FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 2, 25, and 73

[ET Docket No. 04–139; FCC 04–74]

WRC–03 Omnibus

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: The Commission proposes to amend its rules in order to complete the domestic implementation of allocation decisions from the World Radiocommunication Conference (Geneva, 2003) (WRC–03) concerning the frequency bands between 5900 kHz and 27.5 GHz and to otherwise update its rules in this frequency range. At the request of the National Telecommunications and Information Administration (NTIA), we also propose allocation changes for Federal Government operations, which involve spectrum primarily used by the Federal Government. These actions would conform the Commission's rules to the International Telecommunication Union's (ITU) *World Radiocommunication Conference Final Acts* (Geneva, 2003) (WRC–2003 Final Acts) and are expected to provide significant benefits to the American public.

DATES: Written comments are due July 16, 2004, and reply comments are due August 2, 2004.

ADDRESSES: Office of the Secretary, Federal Communications Commission, 445 12th Street, SW., TW–A325, Washington, DC 20554.

FOR FURTHER INFORMATION CONTACT: Tom Mooring, Office of Engineering and Technology, (202) 418–2450, TTY (202) 418–2989, e-mail: *Tom.Mooring@fcc.gov.*

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Notice of Proposed Rule Making,* ET Docket No. 04–139; FCC 04–74, adopted March 29, 2004, and released March 31, 2004. The full text of this document is available for inspection and copying during regular business hours in the FCC Reference Center (Room CY–A257), 445 12th Street, SW., Washington, DC 20554. The complete text of this document also may be purchased from the Commission's copy contractor, Qualex International, 445 12th Street, SW., Room, CY–B402, Washington, DC 20554. The full text may also be downloaded at: *www.fcc.gov.* Alternative formats are available to persons with disabilities by contacting Brian Millin at (202) 418–7426 or TTY (202) 418–7365.

Pursuant to §§ 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments on or before July 16, 2004, and reply comments on or before August 2, 2004. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS) or by filing paper copies. *See Electronic Filing of Documents in Rulemaking Proceedings,* 63 FR 24121 (May 1, 1998). Comments filed through the ECFS can be sent as an electronic file via the Internet to *http://www.fcc.gov/e-file/ecfs.html.* Generally, only one copy of an electronic submission must be filed. If multiple docket or rulemaking numbers appear in the caption of this proceeding, however, commenters must transmit one electronic copy of the comments to each docket or rulemaking number referenced in the caption. In completing the transmittal screen, commenters should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to *ecfs@fcc.gov,* and should include the following words in the body of the message, ''get form <your e-mail address.'' A sample form and directions will be sent in reply. Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number.

All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although we continue to experience delays in receiving U.S. Postal Service mail). The Commission's contractor, Natek, Inc., will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, NE., Suite 110, Washington, DC 20002. The filing hours at this location are 8 a.m. to 7 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building. Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743. U.S. Postal Service first-class mail, Express Mail, and Priority Mail should be addressed to 445 12th Street, SW., Washington, DC 20554.

Summary of the Notice of Proposed Rulemaking

A. International Broadcast Stations

1. Prior to WRC–03, footnote 5.134 had prohibited traditional double sideband (DSB) transmissions in the bands allocated to high frequency broadcasting (HFBC) at the 1992 World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992) (WARC–92 HFBC bands). WRC–03 modified footnote 5.134 to be more flexible to meet the needs of international broadcasters in that it permits the continued use of DSB transmissions as well as single sideband (SSB) in the WARC–92 HFBC bands as HF broadcasters transition to digital technology. Accordingly, we propose to add modified footnote 5.134 to the U.S. Table. Similar to the requirements in all other HFBC bands, this action would require the use of seasonal planning for the WARC–92 HFBC bands, which is codified in Article 12 of the ITU Radio Regulations.

2. Modified footnote 5.134 urges use of the WARC–92 HFBC bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of revised Resolution 517. To ensure that HF broadcasters have sufficient flexibility, we therefore propose to update the Commission's rules for international broadcast stations, which are codified in part 73, subpart F, to allow for SSB and digital transmissions in the HFBC bands. Specifically, so that there is no ambiguity regarding the rules with which HF broadcasters must comply, we propose to add to our rules the ITU requirements for DSB, SSB, and digital HFBC systems, which are listed in revised Appendix 11 of the ITU *Radio Regulations.*

3. The effect of these proposals would be to grant U.S.-licensed international broadcast stations the flexibility to continue to transmit analog DSB signals or to transmit SSB or digital signals, including Digital Radio Mondiale (DRM) signals (currently the only ITU-recommended digital standard for use in HFBC bands), which would allow international broadcast stations to provide FM-like sound quality to listeners in foreign countries. Nonetheless, we request comment on whether the DRM standard should be required for digital transmissions. We observe that broadcasting, unlike many other radiocommunication services, is a

mass media service and that for such a service, standards are often useful.

4. Currently, § 73.751 of the Commission's rules states that no international broadcast station will be authorized to install, or be licensed for operation of, transmitter equipment with a rated carrier power of less than 50 kilowatts (kW). The technical basis of this rule is that, given frequency congestion, an international broadcast station using DSB modulation needs to transmit with an output power of at least 50 kW in order to provide a signal that is strong enough to be received with low cost HFBC radios. We have previously waived this rule in order to authorize licensees to operate SSB transmitters with 50 kW peak envelope power (PEP) because this power provides approximately the same coverage area (even though this power is equivalent to only 15–20 kW relative to a DSB transmitter). Likewise, one of the advantages of digital transmission is that a lower rated transmitter output power can serve the same geographic area as a higher power analog signal. One expert from a transmitter manufacturer has averred that an average power of 20 kW for DRM transmissions would provide approximately the same coverage as our rule currently requires. Accordingly, we propose to revise § 73.751 to codify these minimum operating powers for SSB and digital systems.

5. We request comment on all of the proposals herein. In addition, we request comment on other needed changes to our rules for international broadcast stations that are in compliance with ITU or other international standards. In particular, we ask whether our rules should require the inclusion of the capability to offer digital modulation in all new HFBC transmitters put into service after the effective date of the Report and Order in this proceeding.

B. 7 MHz Realignment

6. We generally propose to implement the WRC–03 realignment at 7 MHz. However, in some cases we propose exceptions. First, we propose to upgrade the secondary mobile service allocation in the bands 6765–7000 kHz and 7400–8100 kHz to primary allocations for the mobile except aeronautical mobile route (R) service. This action would give licensees increased flexibility and would facilitate adaptive techniques, which together with automation techniques, would reduce the burden on the operator while making these mobile service radios more responsive to changing HF propagation conditions. However, because the band 6765–7000 kHz is allocated to the broader mobile service in the United States (rather than the land mobile service), we propose to adopt new United States footnote USxxx that maintains this secondary mobile service allocation until the end of the transition period, and that otherwise parallels footnote 5.138A.

7. At the request of NTIA, we propose to upgrade the secondary mobile service allocation in the band 7400–8100 kHz to a primary mobile except aeronautical mobile (R) service allocation, upon the effective date of the Report and Order in this proceeding. We note that many of the existing licenses in the band 7400–8100 kHz are for mobile service use and request comment on the effect of the proposed early upgrade on fixed service users, if any.

8. Second, we propose to allocate the band 7350–7400 kHz to the broadcasting service on a primary basis; to adopt the Region 2 transition plan for the band 7350–7400 kHz as shown in footnote 5.143D; and to delete the table entries for the fixed and mobile service allocations from the band 7300–7400 kHz. Our proposal herein would provide international broadcasters with an additional 50 kilohertz of primary, exclusive spectrum in the band 7350–7400 kHz, effective March 29, 2009. While the band 7300–7350 MHz has previously been reallocated to the broadcasting service on a primary, exclusive basis, effective April 1, 2007, the table entries for the fixed and mobile service allocations were maintained at NTIA's request. As a consequence of our proposal to delete the table entries for the fixed and mobile service allocations from the band 7300–7350 kHz, we propose to provide for these allocations in a new United States footnote (USyyy) and to remove the frequency band from footnote US366. Specifically, we propose to revise footnote US366 and to add new footnote USyyy.

9. We also propose to cease issuing licenses for new non-Federal Government stations in the fixed and mobile services in the band 7350–7400 kHz as of March 29, 2009, consistent with the proposed allocation changes for these services. We anticipate that these requirements can be met in other HF bands allocated to the fixed and mobile services.

10. The band 7100–7300 kHz is allocated to the amateur service on primary, exclusive basis in Region 2. We note that WRC–03 allocated the band 7100–7200 kHz to the amateur service in Regions 1 and 3 on a co-primary basis with the broadcasting service, effective January 1, 2005. After March 29, 2009, the band 7100–7200 kHz is allocated to the amateur service on an exclusive basis throughout the world, except in certain Region 1 and 3 countries. As such, amateur service use of this 100 kilohertz will be on a *de facto* secondary basis in Regions 1 and 3 until the broadcasting service vacates the band 7100–7200 kHz at the conclusion of Schedule B in 2009. This means that amateur stations in Regions 1 and 3 will shortly be permitted to transmit in the band 7100–7200 kHz, if they can find a frequency that is not being used by an international broadcast station. Currently, amateur stations in Regions 1 and 3 use the segment 7075–7100 kHz for phone emissions. The Commission authorizes amateur stations to transmit phone emissions in the segment 7150–7300 kHz. Together, these segments are used by amateur stations for full duplex operations when communicating between Region 2 countries and Regions 1 and 3 countries. We anticipate that administrations in Regions 1 and 3 will in the near future authorize phone emissions in the segment 7150–7200 kHz, and we note the ARRL has requested that the frequency segment for phone emissions be expanded to 7125–7300 kHz. These changes, if implemented, would permit half duplex operations, that is, amateur stations would be able to transmit and receive on a single frequency. If this occurs, spectrum efficiency would be increased.

11. Until administrations in Regions 1 and 3 implement changes allowing amateur stations to transmit in the band 7100–7200 kHz, we believe that §§ 97.301 and 97.305 of our rules need not be updated. As a practical matter, we do not believe that the amateur service can make use of the band 7100–7200 kHz in Regions 1 and 3 in advance of HFBC stations vacating the band because of the great power disparity between amateur stations and international broadcast stations. We request comment on these proposals.

C. Space Radiocommunication Services

SRS Uplinks at 7145–7235 MHz

12. At the request of NTIA, we propose to move the space research service (SRS) uplink allocation currently authorized in footnote US252 to a table entry in the Federal Government Table for the band 7145–7190 MHz. NTIA prefers to highlight that SRS uplinks in the band 7145–7190 MHz are for deep space communications and does not believe that footnote 5.460 adequately highlights this important use. We believe our proposal would adequately clarify that the band 7145–7190 MHz is allocated to the SRS (deep space) (Earth-to-space) on a primary basis for Federal

Government use. NTIA states that Federal Government SRS operations should be limited by adopting the remaining requirements in footnote 5.460 as footnote Gyyy.

13. Accordingly, we propose to adopt footnote Gyyy, which would prohibit deep space communications in the band 7190–7235 MHz and which would specifically not require that stations in the fixed and mobile services protect geostationary SRS satellites. We believe that these actions are fully in accordance with the ITU *Radio Regulations.*

14. With regard to the requested change in the allocation status for non-Federal Government SRS use of the Federal facility at Goldstone, we view this downgrade as having a minimal impact on future non-Federal Government users of the facility. That is, NTIA has coordinated the deep space facility at Goldstone in order to avoid interference problems with other Federal Government stations. Therefore any non-Federal Government SRS use, if it ever develops, should be coincidentally protected. See § 2.106, footnotes US252 and US262 of the Commission's rules. We request comment on these proposals.

SRS at 14.8–15.35 GHz

15. The Commission proposes to upgrade the secondary SRS allocation in the band 14.8–15.35 GHz to primary status for Federal Government use, except that SRS (passive) use of the segment 15.2–15.35 GHz would retain secondary status. We tentatively find that the upgrade is in the national interest. Specifically, the United States has developed extensive SRS operations in this band at great expense and these operations merit the protection that a primary allocation provides. However, since this primary SRS allocation would be in derogation of the ITU *Radio Regulations,* we note that, for example, Federal Government SRS receive earth stations would not be protected from stations in the fixed and mobile services operating in neighboring countries.

16. In addition, we propose to revise footnote US310 by using a reference bandwidth that is more appropriate for today's digital transmissions than a reference bandwidth based on an analog channel. We request comment on these proposals.

SRS and EESS Downlinks at 25.5–27 GHz and ISS at 25.25–27.5 GHz

17. The Commission proposes to upgrade the secondary non-Federal Government allocation in the Earth exploration-satellite service, limited to space-to-Earth transmissions, (EESS downlinks) in the band 25.5–27 GHz to primary status. We believe that this upgrade is necessary to meet the requirements of the commercial remote sensing industry and is consistent with the Fact Sheet on U.S. Commercial Remote Sensing Policy that was released by the White House on April 25, 2003. Specifically, we propose to revise footnote US258 to include the band 25.5–27 GHz in its text, to add footnote US258 to the non-Federal Government Table in the band 25.5–27 GHz, and consequently to delete the table entry for the secondary EESS downlink allocation from the non-Federal Government Table.

18. By adding the band 25.5–27 GHz to footnote US258, we would also subject each non-Federal Government authorization to a case-by-case electromagnetic compatibility (EMC) analysis. Because of existing and planned Federal Government SRS and EESS requirements in the band 25.5–27 GHz, we believe that it is important that non-Federal Government EESS downlinks operated in this band be designed to ensure compatibility with Federal Government systems. We also propose to add footnote 5.536A to the non-Federal Government Table in the band 25.5–27 GHz. This action would provide guidance to earth station applicants, *e.g.*, Annex 1 of Recommendation ITU–R SA.1278 provides a methodology for estimating needed separation distances between EESS earth stations and fixed stations, and would better alert commercial remote sensing operators of the EESS downlink allocation's status in border areas, *i.e.*, where possible, these operators should consider placing their receive earth stations away from border areas.

19. In order to protect Federal Government terrestrial receivers, we propose to require that non-Federal EESS space stations transmitting in the band 25.5–27 GHz meet the pfd limits contained in Article 21 of the ITU *Radio Regulations.* We would codify this requirement by adding these pfd limits to part 25 of the Commission's rules. Based on a request from NTIA, we seek comment from potential EESS applicants as to whether the constraints listed in paragraph 59 of the NPRM, would be helpful in fostering compatibility between Federal and non-Federal Government systems.

20. We also propose to broaden the secondary non-Federal Government allocation for the EESS (space-to-space) in the band 25.25–27.5 GHz to a secondary ISS allocation. However, we also propose to adopt footnote 5.536, which would limit the use of this ISS allocation to SRS and EESS applications, and also to transmissions of data originating from industrial and medical activities in space. This restriction is necessary to ensure that this frequency band meets the needs of the scientific community without being overtaken for FSS or MSS use. Nevertheless, we request comment on the need for this restriction. In order to protect Federal Government terrestrial receivers, we propose to require that non-Federal ISS space stations transmitting in the band 25.25–27.5 GHz meet the pfd limits contained in Article 21 of the ITU *Radio Regulations.* The ISS pfd requirements and the EESS pfd requirements are the same and would be shown once in part 25 of the Commission's rules.

21. We propose to allocate the band 25.5–27 GHz to the SRS (space-to-Earth) on a primary basis for Federal Government use. This action would provide a primary SRS allocation to satisfy Federal requirements for high data rate space science missions. We request comment on all of these proposals.

EESS (Active) at 432–438 MHz

22. We tentatively find that any secondary EESS (active) allocation in the band 432–438 MHz should be limited to Federal Government use and that this allocation should not cause harmful interference to, nor claim protection from, any other services allocated in the band in the United States, including the amateur-satellite service. Accordingly, we propose to adopt a new United States footnote (USzzz). The adoption of this footnote would permit NASA to perform limited pre-operational testing of its systems within line-of-sight of its U.S. control stations, provided that it does not cause harmful interference to the radiolocation, amateur, and amateur-satellite services in the United States. We request comment on this proposal.

D. RNSS Allocations

RNSS at 960–1300 MHz

23. We propose to remove the radionavigation-satellite service (RNSS) (space-to-Earth) (space-to-space) allocation in the band 1164–1215 MHz from footnote US385 and make it a table entry. We also propose to adopt international footnote 5.328A, which requires that RNSS stations in the band 1164–1215 MHz operate in accordance with Resolution 609 (WRC–03) and that they not claim protection from ARNS in the band 960–1215 MHz. NTIA has informed us that it intends to limit Federal Government use of the RNSS

(space-to-Earth) (space-to-space) allocation in the band 1215–1240 MHz through new footnote Gxxx.

24. The band 1240–1300 MHz is allocated to the ARNS in the United States and Canada on a primary basis in footnote 5.334 and this international footnote has previously been added to the U.S. Table. At WRC–03, this ARNS allocation was moved to footnote 5.331, but its primary status was not explicitly restated. Therefore, we propose to remove this primary ARNS allocation in the band 1240–1300 MHz from deleted international footnote 5.334 and make it a table entry. We request comment on these proposals and on whether the RNSS allocation at 1215–1240 MHz, which is currently limited to Federal Government use, should be expanded to the band 1215–1300 MHz and made available for both Federal and non-Federal Government use. In this regard, we note that Lockheed Martin Corporation in 2001 filed a waiver with the Commission in order to use the band 1215–1240 MHz for its Regional Positioning System. If non-Federal Government entities demonstrate that they have RNSS requirements in the band 1215–1300 MHz, we will work closely with NTIA to determine if spectrum can be allocated for that purpose.

RNSS at 5000–5030 MHz

25. Consistent with the *WRC–03 Final Acts,* we propose to allocate the band 5000–5030 MHz to the RNSS on a primary basis for Federal and non-Federal Government use. We further propose to limit the use of the segment 5000–5010 MHz to Earth-to-space transmissions and the segment 5010–5020 MHz to space-to-Earth and space-to-space transmissions. Consequently and also because the Microwave Landing System (MLS) does not operate in the band 5000–5030 MHz, we propose to replace footnote US370 with footnote 5.444, thereby removing the band 5000–5030 MHz from the spectrum in which MLS has precedence over other uses. In order to protect MLS operations above 5030 MHz and radio astronomy service (RAS) observations in the band 4990–5000 MHz, we propose to limit the adjacent band pfd at the Earth's surface from RNSS operations in the band 5010–5030 MHz through the adoption of footnote 5.443B. This action would align the band 5000–5030 MHz with international usage by providing 10 megahertz of spectrum for RNSS uplinks and 20 megahertz for RNSS downlinks and crosslinks. We seek comment on this proposal and information on future ARNS use of the band 5030–5150 MHz.

E. Little LEO Feeder Link Spectrum

26. While WRC–03 allocated spectrum for feeder links that can be used by the Non-Voice Non-Geostationary Mobile-Satellite Service (generally know as Little LEOs) on a secondary basis throughout the world, WRC–03 resolved that use of these allocations is contingent on the subsequent completion of ITU–R spectrum sharing studies to determine the impact of these non-geostationary orbit (NGSO) fixed-satellite service (FSS) operations on incumbent services, including passive service operations in the adjacent band 1400–1427 MHz. Furthermore, Resolution 745 (WRC–03) indicates that any Little LEO use of these bands is subject to additional decisions on compatibility issues that may be adopted at the 2007 World Radiocommunication Conference (WRC–07).

27. Given the differences between US368 and the decision made at WRC–03, we are reconsidering this conditional allocation herein to conform to the WRC–03 allocation. We tentatively conclude that the best way forward is to implement WRC–03's decision regarding Little LEO feeder links. We continue to recognize that it is important for sharing studies for these bands to be successfully completed. We tentatively find that replacing footnote US368 with 5.339A is insufficient for our needs. Instead, we propose to maintain footnote US368 in a modified form that recognizes the actions taken at WRC–03. Specifically, we propose the following actions: First, we would downgrade the provisional Little LEO feeder link allocations from primary to secondary status. Second, we would require the completion of ITU–R studies on all identified compatibility issues as shown in Annex 1 of Resolution 745 (WRC–2003). Third, we would make any use of the worldwide feeder links subject to any further compatibility decisions by WRC–07. Accordingly, we propose to amend the Table entries for the FSS uplink allocation in the band 1390–1392 MHz and the FSS downlink allocation in the band 1430–1432 MHz to show secondary status in lieu of primary status, and to revise footnote US368.

