FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 2, 25, and 87

[ET Docket No. 02–305; FCC 03–269]

World Radiocommunication Conferences Concerning Frequency Bands Above 28 MHz

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document amends our rules to implement domestically various allocation decisions from several World Radiocommunication Conferences (''WRCs'') concerning the frequency bands between 28 MHz and 36 GHz, and to otherwise update our rules in this frequency range. The following actions are the most significant to non-Federal government operations: Implementation of generic mobile-satellite service (''MSS'') allocations in the bands 1525–1559 MHz and 1626.5–1660.5 MHz (''L-band''); allocation of the band 1164–1215 MHz to the radionavigation-satellite service (''RNSS''); deletion of unused and limited fixed-satellite service (''FSS'') and broadcasting-satellite service (''BSS'') allocations from the band 2500–2690 MHz; and upgrade of the Earth exploration-satellite service (''EESS'') allocation in the band 25.5–27 GHz from secondary to primary. In addition, at the request of the National Telecommunications and Information Administration (''NTIA''), we implement various allocation changes for the space science services and the inter-satellite service (''ISS''), most of which involve spectrum primarily used by the Federal government. These actions conform our rules to previous WRC decisions and are expected to provide significant benefits to the American public.

DATES: Effective January 22, 2004.

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SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Report and Order,* ET Docket No. 02–305, FCC 03–269, adopted October 31, 2003, and released November 4, 2003. The full text of this document is available on the Commission's Internet site at *www.fcc.gov.* It is also 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 full text of this document also may be purchased from the Commission's duplication contractor, Qualex International, Portals II, 445 12th St., SW., Room CY–B402, Washington, DC 20554; telephone (202) 863–2893; fax (202) 863–2898; e-mail *qualexint@aol.com.*

Summary of the Report and Order

1. In the *R&O,* we provided for generic MSS allocations across all of the frequencies in the bands 1525–1559 MHz and 1626.5–1660.5 MHz. Specifically, we expanded the primary allocation in the bands 1545–1549.5 MHz, 1558.5–1559 MHz, 1646.5–1651 MHz, and 1660–1660.5 MHz from the aeronautical mobile-satellite (route) service (''AMS(R)S'') to all services within the MSS while preserving the status of AMS(R)S. The effect of this action is that the bands 1545–1559 MHz and 1646.5–1660.5 MHz will be made available to all types of MSS communications on a primary basis, rather than segmented for specialized use. This action permits more efficient use of this radio spectrum and facilitates the expansion of MSS use globally. In addition, we deleted the existing primary maritime mobile-satellite service (''MMSS'') and MSS allocations in the bands 1530–1544 MHz and 1626.5–1645.5 MHz, as they would now be superfluous. We also deleted the secondary allocation for aeronautical telemetry from the band 1525–1535 MHz to remove potentially conflicting allocations.

2. We allocate the band 1164–1215 MHz to the RNSS for space-to-Earth (''downlink'') and space-to-space transmissions in order to accommodate a new civil global positioning system (''GPS'') signal. This action permits the addition of GPS signal ''L5,'' which supports the safety-of-life requirements demanded by civil aviation. We also allocated the bands 1215–1240 MHz and 1559–1610 MHz, which are currently limited to RNSS downlinks, for RNSS space-to-space transmissions as well. This action allows use of spaceborne RNSS receivers for scientific and commercial applications.

3. We deleted the flight test and radiolocation allocations in the band 2320–2345 MHz because of the potential for conflict between these services and the Satellite Digital Audio Radio Service (''Satellite DARS''), which has been brought into operation in this band. We also deleted the unused FSS and BSS allocations from the band 2500–2690 MHz in order to remove allocations that are not compatible with two-way fixed and mobile operations that are operating and anticipated in the band.

