-50 FIXED MOBILE	47-50 FIXED MOBILE BROADCASTING 5.162A	47-49.6	47-49.6 LAND MOBILE NG124	Private Land Mobile (90)
			49.6-50 FIXED MOBILE	49.6-50	
	50-54 AMATEUR 5.162A 5.166 5.167 5.167A 5.168 5.170		50-73	50-54 AMATEUR	Amateur Radio (97)

5.162A 5.163 5.164 5.165 5.169 5.171	54-68 BROADCASTING Fixed Mobile 5.172	54-68 FIXED MOBILE BROADCASTING 5.162A		54-72 BROADCASTING NG5 NG14 NG115 NG149	Broadcast Radio (TV)(73) LPTV, TV Translator/ Booster (74G) Low Power Auxiliary (74H)
68-74.8 FIXED MOBILE except aeronautical mobile	68-72 BROADCASTING Fixed Mobile 5.173	68-74.8 FIXED MOBILE			
	72-73 FIXED MOBILE			72-73 FIXED MOBILE NG3 NG16 NG56	Public Mobile (22) Maritime (80) Aviation (87) Private Land Mobile (90) Personal Radio (95)
	73-74.6 RADIO ASTRONOMY 5.178		73-74.6 RADIO ASTRONOMY US74 US246		
	74.6-74.8 FIXED MOBILE		74.6-74.8 FIXED MOBILE US273		Private Land Mobile (90)
5.149 5.175 5.177 5.179		5.149 5.176 5.179			
74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180 5.181			74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180		Aviation (87)
75.2-87.5 FIXED MOBILE except aeronautical mobile	75.2-75.4 FIXED MOBILE 5.179		75.2-75.4 FIXED MOBILE US273		Private Land Mobile (90)
	75.4-76 FIXED MOBILE	75.4-87 FIXED MOBILE	75.4-88	75.4-76 FIXED MOBILE NG3 NG16 NG56	Public Mobile (22) Maritime (80) Aviation (87) Private Land Mobile (90) Personal Radio (95)
5.175 5.179 5.187	76-88 BROADCASTING Fixed Mobile 5.185	5.182 5.183 5.188 87-100 FIXED MOBILE BROADCASTING		76-88 BROADCASTING NG5 NG14 NG115 NG149	Broadcast Radio (TV)(73) LPTV, TV Translator/ Booster (74G) Low Power Auxiliary (74H)
87.5-100 BROADCASTING 5.190	88-100 BROADCASTING		88-108	88-108 BROADCASTING NG2 US93 NG5	Broadcast Radio (FM)(73) FM Translator/Booster (74L)
100-108 BROADCASTING 5.192 5.194			US93		
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153-154 FIXED MOBILE except aeronautical mobile (R) Meteorological aids			152.855-156.2475	152.855-154 LAND MOBILE NG4 NG124	Remote Pickup (74D) Private Land Mobile (90)
154-156.4875 FIXED MOBILE except aeronautical mobile (R) 5.225A 5.226	154-156.4875 FIXED MOBILE 5.226	154-156.4875 FIXED MOBILE 5.225A 5.226		154-156.2475 FIXED LAND MOBILE NG112 5.226 NG22 NG124 NG148	Maritime (80) Private Land Mobile (90) Personal Radio (95)
156.4875-156.5625 MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227			156.2475-156.5125 5.226 US52 US227 US266	156.2475-156.5125 MARITIME MOBILE NG22 5.226 US52 US227 US266 NG124	Maritime (80) Aviation (87)
			156.5125-156.5375 MARITIME MOBILE (distress, urgency, safety and calling via DSC) 5.111 5.226 US266		
156.5625-156.7625 FIXED MOBILE except aeronautical mobile (R) 5.226	156.5625-156.7625 FIXED MOBILE 5.226		156.5375-156.7625 5.226 US52 US227 US266	156.5375-156.7625 MARITIME MOBILE 5.226 US52 US227 US266	
156.7625-156.7875 MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	156.7625-156.7875 MARITIME MOBILE MOBILE-SATELLITE (Earth-to-space) 5.111 5.226 5.228	156.7625-156.7875 MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	156.7625-156.7875 MOBILE-SATELLITE (Earth-to-space) (AIS 3) 5.226 US52 US266		Satellite Communications (25) Maritime (80)
156.7875-156.8125 MARITIME MOBILE (distress and calling) 5.111 5.226			156.7875-156.8125 MARITIME MOBILE (distress, urgency, safety and calling) 5.111 5.226 US266		Maritime (80) Aviation (87)
156.8125-156.8375 MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	156.8125-156.8375 MARITIME MOBILE MOBILE-SATELLITE (Earth-to-space) 5.111 5.226 5.228	156.8125-156.8375 MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	156.8125-156.8375 MOBILE-SATELLITE (Earth-to-space) (AIS 4) 5.226 US52 US266		Satellite Communications (25) Maritime (80)
156.8375-161.9625 FIXED MOBILE except aeronautical mobile	156.8375-161.9625 FIXED MOBILE		156.8375-157.0375 5.226 US52 US266	156.8375-157.0375 MARITIME MOBILE 5.226 US52 US266	Maritime (80) Aviation (87)
			157.0375-157.1875 MARITIME MOBILE US214 5.226 US266 G109	157.0375-157.1875 5.226 US214 US266	Maritime (80)