28. Further, any Little LEO application for use of these bands will be subject to the outcome of this rule making. The Commission would review the results of any studies and measurements of emissions from equipment that would be employed in operational systems and demonstrations to validate the studies. The Commission would decide what technical and operational requirements to impose to protect other services, and individual assignments would be coordinated with the FAS to ensure the protection of passive services in the band 1400–1427 MHz. Any further decisions taken by WRC–07 would be considered by the Commission once they are final. We request comment on these proposals.

F. Radiolocation Upgrade in the Band 2900–3100 MHz

29. We propose to upgrade the Federal Government's radiolocation service allocation in the band 2900–3100 MHz to primary status and to add footnote 5.424A to the Federal Government Table to protect important ship navigation systems. As described in more detail in the *U.S. Proposal for WRC–03,* radionavigation radars operating in the band 2900–3100 MHz have demonstrated compatible operations with radiolocation systems, mainly as a result of newer radar design features that mitigate received radar-to-radar interference. We believe that this action would increase the usefulness of this band without causing any burden on existing operations. We request comment on this proposal and on whether the secondary non-Federal Government radiolocation service allocation should also be upgraded to primary status.

G. Terms, Definitions, and Editorial Amendments

30. In order to reflect additions and revisions to the terms and definitions listed in the ITU *Radio Regulations* and in the *WRC–03 Final Acts,* we propose to amend § 2.1 of the Commission's rules to: (1) Add definitions for adaptive system and high altitude platform station; (2) revise the definitions for coordinated universal time, coordination area, coordination distance, facsimile, geostationary satellite, harmful interference, inclination of an orbit of an earth satellite, telegraphy, and telephony; and (3) make minor editorial modifications to the definitions for administration, broadcasting service, mobile service, permissible interference, power, public correspondence, radio, radiocommunication, safety service, semi-duplex operation, telecommunication, and telegram. We would also correct a typographical error in the definition for telemetry. The UTC definition would also be revised in part 73. The definitions of these terms are shown in the § 2.1 of the Commission's rules.

31. We also propose to take the following non-substantive actions in this proceeding, which would correct

and update § 2.106 of the Commission's rules, the Table of Frequency Allocations (Table). The effect of these actions would be to reflect the *WRC–03 Final Acts* with regard to the International Table within our Rules, to remove confusing and unnecessary material from the U.S. Table, and to add rule part cross references in column 6 of the Table for the frequency bands where they are missing. Specifically, we would revise the table entries in the International Table and the list of International Footnotes to reflect the *WRC–03 Final Acts* in those frequency bands not otherwise discussed in the NPRM.

32. In the U.S. Table, we propose to take six actions. First, we would delete footnote US238 from our rules because the transition period has expired. This action means that Federal Government stations would no longer be permitted to operate in the band 1605–1705 kHz (AM Expanded Band). Second, we would delete footnote NG129 because there are no fixed stations in Alaska listed in our licensing database for the band 76–100 MHz. Consequently, we would also delete §§ 73.220(b) and 73.603(b) from our rules. Third, we would delete footnote NG151 because licensees in the Cellular Radiotelephone Service have previously been authorized to provide fixed service on a primary basis and thus, there is no longer need for separate authority to provide auxiliary services on a secondary basis. Fourth, we would revise footnote US352 to delete the 14 sites in the band 1427–1432 MHz at which Federal operations have operated on a fully protected basis because the transition period has expired. Fifth, we would delete footnote NG176 because the fixed and mobile service allocations in the band 1710–1755 MHz, which will be auctioned for use by Advanced Wireless Services (AWS), are now effective. Sixth, we would delete footnote US264 from the band 47.2–48.2 GHz in the non-Federal Government Table because the footnote does not apply to this band.

33. In the FCC rule part(s) column, we would add cross references to part 90 in the bands 4750–4995 kHz, 5730–5900 kHz, 6765–7000 kHz, 9040–9400 kHz, 9900–9995 kHz, 10150–11175 kHz, 11400–11600 kHz, 12100–12230 kHz, 13410–13570 kHz, 13870–14000 kHz, 14350–14990 kHz, 15800–16350 KHz, 17410–17480 kHz, 18030–18068 kHz, 18168–18780 kHz, 19020–19680 kHz, 19800–19990 kHz, 20010–21000 kHz, 21850–21924 kHz, 22855–23200 kHz, and 23350–24890 kHz; part 25 in the band 399.9–400.05 MHz; and part 27 in the bands 1710–1755 MHz and 2110–2155 MHz.

Initial Regulatory Flexibility Analysis

34. As required by the Regulatory Flexibility Act (RFA),[1] the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities by the policies and rules proposed in this *Notice of Proposed Rule Making* (Omnibus NPRM). Written public comments are requested on this IRFA and must be filed by the deadlines for comments on the *Omnibus NPRM,* which are provided in paragraph 111 of the Omnibus NPRM. The Commission will send a copy of the *Omnibus NPRM,* including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.[2]

A. Need for, and Objectives of, the Proposed Rules

35. In the *Omnibus NPRM,* the Commission proposes to amend parts 2, 25, and 73 of its rules to complete the domestic implementation of allocation decisions from the World Radiocommunication Conference (Geneva, 2003) (WRC–03) concerning the frequency bands between 5900 kHz and 27.5 GHz and to otherwise update its rules in this frequency range. In general, these changes would provide additional flexibility to Commission licensees. However, the proposals would in one case reallocate spectrum and in two cases add constraints.

First, the Commission proposes to reallocate the band 7350–7400 kHz from the fixed and mobile services to the broadcasting service, effective March 29, 2009. The Commission also proposes to cease issuing licenses for new stations in the fixed and mobile services as of March 29, 2009.

Second, the Commission proposes to change the allocation status of the fixed-satellite service in the bands 1390–1392 MHz and 1430–1432 MHz from primary to secondary in order to conform to the decisions made at WRC–03.

Third, the Commission proposes (1) to require that space stations and earth stations in the Earth exploration-satellite service (space-to-Earth) in the band 25.5–27 GHz be subject to case-by-case electromagnetic compatibility analysis in order to share this spectrum with Federal Government facilities; and (2) that these space stations specifically meet the international power flux-density limits for this band. In addition, the Commission requests comment on several constraints that may be helpful in fostering compatibility.

[1] *See* 5 U.S.C. 603. The RFA, *see* 5 U.S.C. 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1966 (SBREFA), Public Law 104–121, Title II, 110 Stat. 857 (1996).

[2] 5 U.S.C. 603(a).

B. Legal Basis

36. This action is authorized under sections 1, 4(i), 302, 303(f) and (r), 332, and 337 of the Communications Act of 1934, as amended, 47 U.S.C. 1, 4(i), 154(i), 302, 303(f) and (r), 332, 337.

C. Description and Estimate of the Number of Small Entities To Which the Proposed Rule Will Apply

37. The RFA directs agencies to provide a description of, and, where feasible, an estimate of, the number of small entities that may be affected by the proposed rules if adopted.[3] The RFA generally defines the term ''small entity'' as having the same meaning as the terms ''small business,'' ''small organization,'' and ''small governmental jurisdiction.''[4] In addition, the term ''small business'' has the same meaning as the term ''small business concern'' under the Small Business Act.[5] 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).[6]

38. A small organization is generally ''any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.''[7] Nationwide, as of 1992, there were approximately 275,801 small organizations.[8] ''Small governmental jurisdiction'' generally means ''governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000.''[9] As of 1997, there were approximately 87,453 governmental entities in the United States.[10] This number includes 39,044 county governments, municipalities, and townships, of which 37,546 (approximately 96.2%) have

[3] 5 U.S.C. 604(b)(3).

[4] 5 U.S.C. 601(6).

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

[6] 15 U.S.C. 632.

[7] 5 U.S.C. 601(4).

[8] Department of Commerce, U.S. Bureau of the Census, 1992 Economic Census, Table 6 (special tabulation of data under contract to Office of Advocacy of the U.S. Small Business Administration).

[9] 5 U.S.C. 601(5).

[10] U.S. Census Bureau, Statistical Abstract of the United States: 2000, Section 9, pages 299–300, Tables 490 and 492.

populations of fewer then 50,000 and 1,498 have populations of 500,000 or more. Thus, we estimate the number of small governmental jurisdictions overall to be approximately 84,098 or fewer.

39. The SBA has developed a small business size standard for Satellite Telecommunications, which consists of all such firms having $12.5 million or less in annual receipts.[11] According to Census Bureau data for 1997, in this category there was a total of 324 firms that operated for the entire year.[12] Of this total, 273 firms had annual receipts of under $10 million, and an additional twenty-four firms had receipts of $10 million to $24,999,999.[13] Thus, under this size standard, the majority of firms can be considered small.

Little LEO licensees operate non-geostationary mobile-satellite systems that provide non-voice services. There are currently two Little LEO licensees now in operation. Another Little LEO licensee has expressed interest in this band, but does not yet provide service. We believe that all Little LEO licensees are small businesses.

Licensees in the Earth Exploration-Satellite Service (EESS) provide remote sensing services. While there are currently no EESS licensees in the band 25.5–27 GHz, two companies have expressed interest in using this band in the future. We believe that all EESS licensees are small businesses.

Wireless Service Providers. The SBA has developed a small business size standard for wireless small businesses in the category of Cellular and Other Wireless Telecommunications.[14] Under this SBA category, a wireless business is small if it has 1,500 or fewer employees. According to the Commission's mot recent data,[15] 1,761 companies reported that they were engaged in the provision of wireless service. Of these 1,761 companies, an estimated 1,175 have 1,500 or fewer employees and 586 have more than 1,500 employees.[16] Consequently, the Commission estimates that most wireless service providers are small entities.

Licensees in the Fixed and Mobile Services in the band 7350–7400 kHz provide conventional Industrial/Business Pool services (44 licensees with 111 call signs), coastal group services (2 licensees, each with a single call sign), and Alaska group services (11 licensees with 18 call signs). We believe that some of the 44 licensees providing conventional Industrial/Business Pool services are small businesses; that both of the licensees providing coastal group services are small businesses; and that almost all of the licensees providing Alaska group services are small businesses.

We seek comment on this analysis. In providing such comment, commenters are requested to provide information regarding how many total and small business entities would be affected.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

40. EESS applicants would be required to do a technical analysis of the interference potential between their proposed operations and Federal Government operations, *i.e.*, an electromagnetic compatibility analysis. Engineering skills would be needed in order to perform the analysis. The power flux-density at the Earth's surface produced by emissions from an EESS space station would be limited in accordance with the ITU *Radio Regulations.*

E. Steps Taken To Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

41. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.[17]

42. The Commission proposes to reallocate the band 7350–7400 kHz from the fixed and mobile services to the broadcasting service, effective March 29, 2009. The Commission also proposes to cease issuing licenses for new stations in the fixed and mobile services as of March 29, 2009. The phase-in of these rules would provide small businesses with a reasonable amount of time in which to relocate to other spectrum allocated to the fixed and mobile services, thus minimizing the impact of these proposed actions. In addition, the new broadcasting service allocation would provide new opportunities for international broadcasters that are small businesses.

43. The Commission had conditionally allocated the Little LEO feeder links on a primary basis, subject to the outcome of WRC–03. At WRC–03, the United States was unable to secure a primary.

Ordering Clauses

44. Pursuant to sections 1, 4(i), 7(a), 301, 302(a), 303(f), 303(g), 303(r), 307, 308, 309(j), 316, 332, 334, and 336 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i), 157(a), 301, 302(a), 303(f), 303(g), 303(r), 307, 308, 309(j), 316, 332, 334, and 336, the Notice of Proposed Rulemaking is hereby *adopted*.

45. The Commission's Consumer Information and Governmental Affairs Bureau, Reference Information Center, Shall Send a copy of this Notice Of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

List of Subjects in Parts 2, 25, and 73

Radio, Telecommunications.

Federal Communications Commission.

Marlene H. Dortch,

Secretary.

Rule Changes

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR parts 2, 25, and 73 as follows:

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

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

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

2. Section 2.1 is amended by revising paragraph (b) and by adding the definitions in paragraph (c) in alphabetical order to read as follows:

§ 2.1 Terms and definitions.

* * * * *

(b) The source of each definition is indicated as follows:

CS—Annex to the Constitution of the International Telecommunication Union (ITU).

CV—Annex to the Convention of the ITU.

FCC—Federal Communications Commission.

[11] 13 CFR 121.201, NAICS code 517410 (changed from 513340 in October 2002).

[12] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, ''Establishment and Firm Size (Including Legal Form of Organization),'' Table 4, NAICS code 513340 (issued October 2000).

[13] *Id.*

[14] 13 CFR 121.201, North American Industry Classification System (NAICS) code 513322 (changed to 517212 in October 2002).

[15] FCC, Wireline Competition Bureau, Industry Analysis and Technology Division, Trends in Telephone Service, Table 5.3, (May 2002).

[16] *Id.*

[17] 5 U.S.C. 603(c).

RR—ITU Radio Regulations.

(c) The following terms and definitions are issued:

* * * * *

Adaptive System. A radiocommunication system which varies its radio characteristics according to channel quality. (RR)

Administration. Any governmental department or service responsible for discharging the obligations undertaken in the Constitution of the International Telecommunication Union, in the Convention of the International Telecommunication Union and in the Administrative Regulations. (CS)

* * * * *

Broadcasting Service. A radiocommunication service in which the transmissions are intended for direct reception by the general public. This service may include sound transmissions, television transmissions or other types of transmission. (CS)

* * * * *

Coordinated Universal Time (UTC). Time scale, based on the second (SI), as defined in Recommendation ITU–R TF.460–6. (RR)

Coordination Area. When determining the need for coordination, the area surrounding an earth station sharing the same frequency band with terrestrial stations, or surrounding a transmitting earth station sharing the same bidirectionally allocated frequency band with receiving earth stations, beyond which the level of permissible interference will not be exceeded and coordination is therefore not required. (RR)

* * * * *

Coordination Distance. When determining the need for coordination, the distance on a given azimuth from an earth station sharing the same frequency band with terrestrial stations, or from a transmitting earth station sharing the same bidirectionally allocated frequency band with receiving earth stations, beyond which the level of permissible interference will not be exceeded and coordination is therefore not required. (RR)

* * * * *

Facsimile. A form of telegraphy for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form. (RR)

* * * * *

Geostationary Satellite. A geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's equator and which thus remains fixed relative to the Earth; by extension, a geosynchronous satellite which remains approximately fixed relative to the Earth. (RR)

* * * * *

Harmful Interference. Interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with [the ITU] Radio Regulations. (CS)

High Altitude Platform Station (HAPS). A station located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the Earth. (RR)

* * * * *

Inclination of an Orbit (of an earth satellite). The angle determined by the plane containing the orbit and the plane of the Earth's equator measured in degrees between 0° and 180° and in counter-clockwise direction from the Earth's equatorial plane at the ascending node of the orbit. (RR)

* * * * *

Mobile Service. A radiocommunication service between mobile and land stations, or between mobile stations. (CV)

* * * * *

Permissible Interference.[1] Observed or predicted interference which complies with quantitative interference and sharing criteria contained in these [ITU Radio] Regulations or in ITU–R Recommendations or in special agreements as provided for in these Regulations. (RR)

* * * * *

Power. Whenever the power of a radio transmitter, *etc.* is referred to it shall be expressed in one of the following forms, according to the class of emission, using the arbitrary symbols indicated:

—Peak envelope power (PX or pX);

—Mean power (PY or pY);

—Carrier power (PZ or pZ).

Note 1: For different classes of emission, the relationships between peak envelope power, mean power and carrier power, under the conditions of normal operation and of no modulation, are contained in ITU–R Recommendations which may be used as a guide.

Note 2: For use in formulae, the symbol p denotes power expressed in watts and the symbol P denotes power expressed in decibels relative to a reference level. (RR)

* * * * *

Public Correspondence. Any telecommunication which the offices and stations must, by reason of their being at the disposal of the public, accept for transmission. (CS)

* * * * *

Radio. A general term applied to the use of radio waves. (RR)

* * * * *

Radiocommunication. Telecommunication by means of radio waves. (CS) (CV)

* * * * *

Safety Service. Any radiocommunication service used permanently or temporarily for the safeguarding of human life and property. (RR)

* * * * *

Semi-Duplex Operation. A method which is simplex operation on one end of the circuit and duplex operation at the other.[4] (RR)

Telecommunication. Any transmission, emission or reception of signs, signals, writings, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems. (CS)

* * * * *

Telegram. Written matter intended to be transmitted by telegraphy for delivery to the addressee. This term also includes radiotelegrams unless otherwise specified. (CS)

Note: In this definition the term telegraphy has the same general meaning as defined in the Convention.

Telegraphy.[6] A form of telecommunication in which the transmitted information is intended to be recorded on arrival as a graphic document; the transmitted information may sometimes be presented in an alternative form or may be stored for subsequent use. (CS)

Telemetry. The use of telecommunication for automatically indicating or recording measurements at a distance from the measuring instrument. (RR)

Telephony. A form of telecommunication primarily intended for the exchange of information in the form of speech. (CS)

* * * * *

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

a. Revise pages 5, 10–19, 26, 32, 33, 35, 36, 38, 39, 41–49, 52–61, 64–70, 72, 73, 75, 78, and 79.

b. In the list of International footnotes, remove footnotes 5.377, 5.389D, 5.421,

[1] See footnote under Accepted Interference.

[4] See footnote under Duplex Operations.

[6] A graphic document records information in a permanent form and is capable of being filed and consulted; it may take the form of written or printed matter or of a fixed image.

5.443A, 5.467, 5.491, 5.503A, 5.534, 5.551A, and 5.555A.

c. In the list of International footnotes, revise footnotes 5.56, 5.68, 5.70, 5.87, 5.96, 5.98, 5.99, 5.107, 5.112, 5.114, 5.117, 5.118, 5.134, 5.139, 5.140, 5.142, 5.152, 5.154, 5.155, 5.163, 5.164, 5.174, 5.177, 5.179, 5.181, 5.203B, 5.204, 5.210, 5.212, 5.221, 5.237, 5.254, 5.262, 5.271, 5.273, 5.277, 5.288, 5.294, 5.296, 5.311, 5.312, 5.316, 5.323, 5.328A, 5.329, 5.330, 5.331, 5.334, 5.338, 5.347, 5.348, 5.348A, 5.355, 5.359, 5.362B, 5.369, 5.381, 5.382, 5.386, 5.387, 5.388A, 5.395, 5.400, 5.416, 5.418, 5.418A, 5.418B, 5.418C, 5.422, 5.428, 5.429, 5.430, 5.431, 5.443B, 5.444, 5.444A, 5.447E, 5.453, 5.454, 5.455, 5.456, 5.460, 5.466, 5.468, 5.469, 5.473, 5.477, 5.478, 5.481, 5.482, 5.483, 5.487, 5.487A, 5.488, 5.494, 5.495, 5.500, 5.501, 5.502, 5.503, 5.504C, 5.505, 5.506A, 5.506B, 5.508, 5.508A, 5.509A, 5.512, 5.514, 5.516B, 5.521, 5.536A, 5.537A, 5.543A, 5.545, 5.546, 5.547C, 5.548, 5.549, 5.550, and 5.551I;

d. In the list of international footnotes, add footnotes 5.138A, 5.141A, 5.141B, 5.141C, 5.143A, 5.143B, 5.143C, 5.143D, 5.143E, 5.256A, 5.279A, 5.339A, 5.347A, 5.348B, 5.348C, 5.379B, 5.379C, 5.379D, 5.379E, 5.380A, 5.388B, 5.418AA, 5.418AB, 5.418AC, 5.418AD, 5.424A, 5.516A, 5.536C, 5.549A, and 5.555B.

e. In the list of United States (US) footnotes, remove footnotes US238, US370, and US385.

f. In the list of United States (US) revise footnotes US252, US258, US262, US310, US352, US366, and US368; and add footnotes USxxx, USyyy, and USzzz.

g. In the list of non-Federal Government (NG) footnotes, remove footnotes NG129, NG151, and NG176.

h. In the list of Federal Government (G) footnotes, add footnotes Gxxx and Gyyy.