4. We further implement domestically various allocation decisions from several WRCs concerning the space science services and the ISS. In this regard, we take the following actions:

- Revise secondary allocations for the Federal government EESS and the Federal government space research service (''SRS'') from secondary to primary status in 950 megahertz of spectrum in eight frequency bands and specify that these allocations are to be used for active sensor operations (''EESS (active)'' and ''SRS (active)''): 5250–5255 MHz, 5255–5350 MHz, 8550–8650 MHz, 9500–9800 MHz, 13.4–13.75 GHz, and 17.2–17.3 GHz.
- Modify the non-Federal government/Federal government shared allocations at 13.25–13.4 GHz and 35.6–36 GHz to provide flexibility for the Federal government to use 550 megahertz of additional spectrum for EESS (active) and SRS (active) on a primary basis, and change the primary footnote allocation for active spaceborne sensors in the band 35.5–35.6 GHz to a direct Table listing.
- Modify the non-Federal government/Federal government shared allocation at 5350–5460 MHz to provide flexibility for the Federal government to use 110 megahertz of additional spectrum for the EESS (active) on a primary basis.
- Modify the non-Federal government/Federal government shared allocation at 401–403 MHz to provide flexibility for the Federal government to use EESS uplinks and meteorological-satellite service (''METSAT'') uplinks on a primary basis.
- Modify the non-Federal government/Federal government shared allocation at 410–420 MHz to provide flexibility for the Federal government to use the SRS on a primary basis for space-to-space transmissions.
- Modify the non-Federal government/Federal government shared allocation at 7750–7850 MHz to provide flexibility for the Federal government to use METSAT downlinks on a primary basis, limited to non-geostationary satellite systems.
- Modify the non-Federal government/Federal government shared allocation at 8400–8450 MHz to provide flexibility for the non-Federal government to use SRS downlinks from deep space on a secondary basis.
- Modify the non-Federal government/Federal government shared allocation at 25.25–27.5 GHz to provide flexibility for the Federal government to use the ISS on a primary basis.
- Revise the EESS allocation from secondary to primary status in the band 25.5–27 GHz and change the directional

indicator from space-to-space to space-to-Earth.

5. In addition, we: (1) Delete the primary ISS shared allocation from the band 32–32.3 GHz; (2) delete the secondary AMS(R)S allocation from the band 136–137 MHz; (3) more than double the size of the geographic area in New Mexico and Texas where amateur stations in the band 420–450 MHz will be limited in power and where spread spectrum radiolocation systems in the sub-band 420–435 MHz should not expect to be accommodated; (4) modify our rules to reflect NTIA's recent action, which specified that Federal government wind profiler radars (''WPRs'') will operate in the sub-band 448–450 MHz; (5) permit U.S. flagged ships to use more spectrum-efficient equipment for on-board mobile radiotelephony communications in areas outside the territorial waters of the United States; (6) delete unused allocations for the International Fixed Public Radiocommunication Services (''IFPRS'') from the bands 2.1–2.2 GHz and 10.7–11.7 GHz; and (7) allocate the band 14–14.5 GHz to the MSS (Earth-to-space), which includes aeronautical mobile-satellite service (''AMSS''), on a secondary basis. We also make numerous ministerial amendments to part 2 of our rules.

Discussion

6. In response to various petitions for rulemaking, the Commission has addressed in a number of proceedings many allocation changes that resulted from the 1992 World Administrative Radio Conference (''WARC–92'') and the 1995 and 1997 World Radiocommunication Conferences (''WRC–95'' and ''WRC–97''). In the *Notice of Proposed Rule Making* (''NPRM''), 67 FR 75968, December 10, 2002, in this proceeding, the Commission turned to additional allocation changes from these conferences that have not previously been considered, including several changes sought mainly at the request of NTIA. The *NPRM* also addressed the RNSS allocation changes from the 2000 World Radiocommunication Conference (''WRC–2000''), a Petition for Rule Making filed by the Lockheed Martin Corporation (''Lockheed Martin'') requesting that the WRC–2000 RNSS allocations in the bands 1164–1215 MHz and 1559–1610 MHz be implemented domestically and that these frequency bands be added to part 25 of the Commission's Rules, and some non-WRC allocation issues that concern the frequency bands between 28 MHz and 36 GHz. These issues included downgrading the primary flight test and radiolocation allocations in the band 2320–2345 MHz to secondary status, deleting the limited BSS and FSS allocations from the band 2500–2690 MHz, deleting unused IFPRS allocations from the bands 2.1–2.2 GHz and 10.7–11.7 GHz, and making various ministerial amendments to clean up and update the rules.