			157.1875-161.575	157.1875-157.45 MOBILE except aeronautical mobile US266 5.226 NG111	Maritime (80) Aviation (87) Private Land Mobile (90)
				157.45-161.575 FIXED LAND MOBILE NG28 NG111 NG112 5.226 NG6 NG70 NG124 NG148 NG155	Public Mobile (22) Remote Pickup (74D) Maritime (80) Private Land Mobile (90)
			161.575-161.625 5.226 US52	161.575-161.625 MARITIME MOBILE 5.226 US52 NG6 NG17	Public Mobile (22) Maritime (80)
			161.625-161.9625	161.625-161.775 LAND MOBILE NG6 5.226	Public Mobile (22) Remote Pickup (74D) Low Power Auxiliary (74H)
				161.775-161.9625 MOBILE except aeronautical mobile US266 NG6	Maritime (80) Private Land Mobile (90)
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161.9625-161.9875 FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B	161.9625-161.9875 AERONAUTICAL MOBILE (OR) MARITIME MOBILE MOBILE-SATELLITE (Earth-to-space) 5.228C 5.228D	161.9625-161.9875 MARITIME MOBILE Aeronautical mobile (OR) 5.228E Mobile-satellite (Earth-to-space) 5.228F 5.226	161.9625-161.9875 AERONAUTICAL MOBILE (OR) (AIS 1) MARITIME MOBILE (AIS 1) MOBILE-SATELLITE (Earth-to-space) (AIS 1) 5.228C US52		Satellite Communications (25) Maritime (80)
161.9875-162.0125 FIXED MOBILE except aeronautical mobile 5.226 5.229	161.9875-162.0125 FIXED MOBILE 5.226		161.9875-162.0125	161.9875-162.0125 MOBILE except aeronautical mobile 5.226	Maritime (80)
162.0125-162.0375 FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B 5.229	162.0125-162.0375 AERONAUTICAL MOBILE (OR) MARITIME MOBILE MOBILE-SATELLITE (Earth-to-space) 5.228C 5.228D	162.0125-162.0375 MARITIME MOBILE Aeronautical mobile (OR) 5.228E Mobile-satellite (Earth-to-space) 5.228F 5.226	162.0125-162.0375 AERONAUTICAL MOBILE (OR) (AIS 2) MARITIME MOBILE (AIS 2) MOBILE-SATELLITE (Earth-to-space) (AIS 2) 5.228C US52		Satellite Communications (25) Maritime (80)
162.0375-174 FIXED MOBILE except aeronautical mobile	162.0375-174 FIXED MOBILE		162.0375-173.2 FIXED MOBILE US8 US11 US13 US73 US300 US312 G5	162.0375-173.2 US8 US11 US13 US73 US300 US312	Remote Pickup (74D) Private Land Mobile (90)
			173.2-173.4	173.2-173.4 FIXED Land mobile	Private Land Mobile (90)
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			3550-3650 RADIOLOCATION G59 AERONAUTICAL RADIONAVIGATION (ground-based) G110	3550-3600 FIXED MOBILE except aeronautical mobile US105 US433	Citizens Broadband (96)
3600-4200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile		3600-3700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433	US105 US107 US245 US433	3600-3650 FIXED FIXED-SATELLITE (space-to-Earth) US107 US245 MOBILE except aeronautical mobile US105 US433	Satellite Communications (25) Citizens Broadband (96)
		5.435	3650-3700 US109 US349	3650-3700 FIXED FIXED-SATELLITE (space-to-Earth) NG169 NG185 MOBILE except aeronautical mobile US109 US349	
	3700-4200 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile		3700-4200	3700-4200 FIXED FIXED-SATELLITE (space-to-Earth) NG180	Satellite Communications (25) Fixed Microwave (101)
4200-4400 AERONAUTICAL RADIONAVIGATION 5.438 5.439 5.440			4200-4400 AERONAUTICAL RADIONAVIGATION 5.440 US261		Aviation (87)
4400-4500 FIXED MOBILE 5.440A			4400-4940 FIXED MOBILE	4400-4500	
4500-4800 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE 5.440A				4500-4800 FIXED-SATELLITE (space-to-Earth) 5.441 US245	
4800-4990 FIXED MOBILE 5.440A 5.442			US113 US245 US342	4800-4940 US113 US342	
Radio astronomy 5.149 5.339 5.443			4940-4990 5.339 US342 US385 G122	4940-4990 FIXED MOBILE except aeronautical mobile 5.339 US342 US385	Public Safety Land Mobile (90Y)
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International Table			United States Table		FCC Rule Part(s)
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232-235 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation			232-235 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation		
235-238 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B			235-238 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B		
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250-252 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A	250-252 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.563A US246		
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265-275 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.563A	265-275 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.563A US342		
275-3000 (Not allocated) 5.565	275-3000 (Not allocated) US565		Amateur Radio (97)