§ 2.106 Table of Frequency Allocations.

The revisions and additions read as follows:

* * * * *

* * * * *

BILLING CODE 6712–01–U

505-2107 kHz (MF) Page 5

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
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 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)
5.72	525-535 BROADCASTING 5.86 AERONAUTICAL RADIONAVIGATION		525-535 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18 MOBILE US221 US239		Aviation (87) Private Land Mobile (90)
526.5-1606.5 BROADCASTING		526.5-535 BROADCASTING Mobile 5.88			
	535-1605 BROADCASTING	535-1606.5 BROADCASTING	535-1605 US321	535-1605 BROADCASTING US321 NG128	Radio Broadcast (AM) (73) Auxiliary Broadcast (74) Alaska Fixed (80)
5.87 5.87A	1605-1625 BROADCASTING 5.89	1606.5-1800 FIXED MOBILE RADIOLOCATION RADIONAVIGATION	1605-1615 MOBILE US221 US321	1605-1705 BROADCASTING 5.89	
1606.5-1625 FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	5.90		1615-1705		
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 US321	US299 US321 NG128	

4438-4650 FIXED MOBILE except aeronautical mobile (R)		4438-4650 FIXED MOBILE except aeronautical mobile	4438-4650 FIXED MOBILE except aeronautical mobile (R) US340		Maritime (80) Aviation (87) Private Land Mobile (90)
4650-4700 AERONAUTICAL MOBILE (R)			4650-4700 AERONAUTICAL MOBILE (R) US282 US283 US340		Aviation (87)
4700-4750 AERONAUTICAL MOBILE (OR)			4700-4750 AERONAUTICAL MOBILE (OR) US340		
4750-4850 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	4750-4850 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113	4750-4850 FIXED BROADCASTING 5.113 Land mobile	4750-4850 FIXED MOBILE except aeronautical mobile (R) US340		Maritime (80) Private Land Mobile (90)
4850-4995 FIXED LAND MOBILE BROADCASTING 5.113			4850-4995 FIXED MOBILE US340	4850-4995 FIXED US340	Aviation (87) Private Land Mobile (90)
4995-5003 STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)			4995-5003 STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz) US340		
5003-5005 STANDARD FREQUENCY AND TIME SIGNAL Space research			5003-5005 STANDARD FREQUENCY AND TIME SIGNAL US340 G106	5003-5005 STANDARD FREQUENCY AND TIME SIGNAL US340	
5005-5060 FIXED BROADCASTING 5.113			5005-5060 FIXED US340		Maritime (80) Aviation (87) Private Land Mobile (90)

5060-9040 kHz (HF)					Page 11
International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
5060-5250 FIXED Mobile except aeronautical mobile 5.133			5060-5450 FIXED Mobile except aeronautical mobile		Maritime (80) Aviation (87) Private Land Mobile (90) Amateur (97)
5250-5450 FIXED MOBILE except aeronautical mobile			US212 US340 US381		
5450-5480 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5450-5480 AERONAUTICAL MOBILE (R)	5450-5480 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5450-5680 AERONAUTICAL MOBILE (R)		Aviation (87)
5480-5680 AERONAUTICAL MOBILE (R) 5.111 5.115			5.111 5.115 US283 US340		
5680-5730 AERONAUTICAL MOBILE (OR) 5.111 5.115			5680-5730 AERONAUTICAL MOBILE (OR) 5.111 5.115 US340		
5730-5900 FIXED LAND MOBILE	5730-5900 FIXED MOBILE except aeronautical mobile (R)	5730-5900 FIXED Mobile except aeronautical mobile (R)	5730-5900 FIXED MOBILE except aeronautical mobile (R) US340		Maritime (80) Aviation (87) Private Land Mobile (90)
5900-5950 BROADCASTING 5.134 5.136			5900-5950 BROADCASTING 5.134 FIXED MOBILE except aeronautical mobile (R) US340 US366		Radio Broadcast (HF) (73) Maritime (80) Aviation (87)
5950-6200 BROADCASTING			5950-6200 BROADCASTING US340		Radio Broadcast (HF) (73)
6200-6525 MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137			6200-6525 MARITIME MOBILE 5.109 5.110 5.130 5.132 US82 US296 US340		Maritime (80)
6525-6685 AERONAUTICAL MOBILE (R)			6525-6685 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)

6685-6765 AERONAUTICAL MOBILE (OR)			6685-6765 AERONAUTICAL MOBILE (OR) US340		
6765-7000 FIXED MOBILE except aeronautical mobile (R) 5.138 5.138A 5.139			6765-7000 FIXED MOBILE except aeronautical mobile (R) 5.138 US340 USxxx		ISM Equipment (18) Private Land Mobile (90)
7000-7100 AMATEUR AMATEUR-SATELLITE 5.140 5.141 5.141A			7000-7100 US340	7000-7100 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
7100-7200 AMATEUR 5.141A 5.141B 5.141C 5.142			7100-7300 US340	7100-7300 AMATEUR 5.142 US340	
7200-7300 BROADCASTING	7200-7300 AMATEUR 5.142	7200-7300 BROADCASTING			
7300-7400 BROADCASTING 5.134 5.143 5.143A 5.143B 5.143C 5.143D			7300-7400 BROADCASTING 5.134 5.143D US340 USyyy		Radio Broadcast (HF) (73) Maritime (80) Private Land Mobile (90)
7400-7450 BROADCASTING 5.143B 5.143C	7400-7450 FIXED MOBILE except aeronautical mobile (R)	7400-7450 BROADCASTING 5.143A 5.143C	7400-8100 FIXED MOBILE except aeronautical mobile (R)		Maritime (80) Aviation (87) Private Land Mobile (90)
7450-8100 FIXED MOBILE except aeronautical mobile (R) 5.143E 5.144			US340		
8100-8195 FIXED MARITIME MOBILE			8100-8195 FIXED MARITIME MOBILE US340		Maritime (80)
8195-8815 MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111			8195-8815 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82 5.111 US296 US340		Maritime (80) Aviation (87)
8815-8965 AERONAUTICAL MOBILE (R)			8815-8965 AERONAUTICAL MOBILE (R) US340		Aviation (87)
8965-9040 AERONAUTICAL MOBILE (OR)			8965-9040 AERONAUTICAL MOBILE (OR) US340		

9040-13410 kHz (HF)					Page 13
International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
9040-9400 FIXED			9040-9400 FIXED US340		Maritime (80) Private Land Mobile (90)
9400-9500 BROADCASTING 5.134 5.146			9400-9500 BROADCASTING 5.134 FIXED US340 US366		Radio Broadcast (HF) (73) Maritime (80)
9500-9900 BROADCASTING 5.147			9500-9900 BROADCASTING 5.147 US340 US367		Radio Broadcast (HF) (73)
9900-9995 FIXED			9900-9995 FIXED US340		Private Land Mobile (90)
9995-10003 STANDARD FREQUENCY AND TIME SIGNAL (10000 kHz) 5.111			9995-10003 STANDARD FREQUENCY AND TIME SIGNAL (10000 kHz) 5.111 US340		
10003-10005 STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111			10003-10005 STANDARD FREQUENCY AND TIME SIGNAL 5.111 US340 G106	10003-10005 STANDARD FREQUENCY AND TIME SIGNAL 5.111 US340	
10005-10100 AERONAUTICAL MOBILE (R) 5.111			10005-10100 AERONAUTICAL MOBILE (R) 5.111 US283 US340		Aviation (87)
10100-10150 FIXED Amateur			10100-10150 US247 US340	10100-10150 AMATEUR US247 US340	Amateur (97)
10150-11175 FIXED Mobile except aeronautical mobile (R)			10150-11175 FIXED Mobile except aeronautical mobile (R) US340		Private Land Mobile (90)
11175-11275 AERONAUTICAL MOBILE (OR)			11175-11275 AERONAUTICAL MOBILE (OR) US340		

11275-11400 AERONAUTICAL MOBILE (R)	11275-11400 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
11400-11600 FIXED	11400-11600 FIXED US340		Private Land Mobile (90)
11600-11650 BROADCASTING 5.134 5.146	11600-11650 BROADCASTING 5.134 FIXED US340 US366		Radio Broadcast (HF) (73)
11650-12050 BROADCASTING 5.147	11650-12050 BROADCASTING US340 US367		
12050-12100 BROADCASTING 5.134 5.146	12050-12100 BROADCASTING 5.134 FIXED US340 US366		
12100-12230 FIXED	12100-12230 FIXED US340		Private Land Mobile (90)
12230-13200 MARITIME MOBILE 5.109 5.110 5.132 5.145	12230-13200 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82 US296 US340		Maritime (80)
13200-13260 AERONAUTICAL MOBILE (OR)	13200-13260 AERONAUTICAL MOBILE (OR) US340		
13260-13360 AERONAUTICAL MOBILE (R)	13260-13360 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
13360-13410 FIXED RADIO ASTRONOMY 5.149	13360-13410 RADIO ASTRONOMY US342 G115	13360-13410 RADIO ASTRONOMY US342	

13410-17900 kHz (HF) Page 15

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
13410-13570 FIXED Mobile except aeronautical mobile (R) 5.150			13410-13570 FIXED Mobile except aeronautical mobile (R) 5.150 US340	13410-13570 FIXED 5.150 US340	ISM Equipment (18) Private Land Mobile (90)
13570-13600 BROADCASTING 5.134 5.151			13570-13600 BROADCASTING 5.134 FIXED Mobile except aeronautical mobile (R) US340 US366	13570-13600 BROADCASTING FIXED US340 US366	Radio Broadcast (HF) (73)
13600-13800 BROADCASTING			13600-13800 BROADCASTING US340		
13800-13870 BROADCASTING 5.134 5.151			13800-13870 BROADCASTING 5.134 FIXED Mobile except aeronautical mobile (R) US340 US366	13800-13870 BROADCASTING FIXED US340 US366	
13870-14000 FIXED Mobile except aeronautical mobile (R)			13870-14000 FIXED Mobile except aeronautical mobile (R) US340	13870-14000 FIXED US340	Private Land Mobile (90)
14000-14250 AMATEUR AMATEUR-SATELLITE			14000-14350	14000-14250 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
14250-14350 AMATEUR 5.152			 US340	14250-14350 AMATEUR US340	
14350-14990 FIXED Mobile except aeronautical mobile (R)			14350-14990 FIXED Mobile except aeronautical mobile (R) US340	14350-14990 FIXED US340	Private Land Mobile (90)

14990-15005 STANDARD FREQUENCY AND TIME SIGNAL (15000 kHz) 5.111	14990-15005 STANDARD FREQUENCY AND TIME SIGNAL (15000 kHz) 5.111 US340		
15005-15010 STANDARD FREQUENCY AND TIME SIGNAL Space research	15005-15010 STANDARD FREQUENCY AND TIME SIGNAL US340 G106	15005-15010 STANDARD FREQUENCY AND TIME SIGNAL US340	
15010-15100 AERONAUTICAL MOBILE (OR)	15010-15100 AERONAUTICAL MOBILE (OR) US340		
15100-15600 BROADCASTING	15100-15600 BROADCASTING US340		Radio Broadcast (HF) (73)
15600-15800 BROADCASTING 5.134 5.146	15600-15800 BROADCASTING 5.134 FIXED US340 US366		
15800-16360 FIXED 5.153	15800-16360 FIXED US340		Private Land Mobile (90)
16360-17410 MARITIME MOBILE 5.109 5.110 5.132 5.145	16360-17410 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82 US296 US340		Maritime (80)
17410-17480 FIXED	17410-17480 FIXED US340		Private Land Mobile (90)
17480-17550 BROADCASTING 5.134 5.146	17480-17550 BROADCASTING 5.134 FIXED US340 US366		Radio Broadcast (HF) (73) Aviation (87)
17550-17900 BROADCASTING	17550-17900 BROADCASTING US340		Radio Broadcast (HF) (73)

17900-22855 kHz (HF)					Page 17
International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
17900-17970 AERONAUTICAL MOBILE (R)			17900-17970 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
17970-18030 AERONAUTICAL MOBILE (OR)			17970-18030 AERONAUTICAL MOBILE (OR) US340		
18030-18052 FIXED			18030-18068 FIXED		Maritime (80) Private Land Mobile (90)
18052-18068 FIXED Space research			US340		
18068-18168 AMATEUR AMATEUR-SATELLITE 5.154			18068-18168 US340	18068-18168 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
18168-18780 FIXED Mobile except aeronautical mobile			18168-18780 FIXED Mobile US340		Maritime (80) Private Land Mobile (90)
18780-18900 MARITIME MOBILE			18780-18900 MARITIME MOBILE US82 US296 US340		Maritime (80)
18900-19020 BROADCASTING 5.134 5.146			18900-19020 BROADCASTING 5.134 FIXED US340 US366		Radio Broadcast (HF) (73)
19020-19680 FIXED			19020-19680 FIXED US340		Private Land Mobile (90)
19680-19800 MARITIME MOBILE 5.132			19680-19800 MARITIME MOBILE 5.132 US340		Maritime (80)
19800-19990 FIXED			19800-19990 FIXED US340		Private Land Mobile (90)

19990-19995 STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111 19995-20010 STANDARD FREQUENCY AND TIME SIGNAL (20000 kHz) 5.111	19990-20010 STANDARD FREQUENCY AND TIME SIGNAL (20000 kHz) 5.111 US340 G106	19990-20010 STANDARD FREQUENCY AND TIME SIGNAL (20000 kHz) 5.111 US340	
20010-21000 FIXED Mobile	20010-21000 FIXED Mobile US340	20010-21000 FIXED US340	Private Land Mobile (90)
21000-21450 AMATEUR AMATEUR-SATELLITE	21000-21450 US340	21000-21450 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
21450-21850 BROADCASTING	21450-21850 BROADCASTING US340		Radio Broadcast (HF) (73)
21850-21870 FIXED 5.155A 5.155 21870-21924 FIXED 5.155B	21850-21924 FIXED US340		Aviation (87) Private Land Mobile (90)
21924-22000 AERONAUTICAL MOBILE (R)	21924-22000 AERONAUTICAL MOBILE (R) US340		Aviation (87)
22000-22855 MARITIME MOBILE 5.132 5.156	22000-22855 MARITIME MOBILE 5.132 US82 US296 US340		Maritime (80)

22855-26175 kHz (HF) — Page 19

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
22855-23000 FIXED 5.156			22855-23000 FIXED US340		Private Land Mobile (90)
23000-23200 FIXED Mobile except aeronautical mobile (R) 5.156			23000-23200 FIXED Mobile except aeronautical mobile (R) US340	23000-23200 FIXED US340	
23200-23350 FIXED 5.156A AERONAUTICAL MOBILE (OR)			23200-23350 AERONAUTICAL MOBILE (OR) US340		
23350-24000 FIXED MOBILE except aeronautical mobile 5.157			23350-24890 FIXED MOBILE except aeronautical mobile US340	23350-24890 FIXED US340	Private Land Mobile (90)
24000-24890 FIXED LAND MOBILE					
24890-24990 AMATEUR AMATEUR-SATELLITE			24890-24990 US340	24890-24990 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
24990-25005 STANDARD FREQUENCY AND TIME SIGNAL (25000 kHz)			24990-25005 STANDARD FREQUENCY AND TIME SIGNAL (25000 kHz) US340		
25005-25010 STANDARD FREQUENCY AND TIME SIGNAL Space research			25005-25010 STANDARD FREQUENCY AND TIME SIGNAL US340 G106	25005-25010 STANDARD FREQUENCY AND TIME SIGNAL US340	
25010-25070 FIXED MOBILE except aeronautical mobile			25010-25070 US340	25010-25070 LAND MOBILE US340 NG112	Private Land Mobile (90)

	75.4-76 FIXED MOBILE	75.4-87 FIXED MOBILE	75.4-88	75.4-76 FIXED MOBILE NG3 NG49 NG56	Public Mobile (22) Private Land Mobile (90) Personal Radio (95)
	76-88 BROADCASTING Fixed Mobile	5.182 5.183 5.188 87-100 FIXED MOBILE BROADCASTING		76-88 BROADCASTING	Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
5.175 5.179 5.184 5.187 87.5-100 BROADCASTING	5.185			NG128 NG149	
5.190	88-100 BROADCASTING		88-108	88-108 BROADCASTING NG2	Broadcast Radio (FM) (73) Auxiliary Broadcasting (74)
100-108 BROADCASTING 5.192 5.194			US93	US93 NG128	
108-117.975 AERONAUTICAL RADIONAVIGATION 5.197 5.197A			108-117.975 AERONAUTICAL RADIONAVIGATION US93 US343		Aviation (87)
117.975-137 AERONAUTICAL MOBILE (R)			117.975-121.9375 AERONAUTICAL MOBILE (R) 5.111 5.198 5.199 5.200 US26 US28		
			121.9375-123.0875 5.198 US30 US31 US33 US80 US102 US213	121.9375-123.0875 AERONAUTICAL MOBILE 5.198 US30 US31 US33 US80 US102 US213	
			123.0875-123.5875 AERONAUTICAL MOBILE 5.198 5.200 US32 US33 US112		
5.111 5.198 5.199 5.200 5.201 5.202 5.203 5.203A 5.203B			See next page for 123.5875-137 MHz		See next page for 123.5875-137 MHz

223-230 BROADCASTING Fixed Mobile 5.243 5.246 5.247	225-235 FIXED MOBILE	223-230 FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation 5.250	225-235 FIXED MOBILE	225-235	
230-235 FIXED MOBILE 5.247 5.251 5.252		230-235 FIXED MOBILE AERONAUTICAL RADIONAVIGATION 5.250	G27		
235-267 FIXED MOBILE 5.111 5.199 5.252 5.254 5.256 5.256A			235-267 FIXED MOBILE 5.111 5.199 5.256 G27 G100	235-267 5.111 5.199 5.256	
267-272 FIXED MOBILE Space operation (space-to-Earth) 5.254 5.257			267-322 FIXED MOBILE	267-322	
272-273 SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254					
273-312 FIXED MOBILE 5.254					
312-315 FIXED MOBILE Mobile-satellite (Earth-to-space) 5.254 5.255					
315-322 FIXED MOBILE 5.254			G27 G100		

322-410 MHz (UHF)					Page 33
International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
322-328.6 FIXED MOBILE RADIO ASTRONOMY 5.149			322-328.6 FIXED MOBILE US342 G27	322-328.6 US342	
328.6-335.4 AERONAUTICAL RADIONAVIGATION 5.258 5.259			328.6-335.4 AERONAUTICAL RADIONAVIGATION 5.258		
335.4-387 FIXED MOBILE 5.254			335.4-399.9 FIXED MOBILE	335.4-399.9	
387-390 FIXED MOBILE Mobile-satellite (space-to-Earth) 5.208A 5.254 5.255					
390-399.9 FIXED MOBILE 5.254			G27 G100		
399.9-400.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260 5.220			399.9-400.05 MOBILE-SATELLITE (Earth-to-space) US319 US320 RADIONAVIGATION-SATELLITE 5.260		Satellite Communications (25)
400.05-400.15 STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261 5.262			400.05-400.15 STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261		
400.15-401 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.209 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth)			400.15-401 METEOROLOGICAL AIDS (radiosonde) US70 METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 US324	400.15-401 METEOROLOGICAL AIDS (radiosonde) US70 MOBILE-SATELLITE (space-to-Earth) US319 US320 US324 SPACE RESEARCH (space-to-Earth) 5.263	Satellite Communications (25)

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
410-420 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268			410-420 FIXED US13 MOBILE SPACE RESEARCH (space-to-space) 5.268 G5	410-420 US13	Private Land Mobile (90)
420-430 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271			420-450 RADIOLOCATION US217 G2 G129	420-450 Amateur US7 NG135	Private Land Mobile (90) Amateur (97)
430-432 AMATEUR RADIOLOCATION 5.271 5.272 5.273 5.274 5.275 5.276 5.277	430-432 RADIOLOCATION Amateur 5.271 5.276 5.277 5.278 5.279				
432-438 AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A 5.138 5.271 5.272 5.276 5.277 5.280 5.281 5.282	432-438 RADIOLOCATION Amateur Earth exploration-satellite (active) 5.279A 5.271 5.276 5.277 5.278 5.279 5.281 5.282				
438-440 AMATEUR RADIOLOCATION 5.271 5.273 5.274 5.275 5.276 5.277 5.283	438-440 RADIOLOCATION Amateur 5.271 5.276 5.277 5.278 5.279				
440-450 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271 5.284 5.285 5.286			5.286 US7 US87 US230 USzzz G8	5.282 5.286 US87 US217 US230 USzzz	
450-455 FIXED MOBILE			450-454 5.286 US87	450-454 LAND MOBILE 5.286 US87 NG112 NG124	Auxiliary Broadcast. (74) Private Land Mobile (90)