UNITED STATES (US) FOOTNOTES

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US52 In the VHF maritime mobile band (156-162 MHz), the following provisions shall apply:

(a) Except as provided for below, the use of the bands 161.9625-161.9875 MHz (AIS 1 with center frequency 161.975 MHz) and 162.0125-162.0375 MHz (AIS 2 with center frequency 162.025 MHz) by the maritime mobile and mobile-satellite (Earth-to-space) services is restricted to Automatic Identification Systems (AIS). The use of these bands by the aeronautical mobile (OR) service is restricted to AIS emissions from search and rescue aircraft operations. Frequencies in the AIS 1 band may continue to be used by non-Federal base, fixed, and land mobile stations until March 2, 2024.

(b) Except as provided for below, the use of the bands 156.7625-156.7875 MHz (AIS 3 with center frequency 156.775 MHz) and 156.8125-156.8375 MHz (AIS 4 with center frequency 156.825 MHz) by the mobile-satellite service (Earth-to-space) is restricted to the reception of long-range AIS broadcast messages from ships (Message 27; see most recent version of Recommendation ITU-R M.1371). The frequencies 156.775 MHz and 156.825 MHz may continue to be used by non-Federal ship and coast stations for navigation-related port operations or ship movement until August 26, 2019.

(c) The frequency 156.3 MHz may also be used by aircraft stations for the purpose of search and rescue operations and other safety-related communication.

(d) Federal stations in the maritime mobile service may also be authorized as follows: (1) Vessel traffic services under the control of the U.S. Coast Guard on a simplex basis by coast and ship stations on the frequencies 156.25, 156.55, 156.6 and 156.7 MHz; (2) Inter-ship use of the frequency 156.3 MHz on a simplex basis; (3) Navigational bridge-to-bridge and navigational communications on a simplex basis by coast and ship stations on the frequencies 156.375 and 156.65 MHz; (4) Port operations use on a

simplex basis by coast and ship stations on the frequencies 156.6 and 156.7 MHz; (5) Environmental communications on the frequency 156.75 MHz in accordance with the national plan; and (6) Duplex port operations use of the frequencies 157 MHz for ship stations and 161.6 MHz for coast stations.

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US115 In the bands 5000-5010 MHz and 5010-5030 MHz, the following provisions shall apply:

(a) In the band 5000-5010 MHz, systems in the aeronautical mobile (R) service (AM(R)S) are limited to surface applications at airports that operate in accordance with international aeronautical standards (i.e., AeroMACS).

(b) The band 5010-5030 MHz is also allocated on a primary basis to the AM(R)S, limited to surface applications at airports that operate in accordance with international aeronautical standards. In making assignments for this band, attempts shall first be made to satisfy the AM(R)S requirements in the bands 5000-5010 MHz and 5091-5150 MHz. AM(R)S systems used in the band 5010-5030 MHz shall be designed and implemented to be capable of operational modification if receiving harmful interference from the radionavigation-satellite service. Finally, notwithstanding Radio Regulation No. 4.10, stations in the AM(R)S operating in this band shall be designed and implemented to be capable of operational modification to reduce throughput and/or preclude the use of specific frequencies in order to ensure protection of radionavigation-satellite service systems operating in this band.

(c) Aeronautical fixed communications that are an integral part of the AeroMACS system in the bands 5000-5010 MHz and 5010-5030 MHz are also authorized on a primary basis.

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US132A In the bands 26.2-26.42 MHz, 41.015-41.665 MHz, and 43.35-44 MHz, applications of radiolocation service are limited to oceanographic radars operating in accordance with ITU Resolution

612 (Rev. WRC-12). Oceanographic radars shall not cause harmful interference to, or claim protection from, non-Federal stations in the land mobile service in the bands 26.2-26.42 MHz and 43.69-44 MHz, Federal stations in the fixed or mobile services in the band 41.015-41.665 MHz, and non-Federal stations in the fixed or land mobile services in the band 43.35-43.69 MHz.

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US231 When an assignment cannot be obtained in the bands between 200 kHz and 525 kHz, which are allocated to aeronautical radionavigation, assignments may be made to aeronautical radiobeacons in the maritime mobile bands at 435-472 kHz and 479-490 kHz, on a secondary basis, subject to the coordination and agreement of those agencies having assignments within the maritime mobile bands which may be affected. Assignments to Federal aeronautical radionavigation radiobeacons in the bands 435-472 kHz and 479-490 kHz shall not be a bar to any required changes to the maritime mobile service and shall be limited to non-voice emissions.

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US246 No station shall be authorized to transmit in the following bands: 73-74.6 MHz, 608-614 MHz, except for medical telemetry equipment[1] and white space devices,[2] 1400-1427 MHz, 1660.5-1668.4 MHz, 2690-2700 MHz, 4990-5000 MHz, 10.68-10.7 GHz, 15.35-15.4 GHz, 23.6-24 GHz, 31.3-31.8

[1] Medical telemetry equipment shall not cause harmful interference to radio astronomy operations in the band 608-614 MHz and shall be coordinated under the requirements found in 47 CFR 95.1119.

[2] White space devices shall not cause harmful interference to radio astronomy operations in the band 608-614 MHz and shall not operate within the areas described in 47 CFR 15.712(h).

GHz, 50.2-50.4 GHz, 52.6-54.25 GHz, 86-92 GHz, 100-102 GHz, 109.5-111.8 GHz, 114.25-116 GHz, 148.5-151.5 GHz, 164-167 GHz, 182-185 GHz, 190-191.8 GHz, 200-209 GHz, 226-231.5 GHz, 250-252 GHz.