5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E			454-456	454-455 FIXED LAND MOBILE NG12 NG112 NG148	Public Mobile (22) Maritime (80)
455-456 FIXED MOBILE 5.209 5.271 5.286A 5.286B 5.286C 5.286E	455-456 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209	455-456 FIXED MOBILE 5.209 5.271 5.286A 5.286B 5.286C 5.286E		455-456 LAND MOBILE	Auxiliary Broadcasting (74)
456-459 FIXED MOBILE 5.271 5.287 5.288			456-460 5.287 5.288	456-460 FIXED LAND MOBILE 5.287 5.288 NG112 NG124 NG148	Public Mobile (22) Maritime (80) Private Land Mobile (90)
459-460 FIXED MOBILE 5.209 5.271 5.286A 5.286B 5.286C 5.286E	459-460 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209	459-460 FIXED MOBILE 5.209 5.271 5.286A 5.286B 5.286C 5.286E			
460-470 FIXED MOBILE Meteorological-satellite (space-to-Earth)			460-470 Meteorological-satellite (space-to-Earth)	460-462.5375 FIXED LAND MOBILE 5.289 US201 US209 NG124	Private Land Mobile (90)
				462.5375-462.7375 LAND MOBILE 5.289 US201	Personal Radio (95)
				462.7375-467.5375 FIXED LAND MOBILE 5.287 5.289 U S201 US209 US216 NG124	Private Land Mobile (90)
				467.5375-467.7375 LAND MOBILE 5.287 5.289 US201	Personal Radio (95)
				467.7375-470 FIXED LAND MOBILE	Private Land Mobile (90)
5.287 5.288 5.289 5.290			5.287 5.288 5.289 US201 US209 US216	5.288 5.289 US201 US216 NG124	

5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311 5.312				776-794 FIXED MOBILE BROADCASTING NG115 NG128 NG159	Wireless Communications (27) Broadcast Radio (TV) (73) Auxiliary Broadcast. (74) Private Land Mobile (90)
790-862 FIXED BROADCASTING				794-806 FIXED MOBILE NG115 NG128 NG158 NG159	Auxiliary Broadcasting (74) Private Land Mobile (90)
	5.293 5.309 5.311			806-821 FIXED LAND MOBILE NG31	Public Mobile (22) Private Land Mobile (90)
	806-890 FIXED MOBILE BROADCASTING			821-824 LAND MOBILE	Private Land Mobile (90)
5.312 5.314 5.315 5.316 5.319 5.321		5.149 5.305 5.306 5.307 5.311 5.320		824-849 FIXED LAND MOBILE	Public Mobile (22)
See next page for 862-890 MHz	5.317 5.318			See next page for 849-894 MHz	See next page for 866-896 MHz

849-941 MHz (UHF)					Page 39
International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
See previous pages for 790-862 MHz	See previous pages for 806-890 MHz	See previous pages for 610-890 MHz	See previous pages for 614-890 MHz	849-851 AERONAUTICAL MOBILE	Public Mobile (22)
				851-866 FIXED LAND MOBILE NG31	Public Mobile (22) Private Land Mobile (90)
862-890 FIXED MOBILE except aeronautical mobile BROADCASTING 5.322				866-869 LAND MOBILE	Private Land Mobile (90)
5.319 5.323				869-894 FIXED LAND MOBILE US116 US268	Public Mobile (22)
890-942 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation	890-902 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation	890-942 FIXED MOBILE 5.317A BROADCASTING Radiolocation	890-902	894-896 AERONAUTICAL MOBILE US116 US268	
				896-901 FIXED LAND MOBILE US116 US268	Private Land Mobile (90)
				901-902 FIXED MOBILE	Personal Communications (24)
	5.318 5.325		US116 US268 G2	US116 US268	

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International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
See previous page for 890-942 MHz	See previous page for 928-942 MHz	See previous page for 890-942 MHz	941-944 FIXED	941-944 FIXED	Public Mobile (22) Fixed Microwave (101)
942-960 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322	942-960 FIXED MOBILE 5.317A	942-960 FIXED MOBILE 5.317A BROADCASTING	US268 US301 US302 G2	US268 US301 US302 NG120	
5.323		5.320	944-960	944-960 FIXED NG120	Public Mobile (22) Auxiliary Broadcast. (74) Fixed Microwave (101)
960-1164 AERONAUTICAL RADIONAVIGATION 5.328			960-1164 AERONAUTICAL RADIONAVIGATION 5.328 US224		Aviation (87)
1164-1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.328A			1164-1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328A US224		
1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332			1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) Gxxx SPACE RESEARCH (active) 5.332	1215-1240 Earth exploration-satellite (active) Space research (active)	
1240-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.282 5.330 5.331 5.332 5.335 5.335A			1240-1300 AERONAUTICAL RADIONAVIGATION EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 SPACE RESEARCH (active) 5.332 5.335	1240-1300 AERONAUTICAL RADIONAVIGATION Amateur Earth exploration-satellite (active) Space research (active) 5.282	Amateur (97)

1300-1350 AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.149 5.337A		1300-1350 AERONAUTICAL RADIO-NAVIGATION 5.337 Radiolocation G2 US342	1300-1350 AERONAUTICAL RADIO-NAVIGATION 5.337 US342	Aviation (87)
1350-1400 FIXED MOBILE RADIOLOCATION	1350-1400 RADIOLOCATION	1350-1390 FIXED MOBILE RADIOLOCATION G2 5.334 5.339 US311 US342 G27 G114	1350-1390 5.334 5.339 US311 US342	
		1390-1395	1390-1392 FIXED MOBILE except aeronautical mobile Fixed-satellite (Earth-to-space) US368 5.339 US311 US342 US351	Wireless Communications (27)
			1392-1395 FIXED MOBILE except aeronautical mobile 5.339 US311 US342 US351	
5.149 5.338 5.339 5.339A	5.149 5.334 5.339 5.339A	1395-1400 LAND MOBILE US350 5.339 US311 US342 US351		Personal (95)
1400-1427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341		1400-1427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 US246		
1427-1429 SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.341		1427-1429.5 LAND MOBILE US350 5.341 US352	1427-1429.5 LAND MOBILE Fixed (telemetry) 5.341 US350 US352	Private Land Mobile (90) Personal (95)
See next page for 1429-1452 MHz				

1429.5-1610 MHz (UHF)					Page 43
International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
1429-1452 FIXED MOBILE except aeronautical mobile	1429-1452 FIXED MOBILE 5.343		1429.5-1432	1429.5-1430 FIXED (telemetry) LAND MOBILE (telemetry) 5.341 US350 US352	Private Land Mobile (90) Personal (95)
				1430-1432 FIXED (telemetry) LAND MOBILE (telemetry) Fixed-satellite (space-to-Earth) US368	
			5.341 US350 US352	5.341 US350 US352	
			1432-1435	1432-1435 FIXED MOBILE except aeronautical mobile	Wireless Communications (27)
			5.341 US361	5.341 US361	
5.339A 5.341 5.342	5.339A 5.341		1435-1525 MOBILE (aeronautical telemetry)		Aviation (87)
1452-1492 FIXED MOBILE except aeronautical mobile BROADCASTING 5.345 5.347 BROADCASTING-SATELLITE 5.345 5.347 5.347A	1452-1492 FIXED MOBILE 5.343 BROADCASTING 5.345 5.347 BROADCASTING-SATELLITE 5.345 5.347 5.347A				
5.341 5.342	5.341 5.344				
1492-1518 FIXED MOBILE except aeronautical mobile	1492-1518 FIXED MOBILE 5.343	1492-1518 FIXED MOBILE			
5.341 5.342	5.341 5.344	5.341			
1518-1525 FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.348C	1518-1525 FIXED MOBILE 5.343 MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.348C	1518-1525 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.348C			
5.341 5.342	5.341 5.344	5.341	5.341 US78		

1525-1530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.351A Earth exploration-satellite Mobile except aeronautical mobile 5.349 5.341 5.342 5.347A 5.350 5.351 5.352A 5.354	1525-1530 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.351A Earth exploration-satellite Fixed Mobile 5.343 5.341 5.347A 5.351 5.354	1525-1530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.351A Earth exploration-satellite Mobile 5.349 5.341 5.347A 5.351 5.352A 5.354	1525-1535 MOBILE-SATELLITE (space-to-Earth) US315 US380	Satellite Communications (25) Maritime (80)
1530-1535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.351A 5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile 5.341 5.342 5.347A 5.351 5.354	1530-1535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.351A 5.353A Earth exploration-satellite Fixed Mobile 5.343 5.341 5.347A 5.351 5.354		5.341 5.351	
1535-1559 MOBILE-SATELLITE (space-to-Earth) 5.351A 5.341 5.347A 5.351 5.353A 5.354 5.355 5.356 5.357 5.357A 5.359 5.362A			1535-1559 MOBILE-SATELLITE (space-to-Earth) US308 US309 US315 US380 5.341 5.351 5.356	Satellite Communications (25) Maritime (80) Aviation (87)
1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329A 5.341 5.362B 5.362C 5.363			1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.341 US208 US260	Aviation (87)

1610-1670 MHz (UHF)					Page 45
International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION 5.341 5.355 5.359 5.363 5.364 5.366 5.367 5.368 5.369 5.371 5.372	1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION- SATELLITE (Earth-to- space) 5.341 5.364 5.366 5.367 5.368 5.370 5.372	1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372	1610-1610.6 MOBILE-SATELLITE (Earth-to-space) US319 US380 AERONAUTICAL RADIONAVIGATION US260 RADIODETERMINATION-SATELLITE(Earth-to-space) 5.341 5.364 5.366 5.367 5.368 5.372 US208		Satellite Communications (25) Aviation (87)
1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION 5.149 5.341 5.355 5.359 5.363 5.364 5.366 5.367 5.368 5.369 5.371 5.372	1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIODETERMINATION- SATELLITE (Earth-to- space) 5.149 5.341 5.364 5.366 5.367 5.368 5.370 5.372	1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372	1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) US319 US380 RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION US260 RADIODETERMINATION-SATELLITE (Earth-to-space) 5.341 5.364 5.366 5.367 5.368 5.372 US208 US342		
1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.347A 5.341 5.355 5.359 5.363 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372	1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION- SATELLITE (Earth-to- space) Mobile-satellite (space-to- Earth) 5.347A 5.341 5.364 5.365 5.366 5.367 5.368 5.370 5.372	1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to- Earth) 5.347A Radiodetermination- satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.372	1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) US319 US380 AERONAUTICAL RADIONAVIGATION US260 RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) 5.341 5.364 5.365 5.366 5.367 5.368 5.372 US208		

1626.5-1660 MOBILE-SATELLITE (Earth-to-space) 5.351A 5.341 5.351 5.353A 5.354 5.355 5.357A 5.359 5.362A 5.374 5.375 5.376	1626.5-1660 MOBILE-SATELLITE (Earth-to-space) US308 US309 US315 US380 5.341 5.351 5.375	Satellite Communications (25) Maritime (80) Aviation (87)
1660-1660.5 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY 5.149 5.341 5.351 5.354 5.362A 5.376A	1660-1660.5 MOBILE-SATELLITE (Earth-to-space) US308 US309 US380 RADIO ASTRONOMY 5.341 5.351 US342	Satellite Communications (25) Aviation (87)
1660.5-1668 RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A	1660.5-1668.4 RADIO ASTRONOMY US74 SPACE RESEARCH (passive)	
1668-1668.4 MOBILE-SATELLITE (Earth-to-space) 5.348C 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A 5.379D	5.341 US246	
1668.4-1670 METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) 5.348C 5.379B 5.379C RADIO ASTRONOMY 5.149 5.341 5.379D 5.379E	1668.4-1670 METEOROLOGICAL AIDS (radiosonde) RADIO ASTRONOMY US74 5.341 US99 US342	

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International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
1670-1675 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE 5.380 MOBILE-SATELLITE (Earth-to-space) 5.348C 5.379B 5.341 5.379D 5.379E 5.380A			1670-1675 5.341 US211 US362	1670-1675 FIXED MOBILE except aeronautical mobile 5.341 US211 US362	Wireless Communications (27)
1675-1690 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341			1675-1700 METEOROLOGICAL AIDS (radiosonde) METEOROLOGICAL-SATELLITE (space-to-Earth)		
1690-1700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile 5.289 5.341 5.382	1690-1700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341 5.381		5.289 5.341 US211		
1700-1710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341		1700-1710 FIXED METEOROLOGICAL-SAT-ELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341 5.384	1700-1710 FIXED G118 METEOROLOGICAL-SAT-ELLITE (space-to-Earth) 5.289 5.341	1700-1710 METEOROLOGICAL-SAT-ELLITE (space-to-Earth) Fixed 5.289 5.341	
1710-1930 FIXED MOBILE 5.380 5.384A 5.388A			1710-1755 5.341 US311 US378	1710-1755 FIXED MOBILE 5.341 US311 US378	Wireless Communications (27)

			1755-1850 FIXED MOBILE G42	1755-1850	
5.149 5.341 5.385 5.386 5.387 5.388			1850-2025	1850-2000 FIXED MOBILE NG177	RF Devices (15) Personal Communications (24) Fixed Microwave (101)
1930-1970 FIXED MOBILE 5.388A 5.388	1930-1970 FIXED MOBILE 5.388A Mobile-satellite (Earth-to-space) 5.388	1930-1970 FIXED MOBILE 5.388A 5.388			
1970-1980 FIXED MOBILE 5.388A 5.388					
1980-2010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389B 5.389F				2000-2020 MOBILE-SATELLITE (Earth-to-space) US380 NG156	Satellite Communications (25)
2010-2025 FIXED MOBILE 5.388A 5.388	2010-2025 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.388 5.389C 5.389E 5.390	2010-2025 FIXED MOBILE 5.388A 5.388		2020-2025 FIXED MOBILE NG177	
2025-2110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392			2025-2110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) SPACE RESEARCH (Earth-to-space) (space-to-space) 5.391 5.392 US90 US222 US346 US347	2025-2110 FIXED NG118 MOBILE 5.391 5.392 US90 US222 US346 US347	TV Auxiliary Broadcasting (74F) Cable TV Relay (78) Local TV Transmission (101J)

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
2110-2120 FIXED MOBILE 5.388A SPACE RESEARCH (deep space) (Earth-to-space) 5.388			2110-2120 US252	2110-2155 FIXED MOBILE US252	Domestic Public Fixed (21) Public Mobile (22) Wireless Communications (27) Fixed Microwave (101)
2120-2160 FIXED MOBILE 5.388A 5.388	2120-2160 FIXED MOBILE 5.388A Mobile-satellite (space-to-Earth) 5.388	2120-2170 FIXED MOBILE 5.388A	2120-2200	2155-2160 FIXED	Domestic Public Fixed (21) Fixed Microwave (101)
2160-2170 FIXED MOBILE 5.388A 5.388 5.392A	2160-2170 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.388 5.389C 5.389E 5.390	5.388		2160-2180 FIXED NG153 MOBILE NG178	Domestic Public Fixed (21) Public Mobile (22) Fixed Microwave (101)
2170-2200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A 5.388 5.389A 5.389F 5.392A				2180-2200 MOBILE-SATELLITE (space-to-Earth) US380 NG168	Satellite Communications (25)
2200-2290 SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space)			2200-2290 SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED (line-of-sight only)	2200-2290	

2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A Radiolocation 5.150 5.371 5.397 5.398 5.399 5.400 5.402	2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.402	2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION Radiodetermination-satellite (space-to-Earth) 5.398 5.150 5.400 5.402	2483.5-2500 MOBILE-SATELLITE (space-to-Earth) US319 US380 RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.402 US41	2483.5-2500 MOBILE-SATELLITE (space-to-Earth) US319 US380 RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.402 US41 NG147	ISM Equipment (18) Satellite Communications (25) Private Land Mobile (90) Fixed Microwave (101)
2500-2520 FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.403 5.351A 5.405 5.407 5.412 5.414	2500-2520 FIXED 5.409 5.411 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.403 5.351A 5.404 5.407 5.414 5.415A		2500-2655	2500-2655 FIXED US205 MOBILE except aeronautical mobile	Domestic Public Fixed (21) Instructional TV Fixed (74)
2520-2655 FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.403 5.405 5.412 5.418AC 5.418AD 5.418B 5.418C	2520-2655 FIXED 5.409 5.411 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.403 5.418AC 5.418AD 5.418B 5.418C	2520-2535 FIXED 5.409 5.411 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.403 5.415A 2535-2655 FIXED 5.409 5.411 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.418 5.418AA 5.418AB 5.418AC 5.418AD 5.418A 5.418B 5.418C	5.339 US205	5.339	

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2655-2670 FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.347A 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.412 5.420	2655-2670 FIXED 5.409 5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.347A 5.420	2655-2670 FIXED 5.409 5.411 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.347A 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.420	2655-2690 Earth exploration-satellite (passive) Radio astronomy US269 Space research (passive)	2655-2690 FIXED US205 MOBILE except aeronautical mobile Earth exploration-satellite (passive) Radio astronomy Space research (passive)	Domestic Public Fixed (21) Instructional TV Fixed (74)
2670-2690 FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.412 5.419 5.420	2670-2690 FIXED 5.409 5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.347A 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.419 5.420	2670-2690 FIXED 5.409 5.411 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.419 5.420 5.420A	US205	US269	
2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.422			2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
2700-2900 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423 5.424			2700-2900 AERONAUTICAL RADIONAVIGATION 5.337 METEOROLOGICAL AIDS Radiolocation G2 5.423 US18 G15	2700-2900 5.423 US18	

2900-3100 RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427			2900-3100 RADIOLOCATION 5.424A G56 MARITIME RADIONAVIGATION 5.427 US44 US316	2900-3100 MARITIME RADIONAVIGATION Radiolocation US44 5.5427 US316	Maritime (80) Private Land Mobile (90)
3100-3300 RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149 5.428			3100-3300 RADIOLOCATION G59 Earth exploration-satellite (active) Space research (active) US342	3100-3300 Radiolocation Earth exploration-satellite (active) Space research (active) US342	Private Land Mobile (90)
3300-3400 RADIOLOCATION 5.149 5.429 5.430	3300-3400 RADIOLOCATION Amateur Fixed Mobile 5.149 5.430	3300-3400 RADIOLOCATION Amateur 5.149 5.429	3300-3500 RADIOLOCATION US108 G31 US342	3300-3500 Amateur Radiolocation US108 5.282 US342	Private Land Mobile (90) Amateur (97)
3400-3600 FIXED FIXED-SATELLITE (space-to-Earth) Mobile Radiolocation 5.431	3400-3500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile Radiolocation 5.433 5.282 5.432				
3600-4200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile	3500-3700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433		3500-3650 RADIOLOCATION G59 AERONAUTICAL RADIONAVIGATION (ground-based) G110 US245	3500-3600 Radiolocation 3600-3650 FIXED-SATELLITE (space-to-Earth) US245 Radiolocation	Private Land Mobile (90)
	5.435		3650-3700 US245 US348 US349	3650-3700 FIXED FIXED-SATELLITE (space-to-Earth) NG169 MOBILE except aeronautical mobile NG170 US245 US348 US349	
	3700-4200 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile		3700-4200	3700-4200 FIXED NG41 FIXED-SATELLITE (space-to-Earth)	International Fixed (23) Satellite Communi. (25) Fixed Microwave (101)