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US511E The use of the band 15.4-15.7 GHz by the radiolocation service is limited to Federal systems requiring a necessary bandwidth greater than 1600 MHz that cannot be accommodated within the band 15.7-17.3 GHz except as described below. In the band 15.4-15.7 GHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, radars operating in the aeronautical radionavigation service. Radar systems operating in the radiolocation service shall not be developed solely for operation in the band 15.4-15.7 GHz. Radar systems requiring use of the band 15.4-15.7 GHz for testing, training, and exercises may be accommodated on a case-by-case basis.

US565 The following frequency bands in the range 275-1000 GHz are identified for passive service applications:

– radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;

– Earth exploration-satellite service (passive) and space research service (passive): 275-286 GHz, 296-306 GHz, 313-356 GHz, 361-365 GHz, 369-392 GHz, 397-399 GHz, 409-411 GHz, 416-434 GHz, 439-467 GHz, 477-502 GHz, 523-527 GHz, 538-581 GHz, 611-630 GHz, 634-654 GHz, 657-692 GHz, 713-718 GHz, 729-733 GHz, 750-754 GHz, 771-776 GHz, 823-846 GHz, 850-854 GHz, 857-862 GHz, 866-882 GHz, 905-928 GHz, 951-956 GHz, 968-973 GHz and 985-990 GHz.

The use of the range 275-1000 GHz by the passive services does not preclude use of this range by active services. This provision does not establish priority of use in the United States Table of Frequency

Allocations, and does not preclude or constrain any active service use or future allocation of frequency bands in the 275-3000 GHz range.

NON-FEDERAL GOVERNMENT (NG) FOOTNOTES

* * * * *

NG8 In the band 472-479 kHz, non-Federal stations in the maritime mobile service that were licensed or applied for prior to [insert effective date of the WRC-12 R&O] may continue to operate on a primary basis, subject to periodic license renewals.

* * * * *

NG16 In the bands 72-73 MHz and 75.4-76 MHz, frequencies may be authorized for mobile operations in the Industrial/Business Radio Pool, subject to not causing interference to the reception of broadcast television signals on channels 4 and 5.

* * * * *

NG92 The band 1900-2000 kHz is also allocated on a primary basis to the maritime mobile service in Regions 2 and 3 and to the radiolocation service in Region 2, and on a secondary basis to the radiolocation service in Region 3. The use of these allocations is restricted to radio buoy operations on the open sea and the Great Lakes. Stations in the amateur, maritime mobile, and radiolocation services in Region 2 shall be protected from harmful interference only to the extent that the offending station does not operate in compliance with the technical rules applicable to the service in which it operates.

* * * * *

PART 15 – RADIO FREQUENCY DEVICES

5. The authority citation for part 15 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302a, 303, 304, 307, 336, 544a, and 549.

6. In § 15.113, add paragraph (g) to read as follows:

§ 15.113 Power line carrier systems.

* * * * *

(g) Special provisions. An electric power utility entity shall not operate a new or modified power line carrier (PLC) system in the 135.7-137.8 kHz and/or 472-479 kHz bands if a previously coordinated amateur station pursuant to § 97.301(g)(2) of this chapter is located within one kilometer of the transmission lines conducting the PLC signal.

PART 25 – SATELLITE COMMUNICATIONS

7. The authority citation for part 25 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 301, 302, 303, 307, 309, 319, 332, 605, and 721, unless otherwise noted.

8. In § 25.202, add paragraph (a)(12) to read as follows:

§ 25.202 Frequencies, frequency tolerance, and emission limits.

(a) * * *

(12) The following frequencies are available for use by the mobile-satellite service (Earth-to-space) for the reception of Automatic Identification Systems (AIS) broadcast messages from ships:

156.7625-156.7875 MHz

156.8125-156.8375 MHz

161.9625-161.9875 MHz

162.0125-162.0375 MHz

* * * * *

PART 80 – STATIONS IN THE MARITIME SERVICES

9. The authority citation for part 80 continues to read as follows:

AUTHORITY: Secs. 4, 303, 307(e), 309, and 332, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, 307(e), 309, and 332, unless otherwise noted. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. 151-155, 301-609; 3 UST 3450, 3 UST 4726, 12 UST 2377.

10. In § 80.203, add paragraph (p) to read as follows:

§ 80.203 Authorization of transmitters for licensing.

* * * * *

(p) As of [insert effective date of this Report and Order], the Commission will no longer accept applications for certification of non-AIS VHF radios that include channels 75 and 76.

§ 80.215 [Amended]

11. In § 80.215, remove footnote 13 from paragraph (e)(1) and remove and reserve paragraph (g)(3).

12. In § 80.357, revise footnote 1 to the table in paragraph (b)(1) to read as follows:

§80.357 Working frequencies for Morse code and data transmission.

* * * * *

(b) * * *

(1) * * *

[1] All frequencies in this table are shown in kilohertz. The use of frequencies in the 472-479 kHz band is restricted to public coast stations that were licensed on or before [insert effective date of this R&O].

* * * * *

§ 80.373 [Amended]

13. In § 80.373, the table in paragraph (f) is amended under the heading "Port Operations" by removing the entries for channel designator 75 (156.775 MHz) and channel designator 76 (156.825 MHz), including the text of footnote 18; and under the heading "Noncommercial" by redesignating footnote 19 which is associated with channel designator 71 (156.575 MHz) as footnote 18.

14. Add § 80.376 under center heading "Radiodetermination" to read as follows:

§ 80.376 Radio buoy operations.

Frequencies in the 1900-2000 kHz band are authorized for radio buoy operations under a ship radio station license provided:

(a) The use of these frequencies is related to commercial fishing operations on the open sea and the Great Lakes; and

(b) The output power does not exceed 8 watts and the station antenna height does not exceed 4.6 meters above sea level in a buoy station or 6 meters above the mast of the ship on which it is installed.

15. Revise § 80.393 to read as follows:

§ 80.393 Frequencies for AIS stations.

Automatic Identification Systems (AIS) are a maritime broadcast service. The simplex channels at 156.775 MHz (AIS 3), 156.825 MHz (AIS 4), 161.975 MHz (AIS 1), and 162.025 MHz (AIS 2), each with a 25 kHz bandwidth, may be authorized only for AIS. In accordance with the Maritime Transportation Security Act, the United States Coast Guard regulates AIS carriage requirements for non-Federal Government ships. These requirements are codified at 33 CFR 164.46, 401.20.

§ 80.871 [Amended]

16. In § 80.871, the table in paragraph (d) is amended by removing the entries for channel designator 75 (156.775 MHz) and channel designator 76 (156.825 MHz).

PART 90 – PRIVATE LAND MOBILE RADIO SERVICES

17. The authority citation for part 90 continues to read as follows:

AUTHORITY: Sections 4(i), 11, 303(g), 303(r), and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), and 332(c)(7), and Title VI of the Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. 112-96, 126 Stat. 156.

18. In §90.7, add a definition for "Equivalent Isotropically Radiated Power (EIRP)" in alphabetical order to read as follows:

§ 90.7 Definitions.

* * * * *

Equivalent Isotropically Radiated Power (EIRP). The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna (absolute or isotropic gain).

* * * * *

19. Amend § 90.103 as follows:

a. In the table in paragraph (b), revise the entries set out below; and

b. Add paragraph (c)(3).

The revisions and addition read as follows:

§ 90.103 Radiolocation Service.