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Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
4200-4400 AERONAUTICAL RADIONAVIGATION 5.438 5.437 5.439 5.440			4200-4400 AERONAUTICAL RADIONAVIGATION 5.440 US261		Aviation (87)
4400-4500 FIXED MOBILE			4400-4500 FIXED MOBILE	4400-4500	
4500-4800 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE			4500-4800 FIXED MOBILE US245	4500-4800 FIXED-SATELLITE (space-to-Earth) 5.441 US245	
4800-4990 FIXED MOBILE 5.442 Radio astronomy			4800-4940 FIXED MOBILE US203 US342	4800-4940 US203 US342	
			4940-4990	4940-4990 FIXED MOBILE except aeronautical mobile	Private Land Mobile (90) Fixed Microwave (101)
5.149 5.339 5.443			5.339 US311 US342 G122	5.339 US311 US342	
4990-5000 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149			4990-5000 RADIO ASTRONOMY US74 Space research (passive) US246		
5000-5010 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367			5000-5010 AERONAUTICAL RADIONAVIGATION US260 RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367 US211 US344		Satellite Communications (25) Aviation (87)
5010-5030 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B 5.367			5010-5030 AERONAUTICAL RADIONAVIGATION US260 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.443B 5.367 US211 US344		
5030-5150 AERONAUTICAL RADIONAVIGATION 5.367 5.444 5.444A			5030-5250 AERONAUTICAL RADIO- NAVIGATION US260	5030-5150 AERONAUTICAL RADIO- NAVIGATION US260 5.367 5.444 5.444A US211 US344	

5150-5250 AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B 5.446 5.447 5.447B 5.447C	5.367 5.444 US211 US307 US344	5150-5250 AERONAUTICAL RADIO-NAVIGATION US260 FIXED-SATELLITE (Earth-to-space) 5.447A US344 5.447C US211 US307	RF Devices (15) Satellite Communications (25) Aviation (87)
5250-5255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448 5.448A	5250-5255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.447D 5.448A	5250-5255 Earth exploration-satellite (active) Radiolocation Space research 5.558A	RF Devices (15) Private Land Mobile (90)
5255-5350 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448 5.448A	5255-5350 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.448A	5255-5350 Earth exploration-satellite (active) Radiolocation Space research (active) 5.448A	
5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D	5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) AERONAUTICAL RADIO-NAVIGATION 5.449 RADIOLOCATION G56 US390 G130	5350-5460 AERONAUTICAL RADIO-NAVIGATION 5.449 Earth exploration-satellite (active) 5.448B Space research (active) Radiolocation US390	Aviation (87) Private Land Mobile (90)
5460-5470 RADIONAVIGATION 5.449 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.448D 5.448B	5460-5470 RADIONAVIGATION 5.449 US65 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION G56 5.448B US49 G130	5460-5470 RADIONAVIGATION 5.449 US65 Earth exploration-satellite (active) Space research (active) Radiolocation 5.448B US49	Private Land Mobile (90)
5470-5570 MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.448B 5.450 5.451 5.452	5470-5570 MARITIME RADIONAVIGATION US65 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION G56 5.448B US50 G131	5470-5570 MARITIME RADIONAVIGATION US65 RADIOLOCATION Earth exploration-satellite (active) Space research (active) US50	RF Devices (15) Maritime (80) Private Land Mobile (90)

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International Table			United States Table		FCC Rule Part(s)
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5570-5650 MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B			5570-5600 MARITIME RADIONAVIGATION US65 RADIOLOCATION G56 US50 G131	5570-5600 MARITIME RADIONAVIGATION US65 RADIOLOCATION US50	RF Devices (15) Maritime (80) Private Land Mobile (90)
			5600-5650 MARITIME RADIONAVIGATION US65 METEOROLOGICAL AIDS RADIOLOCATION G56	5600-5650 MARITIME RADIONAVIGATION US65 METEOROLOGICAL AIDS RADIOLOCATION	
5.450 5.451 5.452			5.452 US50 G131	5.452 US50	
5650-5725 RADIOLOCATION MOBILE except aeronautical mobile 5.446A 5.450A Amateur Space research (deep space) 5.282 5.451 5.453 5.454 5.455			5650-5925 RADIOLOCATION G2	5650-5830 Amateur	RF Devices (15) ISM Equipment (18) Amateur (97)
5725-5830 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur	5725-5830 RADIOLOCATION Amateur				
5.150 5.451 5.453 5.455 5.456	5.150 5.453 5.455			5.150 5.282	
5830-5850 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth)	5830-5850 RADIOLOCATION Amateur Amateur-satellite (space-to-Earth)			5830-5850 Amateur Amateur-satellite (space-to-Earth)	ISM Equipment (18) Amateur (97)
5.150 5.451 5.453 5.455 5.456	5.150 5.453 5.455			5.150	
5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Amateur Radiolocation	5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Radiolocation		5850-5925 FIXED-SATELLITE (Earth-to-space) US245 MOBILE NG160 Amateur	ISM Equipment (18) Private Land Mobile (90) Personal Radio (95) Amateur (97)
5.150	5.150	5.150	5.150 US245	5.150	
5925-6700 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B MOBILE			5925-6425	5925-6425 FIXED NG41 FIXED-SATELLITE (Earth-to-space)	International Fixed (23) Satellite Commun. (25) Fixed Microwave (101)

5.149 5.440 5.458	6425-6525 5.440 5.458	6425-6525 FIXED-SATELLITE (Earth-to-space) MOBILE 5.440 5.458	Auxiliary Broadcasting (74) Cable TV Relay (78) Fixed Microwave (101)
	6525-6700 5.458 US342	6525-6700 FIXED FIXED-SATELLITE (Earth-to-space) 5.458 US342	Satellite Communications (25) Fixed Microwave (101)
6700-7075 FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE	6700-7125	6700-6875 FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 5.458 5.458A 5.458B	
		6875-7025 FIXED NG118 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE NG171 5.458 5.458A 5.458B	Satellite Communications (25) Auxiliary Broadcasting (74) Cable TV Relay (78)
5.458 5.458A 5.458B 5.458C		7025-7075 FIXED NG118 FIXED-SATELLITE (Earth-to-space) NG172 MOBILE NG171 5.458 5.458A 5.458B	
7075-7145 FIXED MOBILE 5.458 5.459	5.458	7075-7125 FIXED NG118 MOBILE NG171 5.458	Auxiliary Broadcasting (74) Cable TV Relay (78)
	7125-7145 FIXED 5.458 G116	7125-7190	
7145-7235 FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460	7145-7190 FIXED SPACE RESEARCH (deep space) (Earth-to-space) US262 5.458 G116	5.458 US262	
5.458 5.459	See next page for 7190-7235 MHz	See next page for 7190-7250	

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See previous page for 7145-7235 MHz			7190-7235 FIXED SPACE RESEARCH (Earth-to-space) Gyyy 5.458	7190-7250	
7235-7250 FIXED MOBILE 5.458			7235-7250 FIXED 5.458	 5.458	
7250-7300 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 5.461			7250-7300 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Fixed G117	7250-8025	
7300-7450 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461			7300-7450 FIXED FIXED-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth) G117		
7450-7550 FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461A			7450-7550 FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SAT- ELLITE (space-to-Earth) Mobile-satellite (space-to-Earth) G104 G117		
7550-7750 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile			7550-7750 FIXED FIXED-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth) G117		

7750-7850 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile	7750-7850 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B	
7850-7900 FIXED MOBILE except aeronautical mobile	7850-7900 FIXED	
7900-8025 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.461	7900-8025 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Fixed G117	
8025-8175 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A	8025-8175 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space) (no airborne transmissions) US258 G117	8025-8215
8175-8215 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A	8175-8215 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space) (no airborne transmissions) US258 G104 G117	US258

International Table			United States Table		FCC Rule Part(s)
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8215-8400 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A			8215-8400 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space) (no airborne transmissions) US258 G117	8215-8400 US258	
8400-8500 FIXED 5.486 MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.465 5.466			8400-8450 FIXED SPACE RESEARCH (space-to-Earth) (deep space only)	8400-8450 Space research (space-to-Earth) (deep space only)	
			8450-8500 FIXED SPACE RESEARCH (space-to-Earth)	8450-8500 SPACE RESEARCH (space-to-Earth)	
8500-8550 RADIOLOCATION 5.468 5.469			8500-8550 RADIOLOCATION G59	8500-8550 Radiolocation	
8550-8650 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.468 5.469 5.469A			8550-8650 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active)	8550-8650 Earth exploration-satellite (active) Radiolocation Space research (active)	
8650-8750 RADIOLOCATION 5.468 5.469			8650-9000 RADIOLOCATION G59	8650-9000 Radiolocation	
8750-8850 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470 5.471					

10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484 MOBILE except aeronautical mobile	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile		10.7-11.7 US211	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 US211 NG104 US355	Satellite Communications (25) Fixed Microwave (101)
11.7-12.5 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE	11.7-12.1 FIXED 5.486 FIXED-SATELLITE (space-to-Earth) 5.484A Mobile except aeronautical mobile 5.485 5.488	11.7-12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE	11.7-12.1 5.486	11.7-12.2 FIXED-SATELLITE (space-to-Earth) NG143 NG145 Mobile except aeronautical mobile	
	12.1-12.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.485 5.488 5.489	5.487 5.487A 5.492	12.1-12.2	5.486 5.488	
5.487 5.487A 5.492	12.2-12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE	12.2-12.5 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING 5.484A 5.487	12.2-12.7	12.2-12.7 FIXED BROADCASTING-SATELLITE	
12.5-12.75 FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.494 5.495 5.496	5.487A 5.488 5.490 5.492	12.5-12.75 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A	5.490	5.487A 5.488 5.490	
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12.75-13.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth)			12.75-13.25 US251	12.75-13.25 FIXED NG118 FIXED-SATELLITE (Earth-to-space) 5.441 NG104 MOBILE US251 NG53	
13.25-13.4 EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A 5.499			13.25-13.4 EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIO-NAVIGATION 5.497 SPACE RESEARCH (active) 5.498A	13.25-13.4 AERONAUTICAL RADIO-NAVIGATION 5.497 Earth exploration-satellite (active) Space research (active)	Aviation (87)
13.4-13.75 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.500 5.501 5.501B			13.4-13.75 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.501B	13.4-13.75 Earth exploration-satellite (active) Radiolocation Space research Standard frequency and time signal-satellite (Earth-to-space)	Private Land Mobile (90)
13.75-14 FIXED-SATELLITE (Earth-to-space) 5.484A RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research 5.499 5.500 5.501 5.502 5.503			13.75-14 RADIOLOCATION G59 Standard frequency and time signal-satellite (Earth-to-space) Space research US337 US356 US357	13.75-14 FIXED-SATELLITE (Earth-to-space) US337 Radiolocation Standard frequency and time signal-satellite (Earth-to-space) Space research US356 US357	Satellite Communications (25) Private Land Mobile (90)

14-14.25 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504C 5.506A Space research 5.504A 5.505			14-14.2 RADIONAVIGATION US292 Space research	14-14.2 FIXED-SATELLITE (Earth-to-space) RADIONAVIGATION US292 Mobile-satellite (Earth-to-space) Space research	Satellite Communications (25) Maritime (80) Aviation (87)
14.25-14.3 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.506A 5.508A Space research 5.504A 5.505 5.508 5.509			14.2-14.4	14.2-14.4 FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space) Mobile except aeronautical mobile	Satellite Communications (25) Fixed Microwave (101)
14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A 5.509A Radionavigation-satellite 5.504A	14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A 5.509A Radionavigation-satellite 5.504A			
14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A 5.509A Space research (space-to-Earth) 5.504A			14.4-14.47 Fixed Mobile	14.4-14.47 FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space)	Satellite Communications (25)
14.47-14.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy 5.149 5.504A			14.47-14.5 Fixed Mobile US203 US342	14.47-14.5 FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space) US203 US342	

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Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
14.5-14.8 FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research			14.5-14.7145 FIXED Mobile Space research 14.7145-14.8 MOBILE Fixed Space research	14.5-14.8	
14.8-15.35 FIXED MOBILE Space research			14.8-15.1365 MOBILE SPACE RESEARCH Fixed US310	14.8-15.1365 US310	
5.339			15.1365-15.35 FIXED SPACE RESEARCH Mobile 5.339 US211	15.1365-15.35 5.339 US211	
15.35-15.4 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.511			15.35-15.4 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
15.4-15.43 AERONAUTICAL RADIONAVIGATION 5.511D			15.4-15.43 AERONAUTICAL RADIONAVIGATION US260 US211		Aviation (87)
15.43-15.63 FIXED SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION 5.511C			15.43-15.63 AERONAUTICAL RADIO-NAVIGATION US260 5.511C US211 US359	15.43-15.63 FIXED SATELLITE (Earth-to-space) AERONAUTICAL RADIO-NAVIGATION US260 5.511C US211 US359	Satellite Communications (25) Aviation (87)
15.63-15.7 AERONAUTICAL RADIONAVIGATION 5.511D			15.63-15.7 AERONAUTICAL RADIONAVIGATION US260 US211		Aviation (87)
15.7-16.6 RADIOLOCATION 5.512 5.513			15.7-16.6 RADIOLOCATION G59	15.7-17.2 Radiolocation	Private Land Mobile (90)

16.6-17.1 RADIOLOCATION Space research (deep space) (Earth-to-space) 5.512 5.513			16.6-17.1 RADIOLOCATION G59 Space research (deep Space) (Earth-to-space)		
17.1-17.2 RADIOLOCATION 5.512 5.513			17.1-17.2 RADIOLOCATION G59		
17.2-17.3 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513 5.513A			17.2-17.3 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active)	17.2-17.3 Radiolocation Earth exploration-satellite (active) Space research (active)	
17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) 5.516A 5.516B Radiolocation 5.514	17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 BROADCASTING-SATELLITE Radiolocation 5.514 5.515 5.517	17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 Radiolocation 5.514	17.3-17.7 Radiolocation US259 G59	17.3-17.7 FIXED-SATELLITE (Earth-to-space) US271 BROADCASTING-SATELLITE NG163 NG167 US259	Satellite Communications (25)
17.7-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	17.7-17.8 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.516 BROADCASTING-SATELLITE Mobile 5.518 5.515 5.517	17.7-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	17.7-17.8	17.7-17.8 FIXED FIXED-SATELLITE (Earth-to-space) US271 NG144	Satellite Communications (25) Auxiliary Broadcasting (74) Cable TV Relay (78) Fixed Microwave (101)
	17.8-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE		17.8-18.3 FIXED-SATELLITE (space-to-Earth) US334 G117 5.519	17.8-18.3 FIXED 5.519 US334 NG144	Auxiliary Broadcasting (74) Cable TV Relay (78) Fixed Microwave (101)
18.1-18.4 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B (Earth-to-space) 5.520 MOBILE 5.519 5.521			See next page for 18.3-18.6 GHz	See next page for 18.3-18.58 GHz	See next page for 18.3-18.58 GHz

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18.4-18.6 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE					
18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A 5.522C	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.522B MOBILE except aeronautical mobile SPACE RESEARCH (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) US255 US334 G117 SPACE RESEARCH (passive) US254	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) US255 NG164 SPACE RESEARCH (passive) US254 US334 NG144	
18.8-19.3 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.523A MOBILE			18.8-20.2 FIXED-SATELLITE (space-to-Earth) US334 G117	18.8-19.3 FIXED-SATELLITE (space-to-Earth) NG165 US334 NG144	
19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-space) 5.523B 5.523C 5.523D 5.523E MOBILE				19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) NG166 US334 NG144	Satellite Communications (25) Auxiliary Broadcast. (74) Cable TV Relay (78) Fixed Microwave (101)
19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth) 5.524	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 5.529	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth) 5.524		19.7-20.1 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528 5.529 US334	Satellite Communications (25)

20.1-20.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528				20.1-20.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528 US334	
20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) 5.524				20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) G117	20.2-21.2 Standard frequency and time signal-satellite (space-to-Earth)	
21.2-21.4 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)				21.2-21.4 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) US263		Fixed Microwave (101)
21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.347A 5.530	21.4-22 FIXED MOBILE	21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.347A 5.530 5.531		21.4-22 FIXED MOBILE		
22-22.21 FIXED MOBILE except aeronautical mobile 5.149				22-22.21 FIXED MOBILE except aeronautical mobile US342		
22.21-22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532				22.21-22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) US342 US263		

24.45-24.75 FIXED INTER-SATELLITE	24.45-24.65 INTER-SATELLITE RADIONAVIGATION 5.533	24.45-24.65 FIXED INTER-SATELLITE MOBILE RADIONAVIGATION 5.533	24.45-24.65 INTER-SATELLITE RADIONAVIGATION 5.533		Satellite Communications (25)
	24.65-24.75 INTER-SATELLITE RADIOLOCATION-SATEL- LITE (Earth-to-space)	24.65-24.75 FIXED INTER-SATELLITE MOBILE 5.533	24.65-24.75 INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)		
24.75-25.25 FIXED	24.75-25.25 FIXED-SATELLITE (Earth-to-space) 5.535	24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE	24.75-25.05 RADIONAVIGATION	24.75-25.05 FIXED-SATELLITE (Earth-to-space) NG167 RADIONAVIGATION	Satellite Communications (25) Aviation (87)
			25.05-25.25	25.05-25.25 FIXED-SATELLITE (Earth-to-space) NG167 FIXED	Satellite Communications (25) Fixed Microwave (101)
25.25-25.5 FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)			25.25-25.5 FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	25.25-25.5 Inter-satellite 5.536 Standard frequency and time signal-satellite (Earth-to-space)	
25.5-27 EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536B FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536A			25.5-27 EARTH EXPLORATION- SATELLITE (space-to-Earth) FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) Standard frequency and time signal-satellite (Earth-to-space) 5.536A US258	25.5-27 Inter-satellite 5.536 Standard frequency and time signal-satellite (Earth-to-space) 5.536A US258	
27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE		27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 Inter-satellite 5.536	

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27.5-28.5 FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540			27.5-30	27.5-29.5 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	Satellite Communications (25) Fixed Microwave (101)
28.5-29.1 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540					
29.1-29.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540					
29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.525 5.526 5.527 5.529 5.540 5.542	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542		29.5-29.9 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) 5.525 5.526 5.527 5.529	Satellite Communications (25)
29.9-30 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542				29.9-30 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) 5.525 5.526 5.527 5.543	

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International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
32-32.3 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547C 5.548			32-32.3 RADIONAVIGATION US69 SPACE RESEARCH (deep space) (space-to-Earth) US262 US386	32-32.3 SPACE RESEARCH (deep space) (space-to-Earth) US262 US386	
32.3-33 FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.547D 5.548			32.3-33 INTER-SATELLITE US278 RADIONAVIGATION US69 US386		Aviation (87)
33-33.4 FIXED 5.547A RADIONAVIGATION 5.547 5.547E			33-33.4 RADIONAVIGATION US69 US360 G117		
33.4-34.2 RADIOLOCATION 5.549			33.4-34.2 RADIOLOCATION US360 G117	33.4-34.2 Radiolocation US360	Private Land Mobile (90)
34.2-34.7 RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) 5.549			34.2-34.7 RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) US262 US360 G34 G117	34.2-34.7 Radiolocation Space research (deep space) (Earth-to-space) US262 US360	
34.7-35.2 RADIOLOCATION Space research 5.550 5.549			34.7-35.5 RADIOLOCATION	34.7-35.5 Radiolocation	
35.2-35.5 METEOROLOGICAL AIDS RADIOLOCATION 5.549			US360 G117	US360	
35.5-36 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A			35.5-36 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) US360 G117	35.5-36 Earth exploration-satellite (active) Radiolocation Space research (active) US360	

		45.5-46.9 MOBILE MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE 5.554	RF Devices (15)
5.554		46.9-47 MOBILE MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE 5.554	46.9-47 MOBILE MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE FIXED 5.554	
47-47.2 AMATEUR AMATEUR-SATELLITE		47-48.2	47-47.2 AMATEUR AMATEUR-SATELLITE	Amateur (97)
47.2-47.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A			47.2-48.2 FIXED FIXED-SATELLITE (Earth-to-space) US297 MOBILE	Satellite Communications (25)
47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A MOBILE	47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE			
47.9-48.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A				
48.2-48.54 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A MOBILE 5.555B	48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.552 MOBILE	48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) US297 MOBILE US264		
48.54-49.44 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.149 5.340 5.555 5.555B				
See next page	5.149 5.340 5.555 5.555B	5.555 US342		

50.2-65 GHz (EHF)					Page 79
International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
49.44-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A MOBILE 5.555B	See previous page for 48.2-50.2 GHz		See previous page for 48.2-50.2 GHz		See previous page for 47.2-50.2 GHz
50.2-50.4 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340			50.2-50.4 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US246		
50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Mobile-satellite (Earth-to-space)			50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) G117	50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space)	
51.4-52.6 FIXED MOBILE 5.547 5.556			51.4-52.6 FIXED MOBILE		
52.6-54.25 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556			52.6-54.25 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US246		
54.25-55.78 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive) 5.556B			54.25-55.78 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive)		
55.78-56.9 EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			55.78-56.9 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) US263 US353		
56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive)			56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE G128 MOBILE 5.558	56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE 5.558 SPACE RESEARCH	

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INTERNATIONAL FOOTNOTES

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5.56 The stations of services to which the bands 14–19.95 kHz and 20.05–70 kHz and in Region 1 also the bands 72–84 kHz and 86–90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, the Czech Rep., Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions.