* * * * *

(b) * * *

RADIOLOCATION SERVICE FREQUENCY TABLE

Frequency or band	Class of station(s)	Limitation
	Kilohertz	
* * *	* *	* *
4438 to 4488 ……..	Radiolocation land	3
5250 to 5275 ……..	.....do	3
	Megahertz	
13.45 to 13.55 ……	.....do	3

16.10 to 16.20 ……	.....do	3
24.45 to 24.65 ……	.....do	3
26.20 to 26.42 ……	.....do	3
41.015 to 41.665 ……	.....do	3
43.35 to 44.00 ……	.....do	3
420 to 450 ……..	Radiolocation land or mobile	21
* * *	* *	* *

(c) * * *

(3) Operations in this band are limited to oceanographic radars using transmitters with a peak equivalent isotropically radiated power (EIRP) not to exceed 25 dBW. Oceanographic radars shall not cause harmful interference to, nor claim protection from interference caused by, stations in the fixed or mobile services as specified in § 2.106, footnotes 5.132A, 5.145A, and US132A. See Resolution 612 of the ITU Radio Regulations for international coordination requirements and for recommended spectrum sharing techniques.

* * * * *

20. In § 90.425, revise paragraph (c)(1) and add paragraph (c)(3) to read as follows:

§ 90.425 Station identification.

* * * * *

(c) Special provisions for identification in the Radiolocation Service. (1) Stations in the Radiolocation Service are not required to identify except upon special instructions from the Commission or as required by paragraphs (c)(2) and (3) of this section.

* * * * *

(3) Oceanographic radars operating in the bands shown in section 90.103(b) shall transmit a station identification (call sign) on the assigned frequency, in international Morse code at a transmission rate in accordance with paragraph (b)(2) of this section at the end of each data acquisition cycle, but at an interval of no more than 20 minutes.

* * * * *

PART 97 – AMATEUR RADIO SERVICE

21. 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.

22. In § 97.3, revise paragraphs (b)(1) through (11) and add paragraphs (b)(12) through (14) to read as follows:

§ 97.3 Definitions.

(b) * * *

(1) EHF (extremely high frequency). The frequency range 30-300 GHz.

(2) EIRP (equivalent isotropically radiated power). The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna (absolute or isotropic gain).

NOTE: Divide EIRP by 1.64 to convert to effective radiated power.

(3) ERP (effective radiated power) (in a given direction). The product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.

NOTE: Multiply ERP by 1.64 to convert to equivalent isotropically radiated power.

(4) HF (high frequency). The frequency range 3-30 MHz.

(5) Hz. Hertz.

(6) LF (low frequency). The frequency range 30-300 kHz.

(7) m. Meters.

(8) MF (medium frequency). The frequency range 300-3000 kHz.

(9) PEP (peak envelope power). The average power supplied to the antenna transmission line by a transmitter during one RF cycle at the crest of the modulation envelope taken under normal operating conditions.

(10) RF. Radio frequency.

(11) SHF (super high frequency). The frequency range 3-30 GHz.

(12) UHF (ultra high frequency). The frequency range 300-3000 MHz.

(13) VHF (very high frequency). The frequency range 30-300 MHz.

(14) W. Watts.

* * * * *

23. In § 97.15, add paragraph (c) to read as follows:

§ 97.15 Station antenna structures.

* * * * *

(c) Antennas used to transmit in the 2200 m and 630 m bands must not exceed 60 meters in height above ground level.

24. In § 97.301, amend the tables in each of paragraphs (b), (c), and (d) as follows:

a. Add the sub-heading "LF" and the entry for the "2200 m" wavelength band; and

b. Under the existing sub-heading "MF" add the entry for the "630 m" wavelength band.

The additions read as follows:

§ 97.301 Authorized frequency bands.