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5.68 *Alternative allocation:* In Angola, Burundi, Congo (Rep. of the), Malawi, Dem. Rep. of the Congo, Rwanda and South Africa, the band 160–200 kHz is allocated to the fixed service on a primary basis.

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5.70 *Alternative allocation:* In Angola, Botswana, Burundi, Cameroon, the Central African Rep., Congo (Rep. of the), Ethiopia, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Tanzania, Chad, Zambia and Zimbabwe, the band 200–283.5 kHz is allocated to the aeronautical radionavigation service on a primary basis.

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5.87 *Additional allocation:* In Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland and Zimbabwe, the band 526.5–535 kHz is also allocated to the mobile service on a secondary basis.

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5.96 In Germany, Armenia, Austria, Azerbaijan, Belarus, Denmark, Estonia, the Russian Federation, Finland, Georgia, Hungary, Ireland, Iceland, Israel, Kazakhstan, Latvia, Liechtenstein, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., the United Kingdom, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the bands 1715–1800 kHz and 1850–2000 kHz. However, when allocating the bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W.

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5.98 *Alternative allocation:* In Angola, Armenia, Azerbaijan, Belarus, Belgium, Bulgaria, Cameroon, Congo (Rep. of the), Denmark, Egypt, Eritrea, Spain, Ethiopia, the Russian Federation, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, Moldova, Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Tunisia, Turkmenistan, Turkey and Ukraine, the band 1810–1830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.99 *Additional allocation:* In Saudi Arabia, Austria, Bosnia and Herzegovina, Iraq, Libyan Arab Jamahiriya, Uzbekistan, Slovakia, Romania, Serbia and Montenegro, Slovenia, Chad, and Togo, the band 1810–1830 kHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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5.107 *Additional allocation:* In Saudi Arabia, Eritrea, Ethiopia, Iraq, Lesotho, Libyan Arab Jamahiriya, Somalia and Swaziland, the band 2160–2170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of stations in these services shall not exceed 50 W.

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5.112 *Alternative allocation:* I Bosnia and Herzegovina, Denmark, Malta, Serbia and Montenegro, and Sri Lanka, the band 2194–2300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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5.114 *Alternative allocation:* In Bosnia and Herzegovina, Denmark, Iraq, Malta, and Serbia and Montenegro, the band 2502–2625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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5.117 *Alternative allocation:* In Bosnia and Herzegovina, Côte d'Ivoire, Denmark, Egypt, Liberia, Malta, Serbia and Montenegro, Sri Lanka and Togo, the band 3155–3200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.118 *Additional allocation:* In the United States, Mexico, Peru and Uruguay, the band 3230–3400 kHz is also allocated to the radiolocation service on a secondary basis.

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5.134 The use of the bands 5900–5950 kHz, 7300–7350 kHz, 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 13570–13600 kHz, 13800–13870 kHz, 15600–15800 kHz, 17480–17550 kHz and 18900–19020 kHz by the broadcasting service as from 1 April 2007 is subject to the application of the procedure of Article 12. Administrations are urged to use these bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution 517 (Rev. WRC–03).

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5.138A Until 29 March 2009, the band 6765–7000 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. After this date, this band is allocated to the fixed and the mobile except aeronautical mobile (R) services on a primary basis.

5.139 *Different category of service:* until 29 March 2009, in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 6765–7000 kHz to the land mobile service is on a primary basis (see No. 5.33).

5.140 *Additional allocation:* In Angola, Iraq, Kenya, Rwanda, Somalia and Togo, the band 7000–7050 kHz is also allocated to the fixed service on a primary basis.

5.141A *Additional allocation:* In Uzbekistan and Kyrgyzstan, the bands 7000–7100 kHz and 7100–7200 kHz are also allocated to the fixed and land mobile services on a secondary basis.

5.141B *Additional allocation:* After 29 March 2009, in Algeria, Saudi Arabia, Australia, Bahrain, Botswana, Brunei Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United Arab Emirates, Eritrea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, Libyan Arab Jamahiriya, Morocco, Mauritania, New Zealand, Oman, Papua New Guinea, Qatar, Syrian Arab Republic, Singapore, Sudan, Tunisia, Viet Nam and Yemen, the band 7100–7200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis.

5.141C In Regions 1 and 3, the band 7100–7200 kHz is allocated to the broadcasting service until 29 March 2009 on a primary basis.

5.142 Until 29 March 2009, the use of the band 7100–7300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. After 29 March 2009 the use of the band 7200–7300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.

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5.143A In Region 3, the band 7350–7450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.143B In Region 1, the band 7350–7450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, on condition that harmful interference is not caused to the broadcasting service, frequencies in the band 7350–7450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located, each station using a total radiated power that shall not exceed 24 dBW.

5.143C *Additional allocation:* After 29 March 2009 in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), Jordan, Kuwait, Libyan Arab Jamahiriya, Morocco, Mauritania, Oman, Qatar, Syrian Arab Republic, Sudan, Tunisia and Yemen, the bands 7350–7400 kHz and 7400–7450 kHz are also allocated to the fixed service on a primary basis.

5.143D In Region 2, the band 7350–7400 kHz is allocated, until 29 March 2009, to the

fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.143E Until 29 March 2009, the band 7450–8100 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis.

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5.152 *Additional allocation:* In Armenia, Azerbaijan, China, Côte d'Ivoire, the Russian Federation, Georgia, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 14250–14350 kHz is also allocated to the fixed service on a primary basis. Stations of the fixed service shall not use a radiated power exceeding 24 dBW.

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5.154 *Additional allocation:* In Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 18068–18168 kHz is also allocated to the fixed service on a primary basis for use within their boundaries, with a peak envelope power not exceeding 1 kW.

5.155 *Additional allocation:* In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Rep., Tajikistan, Turkmenistan and Ukraine, the band 21850–21870 kHz is also allocated to the aeronautical mobile (R) services on a primary basis.

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5.163 *Additional allocation:* In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Rep., Tajikistan, Turkmenistan and Ukraine, the bands 47–48.5 MHz and 56.5–58 MHz are also allocated to the fixed and land mobile services on a secondary basis.

5.164 *Additional allocation:* In Albania, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libyan Arab Jamahiriya, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, the United Kingdom, Serbia and Montenegro, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the band 47–68 MHz, in Romania the band 47–58 MHz, in South Africa the band 47–50 MHz, and in the Czech Rep. the band 66–68 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band.

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5.174 *Alternative allocation:* In Bulgaria, Hungary and Romania, the band 68–73 MHz is allocated to the broadcasting service on a primary basis and used in accordance with the decisions in the Final Acts of the Special Regional Conference (Geneva, 1960).

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5.177 *Additional allocation:* In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Kazakhstan, Latvia, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 73–74 MHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. 9.21.

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5.179 *Additional allocation:* In Armenia, Azerbaijan, Belarus, Bulgaria, China, the Russian Federation, Georgia, Kazakhstan, Lithuania, Moldova, Mongolia, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the bands 74.6–74.8 MHz and 75.2–75.4 MHz are also allocated to the aeronautical radionavigation service, on a primary basis, for ground-based transmitters only.

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5.181 *Additional allocation:* In Egypt, Israel and Syrian Arab Republic, the band 74.8–75.2 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. 9.21. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. 9.21.

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5.203B *Additional allocation:* In Saudi Arabia, United Arab Emirates, Oman and Syrian Arab Republic, the band 136–137 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis until 1 January 2005.

5.204 *Different category of service:* In Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Malaysia, Oman, Pakistan, the Philippines, Qatar, Serbia and Montenegro, Singapore, Thailand and Yemen, the band 137–138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. 5.33).

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5.210 *Additional allocation:* In France, Italy, the Czech Rep. and the United Kingdom, the bands 138–143.6 MHz and 143.65–144 MHz are also allocated to the space research service (space-to-Earth) on a secondary basis.

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5.212 *Alternative allocation:* In Angola, Botswana, Burundi, Cameroon, the Central African Rep., Congo (Rep. of the), Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Lesotho, Liberia, Libyan Arab Jamahiriya, Malawi, Mozambique, Namibia, Oman, Uganda, Dem. Rep. of the Congo, Rwanda, Sierra Leone, South Africa, Swaziland, Chad, Togo, Zambia and Zimbabwe, the band 138–144 MHz is allocated to the fixed and mobile services on a primary basis.

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5.221 Stations of the mobile-satellite service in the band 148–149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Libyan Arab Jamahiriya, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, Syrian Arab Republic, Kyrgyzstan, Slovakia, Romania, the United Kingdom, Senegal, Serbia and Montenegro, Sierra Leone, Singapore, Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia, and Zimbabwe.

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5.237 *Additional allocation:* In Congo (Rep. of the), Eritrea, Ethiopia, Gambia, Guinea, Libyan Arab Jamahiriya, Malawi, Mali, Sierra Leone, Somali, Chad and Zimbabwe, the band 174–223 MHz is also allocated to the fixed and mobile services on a secondary basis.

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5.254 The bands 235–322 MHz and 335.4–399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. 9.21, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations except for the additional allocation made in footnote No. 5.256A.

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5.256A *Additional allocation:* In China, the Russian Federation, Kazakhstan and Ukraine, the band 258–261 MHz is also allocated to the space research service (Earth-to-space) and space operation service (Earth-

to-space) on a primary basis. Stations in the space research service (Earth-to-space) and space operation service (Earth-to-space) shall not cause harmful interference to, nor claim protection from, nor constrain the use and development of the mobile service systems and mobile-satellite service systems operating in the band. Stations in space research service (Earth-to-space) and space operation service (Earth-to-space) shall not constrain the future development of fixed service systems of other countries.

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5.262 *Additional allocation:* In Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Botswana, Bulgaria, Colombia, Costa Rica, Cuba, Egypt, the United Arab Emirates, Ecuador, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Liberia, Malaysia, Moldova, Uzbekistan, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, Romania, Serbia and Montenegro, Singapore, Somalia, Tajikistan, Turkmenistan and Ukraine, the band 400.05–401 MHz is also allocated to the fixed and mobile services on a primary basis.

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5.271 *Additional allocation:* In Azerbaijan, Belarus, China, India, Latvia, Lithuania, Kyrgyzstan and Turkmenistan, the band 420–460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis.

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5.273 *Different category of service:* In Libyan Arab Jamahiriya, the allocation of the bands 430–432 MHz and 438–440 MHz to the radiolocation service is on a secondary basis (see No. 5.32).

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5.277 *Additional allocation:* In Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo (Rep. of the), Djibouti, the Russian Federation, Georgia, Hungary, Israel, Kazakhstan, Mali, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the band 430–440 MHz is also allocated to the fixed service on a primary basis.

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5.279A The use of this band by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU–R SA.1260–1. Additionally, the Earth exploration-satellite service (active) in the band 432–438 MHz shall not cause harmful interference to the aeronautical radionavigation service in China.

The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. 5.29 and 5.30.

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5.288 In the territorial waters of the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of the equipment used shall conform to those specified in Recommendation ITU–R M.1174–1.

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5.294 *Additional allocation:* In Burundi, Cameroon, Congo (Rep. of the), Côte d'Ivoire, Ethiopia, Israel, Kenya, Lebanon, Libyan Arab Jamahiriya, Malawi, Syrian Arab Republic, Sudan, Chad and Yemen, the band 470–582 MHz is also allocated to the fixed service on a secondary basis.

5.296 *Additional allocation:* In Germany, Austria, Belgium, Côte d'Ivoire, Denmark, Spain, Finland, France, Ireland, Israel, Italy, Libyan Arab Jamahiriya, Lithuania, Malta, Morocco, Monaco, Norway, the Netherlands, Portugal, Syrian Arab Republic, the United Kingdom, Sweden, Switzerland, Swaziland and Tunisia, the band 470–790 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote.

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5.311 Within the frequency band 620–790 MHz, assignments may be made to television stations using frequency modulation in the broadcasting-satellite service subject to agreement between the administrations concerned and those having services, operating in accordance with the Table, which may be affected (see Resolutions 33 (Rev. WRC–03) and 507 (Rev. WRC–03)). Such stations shall not produce a power flux-density in excess of the value −129 dB(W/m^2) for angles of arrival less than 20° (see Recommendation 705) within the territories of other countries without the consent of the administrations of those countries. Resolution 545 (WRC–03) applies.

5.312 *Additional allocation:* In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 645–862 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

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5.316 *Additional allocation:* In Germany, Saudi Arabia, Bosnia and Herzegovina, Burkina Faso, Cameroon, Côte d'Ivoire, Croatia, Denmark, Egypt, Finland, Greece, Israel, Jordan, Kenya, The Former Yugoslav Republic of Macedonia, Libyan Arab Jamahiriya, Liechtenstein, Mali, Monaco, Norway, the Netherlands, Portugal, the United Kingdom, Syrian Arab Republic, Serbia and Montenegro, Sweden and Switzerland, the band 790–830 MHz, and in these same countries and in Spain, France, Gabon and Malta, the band 830–862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band.

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5.323 *Additional allocation:* In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 862–960 MHz is also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. 9.21 with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime.

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5.328A Stations in the radionavigation-satellite service in the band 1164–1215 MHz shall operate in accordance with the provisions of Resolution 609 (WRC–03) and shall not claim protection from stations in the aeronautical radionavigation service in the band 960–1215 MHz. No. 5.43A does not apply. The provisions of No. 21.18 shall apply.

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5.329 Use of the radionavigation-satellite service in the band 1215–1300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. 5.331. Furthermore, the use of the radionavigation-satellite service in the band 1215–1300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. No. 5.43 shall not apply in respect of the radiolocation service. Resolution 608 (WRC–03) shall apply.

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5.330 *Additional allocation:* In Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Mozambique, Nepal, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the band 1215–1300 MHz is also allocated to the fixed and mobile services on a primary basis.

5.331 *Additional allocation:* In Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Nigeria, Norway, Oman, the Netherlands, Poland, Portugal, Qatar, Syrian Arab Republic, Slovakia, the United Kingdom, Serbia and Montenegro, Slovenia, Somalia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the band 1215–1300 MHz is also

allocated to the radionavigation service on a primary basis. In Canada and the United States, the band 1240–1300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service.

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5.334 *Additional allocation:* In Canada and the United States, the band 1350–1370 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

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5.338 In Azerbaijan, Mongolia, Kyrgyzstan, Slovakia, the Czech Rep., Romania and Turkmenistan, existing installations of the radionavigation service may continue to operate in the band 1350–1400 MHz.

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5.339A *Additional allocation:* The band 1390–1392 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a secondary basis and the band 1430–1432 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis. These allocations are limited to use for feeder links for non-geostationary-satellite networks in the mobile-satellite service with service links below 1 GHz, and Resolution 745 (WRC–03) applies.

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5.347 *Different category of service:* In Bangladesh, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cuba, Denmark, Egypt, Greece, Ireland, Italy, Mozambique, Portugal, Serbia and Montenegro, Sri Lanka, Swaziland, Yemen and Zimbabwe, the allocation of the band 1452–1492 MHz to the broadcasting-satellite service and the broadcasting service is on a secondary basis until 1 April 2007.

5.347A In the bands: 1452–1492 MHz, 1525–1559 MHz, 1613.8–1626.5 MHz, 2655–2670 MHz, 2670–2690 MHz, 21.4–22 GHz, Resolution 739 (WRC–03) applies.

5.348 The use of the band 1518–1525 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. In the band 1518–1525 MHz stations in the mobile-satellite service shall not claim protection from the stations in the fixed service. No. 5.43A does not apply.

5.348A In the band 1518–1525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. 9.11A for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be -150 dB(W/m^2) in any 4 kHz band for all angles of arrival, instead of those given in Table 5–2 of Appendix 5. In the band 1518–1525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. 5.43A does not apply.

5.348B In the band 1518–1525 MHz, stations in the mobile-satellite service shall not claim protection from aeronautical mobile telemetry stations in the mobile service in the territory of the United States (see Nos. 5.343 and 5.344) and in the countries listed in No. 5.342. No. 5.43A does not apply.

5.348C For the use of the bands 1518–1525 MHz and 1668–1675 MHz by the mobile-satellite service, see Resolution 225 (Rev. WRC–03).

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5.355 *Additional allocation:* In Bahrain, Bangladesh, Congo (Rep. of the), Egypt, Eritrea, Iraq, Israel, Kuwait, Lebanon, Malta, Qatar, Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the bands 1540–1559 MHz, 1610–1645.5 MHz and 1646.5–1660 MHz are also allocated to the fixed service on a secondary basis.

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5.359 *Additional allocation:* In Germany, Saudi Arabia, Armenia, Austria, Azerbaijan, Belarus, Benin, Bosnia and Herzegovina, Bulgaria, Cameroon, Spain, the Russian Federation, France, Gabon, Georgia, Greece, Guinea, Guinea-Bissau, Hungary, Jordan, Kazakhstan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Lithuania, Mauritania, Moldova, Mongolia, Uganda, Uzbekistan, Pakistan, Poland, Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Swaziland, Tajikistan, Tanzania, Tunisia, Turkmenistan and Ukraine, the bands 1550–1559 MHz, 1610–1645.5 MHz and 1646.5–1660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in these bands.

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5.362B *Additional allocation:* The band 1559–1610 MHz is also allocated to the fixed service on a primary basis until 1 January 2005 in Germany, Armenia, Azerbaijan, Belarus, Benin, Bosnia and Herzegovina, Bulgaria, Spain, the Russian Federation, France, Gabon, Georgia, Greece, Guinea, Guinea-Bissau, Hungary, Kazakhstan, Lithuania, Moldova, Mongolia, Nigeria, Uganda, Uzbekistan, Pakistan, Poland, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Senegal, Swaziland, Tajikistan, Tanzania, Turkmenistan and Ukraine, and until 1 January 2010 in Saudi Arabia, Cameroon, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Mali, Mauritania, Syrian Arab Republic and Tunisia. After these dates, the fixed service may continue to operate on a secondary basis until 1 January 2015, at which time this allocation shall no longer be valid. Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and the aeronautical radionavigation service and not authorize new frequency assignments to fixed-service systems in this band.

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5.369 *Different category of service:* In Angola, Australia, Burundi, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Israel, Lebanon, Liberia, Libyan Arab Jamahiriya, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, Dem. Rep. of the Congo, Sudan, Swaziland, Togo and Zambia, the allocation of the band 1610–1626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21 from countries not listed in this provision.

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5.379B The use of the band 1668–1675 MHz by the mobile-satellite service is subject to coordination under No. 9.11A.

5.379C In order to protect the radio astronomy service in the band 1668–1670 MHz, the aggregate power flux-density (pfd) values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed -181 dB(W/m^2) in 10 MHz and -194 dB(W/m^2) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2000s.

5.379D For sharing of the band 1668–1675 MHz between the mobile-satellite service and the fixed, mobile and space research (passive) services, Resolution 744 (WRC–03) shall apply.

5.379E In the band 1668.4–1675 MHz, stations in the mobile-satellite service shall not cause harmful interference to stations in the meteorological aids service in China, Iran (Islamic Republic of), Japan and Uzbekistan. In the band 1668.4–1675 MHz, administrations are urged not to implement new systems in the meteorological aids service and are encouraged to migrate existing meteorological aids service operations to other bands as soon as practicable.

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5.380A In the band 1670–1675 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, existing earth stations in the meteorological-satellite service notified in accordance with Resolution 670 (WRC–03).

5.381 *Additional allocation:* In Afghanistan, Costa Rica, Cuba, India, Iran (Islamic Republic of) and Pakistan, the band 1690–1700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.382 *Different category of service:* In Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Bulgaria, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Hungary, Iraq, Israel, Jordan, Kazakhstan, Kuwait, the Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, Syrian Arab Republic, Kyrgyzstan, Romania, Serbia and Montenegro, Somalia, Tajikistan, Tanzania, Turkmenistan, Ukraine and Yemen, the allocation of the band 1690–1700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33), and in the Dem. People's Rep. of Korea, the allocation of the band 1690–1700 MHz to the fixed service is on a primary basis (see No. 5.33) and to the mobile, except aeronautical mobile, service on a secondary basis.

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5.386 *Additional allocation:* The band 1750–1850 MHz is also allocated to the space operation (Earth-to-space) and space research (Earth-to-space) services in Region 2, in Australia, Guam, India, Indonesia and Japan

on a primary basis, subject to agreement obtained under No. 9.21, having particular regard to troposcatter systems.

5.387 *Additional allocation:* In Azerbaijan, Belarus, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, Romania, Tajikistan and Turkmenistan, the band 1770–1790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under No. 9.21.

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5.388A In Regions 1 and 3, the bands 1885–1980 MHz, 2010–2025 MHz and 2110–2170 MHz and, in Region 2, the bands 1885–1980 MHz and 2110–2160 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications-2000 (IMT–2000), in accordance with Resolution 221 (Rev. WRC–03). Their use by IMT–2000 applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations.

5.388B In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire, China, Cuba, Djibouti, Egypt, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Qatar, Syrian Arab Republic, Senegal, Singapore, Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT–2000 mobile stations, in their territories from co-channel interference, a HAPS operating as an IMT–2000 base station in neighbouring countries, in the bands referred to in No. 5.388A, shall not exceed a co-channel power flux-density of −127 dB(W/(m² · MHz)) at the Earth's surface outside a country's borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS.

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5.395 In France and Turkey, the use of the band 2310–2360 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.

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5.400 *Different category of service:* In Angola, Australia, Bangladesh, Burundi, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Lebanon, Liberia, Libyan Arab Jamahiriya, Madagascar, Mali, Pakistan, Papua New Guinea, Dem. Rep. of the Congo, Syrian Arab Republic, Sudan, Swaziland, Togo and Zambia, the allocation of the band 2483.5–2500 MHz to the radiodetermination-satellite service (space-to-Earth) is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21 from countries not listed in this provision.

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5.416 The use of the band 2520–2670 MHz by the broadcasting satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. 9.21.

5.418 *Additional allocation:* In Korea (Rep. of), India, Japan, Pakistan and Thailand, the band 2535–2655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (Rev. WRC–03). The provisions of No. 5.416 and Table 21–4 of Article 21, do not apply to this additional allocation. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) is subject to Resolution 539 (Rev. WRC–03). Geostationary broadcasting-satellite service (sound) systems for which complete Appendix 4 coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the band 2630–2655 MHz, and for which complete Appendix 4 coordination information has been received after 1 June 2005, shall not exceed the following limits, for all conditions and for all methods of modulation:

− 130 dB(W/(m² · MHz))—for $0° \le \theta \le 5°$

− 130 + 0.4 (θ − 5) dB(W/(m² · MHz))—for $5° < \theta \le 25°$

− 122 dB(W/(m² · MHz))—for $25° < \theta \le 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. As an exception to the limits above, the pfd value of −122 dB(W/(m² · MHz)) shall be used as a threshold for coordination under No. 9.11 in an area of 1500 km around the territory of the administration notifying the broadcasting-satellite service (sound) system. In addition, the pfd value shall not exceed −100 dB(W/(m2 · MHz)) anywhere on the territory of the Russian Federation.

In addition, an administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. 5.416 for systems for which complete Appendix 4 coordination information has been received after 1 June 2005.

5.418AA In applying provision No. 5.418, in Korea (Rep. of) and Japan, resolves 3 of Resolution 528 (Rev. WRC–03) is relaxed to allow the broadcasting-satellite service (sound) and the complementary terrestrial broadcasting service to additionally operate on a primary basis in the band 2605–2630 MHz. This use is limited to systems intended for national coverage. An administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. 5.416. The provisions of No. 5.416 and Table 21–4 of Article 21 do not apply. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) in the band 2605–2630 MHz is subject to the provisions of Resolution 539 (Rev. WRC–03). The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the band 2605–2630 MHz for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, for all conditions and for all methods of modulation, shall not exceed the following limits:

− 130 dB(W/(m² · MHz))—for $0° \le \theta \le 5°$

− 130 + 0.4 (θ − 5) dB(W/(m² · MHz))—for $5° < \theta \le 25°$

− 122 dB(W/(m² · MHz))—for $25° < \theta \le 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. In the case of the broadcasting-satellite service (sound) networks of Korea (Rep. of), as an exception to the limits above, the pfd value of −122 dB(W/(m² · MHz)) shall be used as a threshold for coordination under No. 9.11 in an area of 1000 km around the territory of the administration notifying the BSS (sound) system, for angles of arrival greater than 35°.

5.418AB In Korea (Rep. of) and Japan, use of the band 2605–2630 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418AA, for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No. 9.12A, in respect of geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, is considered to have been received after 4 July 2003, and No. 22.2 does not apply. No. 22.2 shall continue to apply with respect to geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, is considered to have been received before 5 July 2003.

5.418AC Use of the band 2605–2630 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418AA, for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No. 9.12.

5.418AD Use of the band 2605–2630 MHz by geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003 is subject to the application of the provisions of No. 9.13 with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418AA, and No. 22.2 does not apply.

5.418A In certain Region 3 countries listed in No. 5.418, use of the band 2630–2655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound) for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. 9.12A, in respect of geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, is considered to have been received after 2 June 2000, and No. 22.2 does not apply. No. 22.2 shall continue to apply with respect to geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, is considered to have been received before 3 June 2000.

5.418B Use of the band 2630–2655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418, for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. 9.12.

5.418C Use of the band 2630–2655 MHz by geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000 is subject to the application of the provisions of No. 9.13 with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418 and No. 22.2 does not apply.

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5.422 *Additional allocation:* In Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Brunei Darussalam, Congo (Rep. of the), Côte d'Ivoire, Cuba, Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Gabon, Georgia, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Israel, Jordan, Lebanon, Mauritania, Moldova, Mongolia, Nigeria, Oman, Uzbekistan, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, the Dem. Rep. of the Congo, Romania, Serbia and Montenegro, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine and Yemen, the band 2690–2700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

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5.424A In the band 2900–3100 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the radionavigation service.

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5.428 *Additional allocation:* in Azerbaijan, Cuba, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3100–3300 MHz is also allocated to the radionavigation service on a primary basis.

5.429 *Additional allocation:* In Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Congo (Rep. of the), Korea (Rep. of), the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libyan Arab Jamahiriya, Malaysia, Oman, Pakistan, Qatar, Syrian Arab Republic, Dem. People's Rep. of Korea and Yemen, the band 3300–3400 MHz is also allocated to the fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service.

5.430 *Additional allocation:* In Azerbaijan, Cuba, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3300–3400 MHz is also allocated to the radionavigation service on a primary basis.

5.431 *Additional allocation:* In Germany, Israel and the United Kingdom, the band 3400–3475 MHz is also allocated to the amateur service on a secondary basis.

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5.443B In order not to cause harmful interference to the microwave landing system operating above 5030 MHz, the aggregate power flux-density produced at the Earth's surface in the band 5030–5150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5010–5030 MHz shall not exceed -124.5 dB(W/m^2) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4990–5000 MHz, radionavigation-satellite service systems operating in the band 5010–5030 MHz shall comply with the limits in the band 4990–5000 MHz defined in Resolution 741 (WRC–03).

5.444 The band 5030–5150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other uses of this band. For the use of this band, No. 5.444A and Resolution 114 (Rev.WRC–03) apply.

5.444A *Additional allocation:* The band 5091–5150 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. This allocation is limited to feeder links of non-geostationary mobile-satellite systems in the mobile-satellite service and is subject to coordination under No. 9.11A.

In the band 5091–5150 MHz, the following conditions also apply:

—Prior to 1 January 2018, the use of the band 5091–5150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution 114 (Rev.WRC–03);

—Prior to 1 January 2018, the requirements of existing and planned international standard systems for the aeronautical radionavigation service which cannot be met in the 5000–5091 MHz band, shall take precedence over other uses of this band;

—After 1 January 2012, no new assignments shall be made to earth stations providing feeder links of non-geostationary mobile-satellite systems;

—After 1 January 2018, the fixed-satellite service will become secondary to the aeronautical radionavigation service.

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5.447E *Additional allocation:* The band 5250–5350 MHz is also allocated to the fixed service on a primary basis in the following countries in Region 3: Australia, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Papua New Guinea, Philippines, Sri Lanka, Thailand and Viet Nam. The use of this band by the fixed service is intended for the implementation of fixed wireless access systems and shall comply with Recommendation ITU–R F.1613. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. 5.43A do not apply to the fixed service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of fixed wireless access systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radiodetermination implementations.

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5.453 *Additional allocation:* In Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, the Libyan Arab Jamahiriya, Madagascar, Malaysia, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Swaziland, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the band 5650–5850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution 229 (WRC–03) do not apply.

5.454 *Different category of service:* In Azerbaijan, the Russian Federation, Georgia, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 5670–5725 MHz to the space research service is on a primary basis (see No. 5.33).

5.455 *Additional allocation:* In Armenia, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 5670–5850 MHz is also allocated to the fixed service on a primary basis.

5.456 *Additional allocation:* In Cameroon, the band 5755–5850 MHz is also allocated to the fixed service on a primary basis.

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5.460 The use of the band 7145–7190 MHz by the space research service (Earth-to-space) is restricted to deep space; no emissions to deep space shall be effected in the band 7190–7235 MHz. Geostationary satellites in the space research service operating in the band 7190–7235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. 5.43A does not apply.

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5.466 *Different category of service:* In Israel, Singapore and Sri Lanka, the allocation of the band 8400–8500 MHz to the space research service is on a secondary basis (see No. 5.32).

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5.468 *Additional allocation:* In Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Costa Rica, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libyan Arab Jamahiriya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, Qatar, Syrian Arab Republic, Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Swaziland, Tanzania, Chad, Togo, Tunisia and Yemen, the band 8500–8750 MHz is also allocated to the fixed and mobile services on a primary basis.

5.469 *Additional allocation:* In Armenia, Azerbaijan, Belarus, the Russian Federation,

Georgia, Hungary, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 8500–8750 MHz is also allocated to the land mobile and radionavigation services on a primary basis.

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5.473 *Additional allocation:* In Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Cuba, the Russian Federation, Georgia, Hungary, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the bands 8850–9000 MHz and 9200–9300 MHz are also allocated to the radionavigation service on a primary basis.

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5.477 *Different category of service:* In Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Pakistan, Qatar, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Trinidad and Tobago, and Yemen, the allocation of the band 9800–10000 MHz to the fixed service is on a primary basis (see No. 5.33).

5.478 *Additional allocation:* In Azerbaijan, Bulgaria, Mongolia, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 9800–10000 MHz is also allocated to the radionavigation service on a primary basis.

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5.481 *Additional allocation:* In Germany, Angola, Brazil, China, Costa Rica, Côte d'Ivoire, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Tanzania, Thailand and Uruguay, the band 10.45–10.5 GHz is also allocated to the fixed and mobile services on a primary basis.

5.482 In the band 10.6–10.68 GHz, stations of the fixed and mobile, except aeronautical mobile, services shall be limited to a maximum equivalent isotropically radiated power of 40 dBW and the power delivered to the antenna shall not exceed −3 dBW. These limits may be exceeded subject to agreement obtained under No. 9.21. However, in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, China, the United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Kuwait, Latvia, Lebanon, Moldova, Nigeria, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Tajikistan and Turkmenistan, the restrictions on the fixed and mobile, except aeronautical mobile, services are not applicable.

5.483 *Additional allocation:* In Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, China, Colombia, Korea (Rep. of), Costa Rica, Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Uzbekistan, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Serbia and Montenegro, Tajikistan, Turkmenistan and Yemen, the band 10.68–10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

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5.487 In the band 11.7–12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to, or claim protection from, broadcasting-satellite stations operating in accordance with the Regions 1 and 3 Plan in Appendix 30.

5.487A *Additional allocation:* In Region 1, the band 11.7–12.5 GHz, in Region 2, the band 12.2–12.7 GHz and, in Region 3, the band 11.7–12.2 GHz, are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-geostationary systems and subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the broadcasting-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

5.488 The use of the band 11.7–12.2 GHz by geostationary-satellite networks in the fixed-satellite service in Region 2 is subject to application of the provisions of No. 9.14 for coordination with stations of terrestrial services in Regions 1, 2 and 3. For the use of the band 12.2–12.7 GHz by the broadcasting-satellite service in Region 2, see Appendix 30.

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5.494 *Additional allocation:* In Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Rep., Congo (Rep. of the), Côte d'Ivoire, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Madagascar, Mali, Morocco, Mongolia, Nigeria, Qatar, Syrian Arab Republic, Dem. Rep. of the Congo, Somalia, Sudan, Chad, Togo and Yemen, the band 12.5–12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.495 *Additional allocation:* In Bosnia and Herzegovina, Croatia, France, Greece, Liechtenstein, Monaco, Uganda, Portugal, Romania, Serbia and Montenegro, Slovenia, Switzerland, Tanzania and Tunisia, the band 12.5–12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis.

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5.500 *Additional allocation:* In Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Malta, Morocco, Mauritania, Nigeria, Pakistan, Qatar, Syrian Arab Republic, Singapore, Sudan, Chad and Tunisia, the band 13.4–14 GHz is also allocated to the fixed and mobile services on a primary basis.

5.501 *Additional allocation:* In Azerbaijan, Hungary, Japan, Mongolia, Kyrgyzstan, Romania, the United Kingdom and Turkmenistan, the band 13.4–14 GHz is also allocated to the radionavigation service on a primary basis.

5.502 In the band 13.75–14 GHz, an earth station of a geostationary fixed-satellite service network shall have a minimum antenna diameter of 1.2 m and an earth station of a non-geostationary fixed-satellite service system shall have a minimum antenna diameter of 4.5 m. In addition, the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services shall not exceed 59 dBW for elevation angles above 2§ and 65 dBW at lower angles. Before an administration brings into use an earth station in a geostationary-satellite network in the fixed-satellite service in this band with an antenna size smaller than 4.5 m, it shall ensure that the power flux-density produced by this earth station does not exceed:

− 115 dB(W/(m² × 10 MHz)) for more than 1% of the time produced at 36 m above sea level at the low water mark, as officially recognized by the coastal state;

− 115 dB(W/(m² × 10 MHz)) for more than 1% of the time produced 3 m above ground at the border of the territory of an administration deploying or planning to deploy land mobile radars in this band, unless prior agreement has been obtained.

For earth stations within the fixed-satellite service having an antenna diameter greater than or equal to 4.5 m, the e.i.r.p. of any emission should be at least 68 dBW and should not exceed 85 dBW.

5.503 In the band 13.75–14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. Until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band:

—In the band 13.77–13.78 GHz, the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in geostationary-satellite orbit shall not exceed:

(1) $4.7D + 28$ dB(W/40 kHz), where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 1.2 m and less than 4.5 m;

(2) $49.2 + 20 \log(D/4.5)$ dB(W/40 kHz), where D is the fixed-satellite service earth

station antenna diameter (m) for antenna diameters equal to or greater than 4.5 m and less than 31.9 m;

(3) 66.2 dB(W/40 kHz) for any fixed-satellite service earth station for antenna diameters (m) equal to or greater than 31.9 m;

(4) 56.2 dB(W/4 kHz) for narrow-band (less than 40 kHz of necessary bandwidth) fixed-satellite service earth station emissions from any fixed-satellite service earth station having an antenna diameter of 4.5 m or greater;

The e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in non-geostationary-satellite orbit shall not exceed 51 dBW in the 6 MHz band from 13.772 to 13.778 GHz.

Automatic power control may be used to increase the e.i.r.p. density in these frequency ranges to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use by an earth station of an e.i.r.p. meeting the above limits in clear-sky conditions.

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5.504C In the band 14–14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Côte d'Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Kuwait, Lesotho, Nigeria, Oman, Syrian Arab Republic and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU–R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29.

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5.505 *Additional allocation:* In Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lesotho, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad and Yemen, the band 14–14.3 GHz is also allocated to the fixed service on a primary basis.

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5.506A In the band 14–14.5 GHz, ship earth stations with an e.i.r.p. greater than 21 dBW shall operate under the same conditions as earth stations located on board vessels, as provided in Resolution 902 (WRC–03). This footnote shall not apply to ship earth stations for which the complete Appendix 4 information has been received by the Bureau prior to 5 July 2003.

5.506B Earth stations located on board vessels communicating with space stations in the fixed-satellite service may operate in the frequency band 14–14.5 GHz without the need for prior agreement from Cyprus, Greece and Malta, within the minimum distance given in Resolution 902 (WRC–03) from these countries.

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5.508 *Additional allocation:* In Germany, Bosnia and Herzegovina, France, Italy, The Former Yugoslav Rep. of Macedonia, Libyan Arab Jamahiriya, the United Kingdom, Serbia and Montenegro and Slovenia, the band 14.25–14.3 GHz is also allocated to the fixed service on a primary basis.

5.508A In the band 14.25–14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Lesotho, Nigeria, Oman, Syrian Arab Republic, the United Kingdom and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU–R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29.

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5.509A In the band 14.3–14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Lesotho, Morocco, Nigeria, Oman, Syrian Arab Republic, the United Kingdom, Sri Lanka, Tunisia and Viet Nam by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU–R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29.

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5.512 *Additional allocation:* In Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei Darussalam, Cameroon, Congo (Rep. of the), Costa Rica, Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), Jordan, Kenya, Kuwait, Libyan Arab Jamahiriya, Malaysia, Mali, Morocco, Mauritania, Mozambique, Nepal, Nicaragua, Oman, Pakistan, Qatar, Serbia and Montenegro, Singapore, Slovenia, Somalia, Sudan, Swaziland, Tanzania, Chad, Togo and Yemen, the band 15.7–17.3 GHz is also allocated to the fixed and mobile services on a primary basis.

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5.514 *Additional allocation:* In Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Finland, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kuwait, Libyan Arab Jamahiriya, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Serbia and Montenegro, Slovenia and Sudan, the band 17.3–17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. 21.3 and 21.5 shall apply.

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5.516A In the band 17.3–17.7 GHz, earth stations of the fixed-satellite service (space-to-Earth) in Region 1 shall not claim protection from the broadcasting-satellite service feeder-link earth stations operating under Appendix 30A, nor put any limitations or restrictions on the locations of the broadcasting-satellite service feeder-link earth stations anywhere within the service area of the feeder link.

5.516B The following bands are identified for use by high-density applications in the fixed-satellite service:

17.3–17.7 GHz—(space-to-Earth) in Region 1,
18.3–19.3 GHz—(space-to-Earth) in Region 2,
19.7–20.2 GHz—(space-to-Earth) in all Regions,
39.5–40 GHz—(space-to-Earth) in Region 1,
40–40.5 GHz—(space-to-Earth) in all Regions,
40.5–42 GHz—(space-to-Earth) in Region 2,
47.5–47.9 GHz—(space-to-Earth) in Region 1,
48.2–48.54 GHz—(space-to-Earth) in Region 1,
49.44–50.2 GHz—(space-to-Earth) in Region 1, and
27.5–27.82 GHz—(Earth-to-space) in Region 1,
28.35–28.45 GHz—(Earth-to-space) in Region 2,
28.45–28.94 GHz—(Earth-to-space) in all Regions,
28.94–29.1 GHz—(Earth-to-space) in Region 2 and 3,
29.25–29.46 GHz—(Earth-to-space) in Region 2,
29.46–30 GHz—(Earth-to-space) in all Regions,
48.2–50.2 GHz—(Earth-to-space) in Region 2.