* * * * *

(b) * * *

Wavelength band	**ITU Region 1**	**ITU Region 2**	**ITU Region 3**	**Sharing requirements see § 97.303 (Paragraph)**
LF	**kHz**	**kHz**	**kHz**	
2200 m…….	135.7-137.8…….	135.7-137.8…….	135.7-137.8……	(a), (g)
MF	**kHz**	**kHz**	**kHz**	
630 m……..	472-479……..	472-479……..	472-479…….	(g)

* * * * * * *

(c) * * *

Wavelength band	ITU Region 1	ITU Region 2	ITU Region 3	Sharing requirements see § 97.303 (Paragraph)
LF	**kHz**	**kHz**	**kHz**	
2200 m…….	135.7-137.8…….	135.7-137.8…….	135.7-137.8……	(a), (g)
MF	**kHz**	**kHz**	**kHz**	
630 m……..	472-479……..	472-479……..	472-479…….	(g)

* * * * * * *

(d) * * *

Wavelength band	ITU Region 1	ITU Region 2	ITU Region 3	Sharing requirements see § 97.303 (Paragraph)
LF	**kHz**	**kHz**	**kHz**	
2200 m…….	135.7-137.8…….	135.7-137.8…….	135.7-137.8……	(a), (g)
MF	**kHz**	**kHz**	**kHz**	
630 m……..	472-479……..	472-479……..	472-479…….	(g)

* * * * * * *

25. In § 97.303, add paragraph (g) to read as follows:

§ 97.303 Frequency sharing requirements.

* * * * *

(g) In the 2200 m and 630 m bands:

(1) Amateur stations in the 135.7-137.8 kHz (2200 m) and 472-479 kHz (630 m) bands shall only operate at fixed locations. Amateur stations shall not operate within a horizontal distance of one kilometer from a transmission line that conducts a power line carrier (PLC) signal in the 135.7-137.8 kHz or 472-479 kHz bands. Horizontal distance is measured from the station's antenna to the closest point on the transmission line.

(2) Prior to commencement of operations in the 135.7-137.8 kHz (2200 m) and/or 472-479 kHz (630 m) bands, amateur operators shall notify the Utilities Telecom Council (UTC) of their intent to operate by submitting their call signs, intended band or bands of operation, and the coordinates of their antenna's fixed location. Amateur stations will be permitted to commence operations after the 30-day period unless UTC notifies the station that its fixed location is located within one kilometer of PLC systems operating in the same or overlapping frequencies.

(3) Amateur stations in the 135.7-137.8 kHz (2200 m) band shall not cause harmful interference to, and shall accept interference from:

(i) Stations authorized by the United States Government in the fixed and maritime mobile services;

(ii) Stations authorized by other nations in the fixed, maritime mobile, and radionavigation service.

(4) Amateur stations in the 472-479 kHz (630 m) band shall not cause harmful interference to, and shall accept interference from:

(i) Stations authorized by the FCC in the maritime mobile service;

(ii) Stations authorized by other nations in the maritime mobile and aeronautical radionavigation services.

(5) Amateur stations causing harmful interference shall take all necessary measures to eliminate such interference – including temporary or permanent termination of transmissions.

* * * * *

26. In § 97.305, amend the table in paragraph (c) as follows:

a. Add sub-heading "LF:" and two entries for the "2200 m" wavelength band; and

b. Under existing sub-heading "MF:" add two entries for the "630 m" wavelength band.

The additions read as follows:

§ 97.305 Authorized emission types.

* * * * *

(c) * * *

Wavelength band	**Frequencies**	**Emission types authorized**	**Standards see § 97.307(f), paragraph:**
LF:			
2200 m	Entire band	RTTY, data	(3).
2200 m	Entire band	Phone, image	(1), (2).
MF:			

630 m	Entire band	RTTY, data	(3).
630 m	Entire band	Phone, image	(1), (2).

* * * * * * *

27. In § 97.313, add paragraphs (k) and (l) to read as follows.

§ 97.313 Transmitter power standards.

* * * * *

(k) No station may transmit in the 135.7-137.8 kHz (2200 m) band with a transmitter power exceeding 1.5 kW PEP or a radiated power exceeding 1 W EIRP.

(l) No station may transmit in the 472-479 kHz (630 m) band with a transmitter power exceeding 500 W PEP or a radiated power exceeding 5 W EIRP, except that in Alaska, stations located within 800 kilometers of the Russian Federation may not transmit with a radiated power exceeding 1 W EIRP.

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