This identification does not preclude the use of these bands by other fixed-satellite service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in these Regulations among users of the bands. Administrations should take this into account when considering regulatory provisions in relation to these bands. See Resolution 143 (WRC–03).

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5.521 *Alternative allocation:* In Germany, Denmark, the United Arab Emirates and Greece, the band 18.1–18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis (see No. 5.33). The provisions of No. 5.519 also apply.

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5.536A Administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account Recommendations ITU–R SA.1278 and ITU–R SA.1625, respectively.

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5.536C In Algeria, Saudi Arabia, Bahrain, Botswana, Brazil, Cameroon, Comoros, Cuba, Djibouti, Egypt, United Arab Emirates, Estonia, Finland, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lithuania, Malaysia, Morocco, Nigeria, Oman, Qatar, Syrian Arab Republic, Somalia, Sudan, Tanzania, Tunisia, Uruguay, Zambia and Zimbabwe, earth stations operating in the space research service in the band 25.5–27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services.

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5.537A In Bhutan, Korea (Rep. of), the Russian Federation, Indonesia, Iran (Islamic Republic of), Japan, Kazakhstan, Lesotho, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 27.5–28.35 GHz may also be used by high altitude platform stations (HAPS). The use of HAPS within the band 27.5–28.35 GHz is limited, within the territory of the countries listed above, to a single 300 MHz sub-band. Such use of 300 MHz of the fixed-service allocation by HAPS in the above countries is further limited to operation in the HAPS-to-ground direction and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services. Furthermore, the development of these other services shall not be constrained by HAPS. See Resolution 145 (WRC–03).

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5.543A In Bhutan, Korea (Rep. of), the Russian Federation, Indonesia, Iran (Islamic Republic of), Japan, Kazakhstan, Lesotho, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 31–31.3 GHz may also be used by systems using high altitude platform stations (HAPS) in the ground-to-HAPS direction. The use of the band 31–31.3 GHz by systems using HAPS is limited to the territory of the countries listed above and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems, systems in the mobile service and systems operated under No. 5.545. Furthermore, the development of these services shall not be constrained by HAPS. Systems using HAPS in the band 31–31.3 GHz shall not cause harmful interference to the radio astronomy service having a primary allocation in the band 31.3–31.8 GHz, taking into account the protection criterion as given in Recommendation ITU–R RA.769. In order to ensure the protection of satellite passive services, the level of unwanted power density into a HAPS ground station antenna in the band 31.3–31.8 GHz shall be limited to −106 dB(W/MHz) under clear-sky conditions, and may be increased up to −100 dB(W/MHz) under rainy conditions to take account of rain attenuation, provided the effective impact on the passive satellite does not exceed the impact under clear-sky conditions as given above. See Resolution 145 (WRC–03).

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5.545 *Different category of service:* In Armenia, Azerbaijan, Georgia, Mongolia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 31–31.3 GHz to the space research service is on a primary basis (see No. 5.33).

5.546 *Different category of service:* In Saudi Arabia, Armenia, Azerbaijan, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Finland, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Latvia, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Syrian Arab Republic, Kyrgyzstan, Romania, the United Kingdom, South Africa, Tajikistan, Turkmenistan and Turkey, the allocation of the band 31.5–31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33).

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5.547C *Alternative allocation:* In the United States, the band 32–32.3 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis.

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5.548 In designing systems for the inter-satellite service in the band 32.3–33 GHz, for the radionavigation service in the band 32–33 GHz, and for the space research service (deep space) in the band 31.8–32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation 707).

5.549 *Additional allocation:* In Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Malaysia, Mali, Malta, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Dem. Rep. of the Congo, Singapore, Somalia, Sudan, Sri Lanka, Togo, Tunisia and Yemen, the band 33.4–36 GHz is also allocated to the fixed and mobile services on a primary basis.

5.549A In the band 35.5–36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed −73.3 dB(W/m^2) in this band.

5.550 *Different category of service:* In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 34.7–35.2 GHz to the space research service is on a primary basis (see No. 5.33).

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5.551I The power flux-density in the band 42.5–43.5 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth), or the broadcasting-satellite service (space-to-Earth) operating in the 42–42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station:

—137 dB(W/m^2) in 1 GHz and −153 dB(W/m^2) in any 500 kHz of the 42.5–43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and

—116 dB(W/m^2) in any 500 kHz of the 42.5–43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.

These values shall apply at the site of any radio astronomy station that either:

—Was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or

—Was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply.

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution 743 (WRC–03) shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed.

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5.555B The power flux-density in the band 48.94–49.04 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth) operating in the bands 48.2–48.54 GHz and 49.44–50.2 GHz shall not exceed −151.8 dB(W/m^2) in any 500 kHz band at the site of any radio astronomy station.

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UNITED STATES (US) FOOTNOTES

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US252 The band 2110–2120 MHz is also allocated to the space research service (deep space) (Earth-to-space) on a primary basis at Goldstone, California.

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US258 In the bands 8025–8400 MHz and 25.5–27 GHz, the Earth exploration-satellite service (space-to-Earth) is allocated on a primary basis for non-Federal Government use. Authorizations are subject to a case-by-case electromagnetic compatibility analysis.

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US262 The band 7145–7190 MHz is also allocated to the space research service (deep space) (Earth-to-space) on a secondary basis for non-Federal Government use. The use of the bands 7145–7190 MHz and 34.2–34.7 GHz by the space research service (deep space) (Earth-to-space) and of the band 31.8–32.3 GHz by the space research service (deep space) (space-to-Earth) is limited to Goldstone, California.

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US310 In the band 14.896–15.121 GHz, non-Federal Government space stations in the space research service may be authorized on a secondary basis to transmit to Tracking and Data Relay Satellites subject to such conditions as may be applied on a case-by-case basis. Such transmissions shall not cause harmful interference to authorized Federal Government stations. The power flux-density produced by such non-Federal Government stations at the Earth's surface in

any 1 MHz band for all conditions and methods of modulation shall not exceed:

-124 dB(W/m^2) for $0° < \theta \leq 5°$
$-124 + (\theta - 5)/2$ dB(W/m^2) for $5° < \theta \leq 25°$
-114 dB(W/m^2) for $25° < \theta \leq 90°$

where θ is the angle of arrival of the radio-frequency wave (degrees above the horizontal). These limits relate to the power flux-density and angles of arrival which would be obtained under free-space propagation conditions.

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US352 In the band 1427–1432 MHz, Federal Government operations, except for medical telemetry and medical telecommand operations, are on a non-interference basis to authorized non-Federal Government operations and shall not hinder the implementation of any non-Federal Government operations.

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US366 On April 1, 2007, the bands 5900–5950 kHz, 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 13570–13600 kHz, 13800–13870 kHz, 15600–15800 kHz, 17480–17550 kHz, and 18900–19020 kHz shall be allocated exclusively to the broadcasting service. After April 1, 2007, frequencies in these bands may be used by stations in the fixed and mobile services, communicating only within the United States and its insular areas, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies for fixed and mobile services, licensees shall be limited to the minimum power needed to achieve communications and shall take account of the seasonal use of frequencies by the broadcasting service published in accordance with Article 12 of the ITU Radio Regulations.

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US368 The use of the bands 1390–1392 MHz and 1430–1432 MHz by the fixed-satellite service is limited to feeder links for the Non-Voice Non-Geostationary Mobile-Satellite Service and is contingent on (1) the completion of ITU–R studies on all identified compatibility issues as shown in Annex 1 of Resolution 745 (WRC–2003); (2) measurement of emissions from equipment that would be employed in operational systems and demonstrations to validate the studies as called for in Resolution 745 (WRC–2003); and (3) compliance with any technical and operational requirements that may be imposed at WRC–07 to protect other services in these bands and passive services in the band 1400–1427 MHz from unwanted emissions. Individual assignments shall be coordinated with the Interdepartment Radio Advisory Committee's (IRAC) Frequency Assignment Subcommittee (FAS) (see, for example, Recommendations ITU–R RA.769–1 and ITU–R SA.1029–1) to ensure the protection of passive services in the band 1400–1427 MHz. Coordination shall not be completed until the feeder uplink and downlink systems are tested and certified to be in conformance with the technical and operational requirements for the protection of passive services in the band 1400–1427 MHz. Certification and all supporting documentation shall be submitted to the Commission and the FAS prior to launch.

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USxxx Until 29 March 2009, the band 6765–7000 kHz is allocated to the fixed service on a primary basis and to the mobile service on a secondary basis. After this date, this band is allocated to the fixed and the mobile except aeronautical mobile (R) services on a primary basis.

USyyy The band 7300–7350 kHz is allocated, until April 1, 2007, to the fixed service on a primary basis and to the mobile service on a secondary basis. After April 1, 2007, frequencies in that band may be used by stations in the fixed and mobile services, communicating only within the United States and its insular areas, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies for fixed and mobile services, licensees shall be limited to the minimum power needed to achieve communications and shall take account of the seasonal use of frequencies by the broadcasting service published in accordance with Article 12 of the ITU Radio Regulations.

USzzz In the band 432–438 MHz, the Earth exploration-satellite service (active) is allocated on a secondary basis for Federal Government use. Stations in the Earth exploration-satellite service (active) shall not be operated within line-of-sight of United States except for the purpose of short duration pre-operational testing. Operations under this allocation shall not cause harmful interference to, nor claim protection from, any other services allocated in the band 432–438 MHz in the United States, including secondary services and the amateur-satellite service.

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FEDERAL GOVERNMENT (G) FOOTNOTES

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Gxxx Use of the radionavigation-satellite service in the band 1215–1240 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under ITU Radio Regulation No. 5.331. Furthermore, the use of the radionavigation-satellite service in the band 1215–1240 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. ITU Radio Regulation No. 5.43 shall not apply in respect of the radiolocation service. ITU Resolution 608 (WRC–03) shall apply.

Gyyy No emissions to deep space shall be effected in the band 7190–7235 MHz. Geostationary satellites in the space research service operating in the band 7190–7235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. 5.43A does not apply.

PART 25—SATELLITE COMMUNICATIONS

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

Authority: 47 U.S.C. 701–744. Interprets or applies Sections 4, 301, 302, 303, 307, 309 and 332 of the Communications Act, as amended, 47 U.S.C. Sections 154, 301, 302, 303, 307, 309 and 332, unless otherwise noted.

5. Section 25.208 is amended by adding paragraph (p) to read as follows:

§ 25.208 Power flux density limits

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(p) The power flux-density at the Earth's surface produced by emissions from a space station in either the Earth exploration-satellite service in the band 25.5–27 GHz or the inter-satellite service in the band 25.25–27.5 GHz for all conditions and for all methods of modulation shall not exceed the following values:

-115 dB(W/m^2) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;
$-115 + 0.5(\delta - 5)$ dB(W/m^2) in any 1 MHz band for angles of arrival between 5 and 25 degrees above the horizontal plane;
-105 dB(W/m^2) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions.

PART 73—RADIO BROADCAST SERVICES

6. The authority citation for part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303, 334 and 336.

§ 73.220 [Amended]

7. Remove and reserve paragraph (b) in § 73.220.

§ 73.603 [Amended]

8. Remove and reserve paragraph (b) in § 73.603.

9. Section 73.701 is amended by revising paragraph (e) to read as follows:

§ 73.701 Definitions.

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(e) *Coordinated Universal Time (UTC).* Time scale, based on the second (SI), as defined in Recommendation ITU–R TF.460–6.

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10. Section 73.702 is amended by revising paragraphs (f)(2) and (f)(3) and by adding paragraph (f)(4) to read as follows:

§ 73.702 Assignment and use of frequencies.

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(f) * * *

(2) *Regional allocation.* (i) Until March 29, 2009, the band 7100–7300 kHz is allocated on an exclusive basis to the broadcasting service in International Telecommunication Union (ITU) Regions 1 and 3 as defined in 47 CFR 2.104(b). Assignments in the band

7100–7300 kHz shall be limited to international broadcast stations located in ITU Region 3 insular areas (as defined in 47 CFR 2.105(a), note 4) that transmit to zones and areas of reception in ITU Region 1 or 3.

(ii) After March 29, 2009, the bands 7200–7300 kHz and 7400–7450 kHz are allocated on an exclusive basis to the broadcasting service in ITU Regions 1 and 3 and the band 7100–7200 kHz is not allocated to the broadcasting service. Assignments in the bands 7200–7300 kHz and 7400–7450 kHz shall be limited to international broadcast stations located in ITU Region 3 insular areas that transmit to zones and areas of reception in ITU Region 1 or 3.

(iii) During the hours of 0800–1600 UTC (Coordinated Universal Time) antenna gain with reference to an isotropic radiator in any easterly direction that would intersect any area in Region 2 shall not exceed 2.15 dBi, except in the case where a transmitter power of less than 100 kW is used. In this case, antenna gain on restricted azimuths shall not exceed that which is determined in accordance with equation below. Stations desiring to operate in this band must submit sufficient antenna performance information to ensure compliance with these restrictions. Permitted gain for transmitter powers less than 100 kW:

$$Gi = 2.15 + 10 \log\left(\frac{100}{Pa}\right) dBi$$

Where:

Gi = maximum gain permitted with reference to an isotropic radiator.

Pa = Transmitter power employed in kW.

(3) Until April 1, 2007, frequencies within the following bands are assignable to the broadcasting service on a co-primary basis with the fixed service: 5900–5950 kHz, 7300–7350 kHz, 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 13570–13600 kHz, 13800–13870 kHz, 15600–15800 kHz, 17480–17550 kHz, and 18900–19020 kHz (WARC–92 HFBC bands). In addition, the band 5900–5950 kHz is allocated to the land mobile service on a primary basis in Region 1 and to the mobile except aeronautical mobile (R) service on a primary basis in Region 2 until April 1, 2007. After April 1, 2007, the WARC–92 HFBC bands are assignable to the broadcasting service on an exclusive basis.

(4) Until March 29, 2009, frequencies within the band 7350–7400 MHz are assignable to the broadcasting service on a co-primary basis with the fixed service. After March 29, 2009, frequencies within the band 7350–7400 MHz are assignable to the broadcasting service on an exclusive basis.

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11. Section 73.751 is revised to read as follows:

§ 73.751 Operating power.

No international broadcast station shall be authorized to install, or be licensed for operation of, transmitter equipment with (a) a rated carrier power of less than 50 kilowatts (kW) if Double Sideband (DSB) modulation is used, (b) a peak envelope power of less than 50 kW if Single Sideband (SSB) modulation is used, or (c) an average power of less than 20 kW if digital modulation is used.

12. Section 73.756 is revised to read as follows:

§ 73.756 System specifications for double-sideband (DBS), single-sideband (SSB) and digitally modulated emissions in the HF broadcasting service.

(a) *System specifications applicable to all international broadcast stations.* (1) *Carrier frequencies.* Carrier frequencies shall be integral multiples of 5 kHz.

(2) *Channel spacing.* Channel spacing shall be 10 kHz. However, interleaved channels with a separation of 5 kHz may be used in accordance with the appropriate ITU protection criteria, provided that the interleaved emission is not to the same geographical area as either of the emissions between which it is interleaved. Additionally, in an all-inclusive SSB environment, the channel spacing shall be 5 kHz.

(3) *Frequency tolerance.* The frequency tolerance shall be 10 hertz.

(4) *Maximum permitted spurious emission power levels.* (i) Any emission appearing on a frequency removed from the carrier frequency by between 6.4 kHz and 10 kHz, inclusive, shall be attenuated at least 25 dB below the level of the unmodulated carrier. Compliance with the specification will be deemed to show the occupied bandwidth to be 10 kHz or less.

(ii) Any emission appearing on a frequency removed from the carrier frequency by more than 10 kHz and up to and including 25 kHz shall be attenuated at least 35 dB below the level of the unmodulated carrier.

(iii) Any emission appearing on a frequency removed from the carrier frequency by more than 25 kHz shall be attenuated at least 80 dB below the level of the unmodulated carrier.

(iv) In the event spurious emissions cause harmful interference to other stations or services, such additional steps as may be necessary to eliminate the interference must be taken immediately by the licensee.

(b) *System specifications applicable to DSB and SSB systems.* If audio-frequency signal processing is used, the dynamic range of the modulating signal shall be not less than 20 dB.

(c) *System specifications applicable only to a DSB system.* (1) The upper limit of the audio-frequency band (at −3 dB) of the transmitter shall not exceed 4.5 kHz and the lower limit shall be 150 Hz, with lower frequencies attenuated at a slope of 6 dB per octave.

(2) The necessary bandwidth shall not exceed 9 kHz.

(d) *System specifications applicable to only a SSB system.* (1) *Equivalent sideband power.* When the carrier reduction relative to peak envelope power is 6 dB, an equivalent SSB emission is one giving the same audio-frequency signal-to-noise ratio at the receiver output as the corresponding DSB emission, when it is received by a DSB receiver with envelope detection. This is achieved when the sideband power of the SSB emission is 3 dB larger than the total sideband power of the DSB emission. (The peak envelope power of the equivalent SSB emission and the carrier power are the same as that of the DSB emission.)

(2) *Emission characteristics.* (i) *Audio-frequency band.* The upper limit of the audio-frequency band (at −3 dB) of the transmitter shall not exceed 4.5 kHz with a further slope of attenuation of 35 dB/kHz and the lower limit shall be 150 Hz with lower frequencies attenuated at a slope of 6 dB per octave.

(ii) *Necessary bandwidth.* The necessary bandwidth shall not exceed 4.5 kHz.

(iii) *Carrier reduction (relative to peak envelope power).* In a mixed DSB, SSB and digital environment, the carrier reduction shall be 6 dB to allow SSB emissions to be received by conventional DSB receivers with envelope detection without significant deterioration of the reception quality.

(iv) *Sideband to be emitted.* Only the upper sideband shall be used.

(v) *Attenuation of the unwanted sideband.* The attenuation of the unwanted sideband (lower sideband) and of intermodulation products in that part of the emission spectrum shall be at least 35 dB relative to the wanted sideband signal level. However, since there is in practice a large difference between signal amplitudes in adjacent channels, a greater attenuation is recommended.

(e) *System specifications applicable to only a digital system.* (1) *Channel utilization.* Channels using digitally modulated emissions may share the same spectrum or be interleaved with analog emissions in the same HFBC

band, provided the protection afforded to the analog emissions is at least as great as that which is currently in force for analog-to-analog protection. Accomplishing this may require that the digital spectral power density (and total power) be lower by several dB than is currently used for either DSB or SSB emissions.

(2) *Emission characteristics.* (i) *Bandwidth and center frequency.* A full digitally modulated emission will have a 10 kHz bandwidth with its center frequency at any of the 5 kHz center frequency locations in the channel raster currently in use within the HFBC bands. Among several possible ''simulcast'' modes are those having a combination of analog and digital emissions of the same program in the same channel, that may use a digital emission of 5 kHz or 10 kHz bandwidth, next to either a 5 kHz or 10 kHz analog emission. In all cases of this type, the 5 kHz interleaved raster used in HFBC shall be adhered to in placing the emission within these bands.

(ii) *Audio-frequency band.* The quality of service, using digital source coding within a 10 kHz bandwidth, taking into account the need to adapt the emission coding for various levels of error avoidance, detection and correction, can range from the equivalent of monophonic FM (approximately 15 kHz) to the low-level performance of a speech codec (of the order of 3 kHz). The choice of audio quality is connected to the needs of the broadcaster and listener, and includes the consideration of such characteristics as the propagation conditions expected. There is no single specification, only the upper and lower bounds noted in this paragraph.

(iii) *Modulation.* Quadrature amplitude modulation (QAM) with orthogonal frequency division multiplexing (OFDM) shall be used. 64–QAM is feasible under many propagation conditions; others such as 32–, 16– and 8–QAM are specified for use when needed.

(iv) *RF protection ratio values.* The protection ratio values for analog and digital emissions for co-channel and adjacent channel conditions shall be in accordance with Resolution 543 (WRC–03) as provisional RF protection ratio values subject to revision or confirmation by a future competent conference.

§ 73.766 [Remove and reserve]

13. Remove and reserve § 73.766.

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