A. Generic MSS at L-Band

7. *Proposals.* Domestically, the Commission has previously implemented generic MSS proposals in portions of the L-band. However, routine, non-safety related MSS public correspondence is currently precluded in the uppermost one megahertz of upper L-band spectrum (1558.5–1559 MHz and 1660–1660.5 MHz) and may be provided in nine megahertz of additional upper L-band spectrum only on a secondary basis (1545–1549.5 MHz and 1646.5–1651 MHz). Accordingly, the Commission proposed in the *NPRM* to expand the permitted primary services from AMS(R)S to all MSS in the bands 1545–1549.5 MHz, 1558.5–1559 MHz, 1646.5–1651 MHz, and 1660–1660.5 MHz.

8. In addition, the Commission proposed to take the following non-substantive, ''clean-up'' actions: (1) Delete the superfluous MMSS allocations from bands 1530–1544 MHz and 1626.5–1645.5 MHz, (2) delete the superfluous secondary MSS allocations from the bands 1545–1549.5 MHz and 1646.5–1651 MHz, and (3) delete the superfluous AMS(R)S allocations from the bands 1549.5–1558.5 MHz and 1651–1660 MHz. The effect of these proposals is that the band 1525–1559 MHz would be allocated for MSS downlinks on a primary basis and the band 1626.5–1660.5 MHz would be allocated for MSS uplinks on a primary basis.

9. The Commission proposed to maintain footnotes US308 and US315 concerning the priority to be afforded distress and safety communications, stating that it believed that these generic MSS allocations would provide MSV and others with maximum flexibility, without hindering the use of this spectrum for distress and safety communications. The Commission requested comment on whether footnote US308 should be modified or replaced by international footnotes 5.357A and 5.362A. The Commission also proposed to update part 25 of the rules by stating that the bands 1525–1559 MHz and 1626.5–1660.5 MHz are available for use by L-band MSS systems and that use of the bands 1544–1545 MHz and 1645.5–1646.5 MHz is limited to distress and safety communications.

10. The Commission also requested comment on whether the secondary mobile allocation, which is limited to aeronautical telemetry in the band 1525–1535 MHz, should be deleted in the United States Table of Frequency Allocations (''U.S. Table'') and on whether co-frequency transmissions from aircraft can cause harmful interference to the MSS. Consistent with this proposal, the Commission also proposed to revise footnote US78 to remove the frequency 1525.5 MHz, which can be used for both aircraft and spacecraft telemetry. The Commission further requested comment on whether the aeronautical telemetry operations in the band 1525–1535 MHz can be relocated to either the band 1435–1525 MHz or to the band 2310–2385 MHz.

11. *Decision.* We adopted the generic MSS allocation proposal for the bands 1525–1559 MHz/1626.5–1660.5 MHz set forth in the *NPRM,* deleting the secondary aeronautical telemetry allocation from the band 1525–1535 MHz and revising footnote US78 to remove the frequency 1525.5 MHz, and retaining footnotes US308 and US315. Commenters expressed strong support for a generic MSS allocation and deletion of the secondary aeronautical telemetry allocation, and we find that these changes will enhance flexibility and efficiency in the bands 1525–1559 MHz and 1626.5–1660.5 MHz. While there is a difference of opinion regarding the desirability of retaining footnotes US308 and US315, we concur with MSV that the advantages of retaining them outweigh the disadvantages. As noted by MSV, footnotes US308 and US315 are long-standing and replacement of them by international footnotes 5.357A and 5.362A, which have different language, would introduce confusion as to whether policy changes were being made. Further, § 25.136(d) and (e) of the Commission's rules set forth specific requirements for MSS mobile and land earth stations that satisfy the priority and preemption requirements of footnote US315. Regarding footnote US309, we concur with MSV that this footnote allows terrestrial stations in the AMS(R)S to operate in more of the band than international footnotes 5.357A and 5.362A, in order to supplement satellite-to-aircraft links in that service. The broader spectrum range allowed by US309 is more consistent with the Commission's decision to expand AMS(R)S use within a generic MSS allocation. Thus, we decline to modify US309, which we did not propose to change in the *NPRM.* Accordingly, we

are retaining footnotes US308, US315, and US309.

B. RNSS Allocations

12. *Proposals.* As requested by NTIA, the Commission proposed in the *NPRM* to adopt new footnote US385, which would allocate the band 1164–1189 MHz for RNSS downlink and space-to-space transmissions on a primary basis. It also proposed to add definitions of Differential Radionavigation Satellite Service (''Differential RNSS'') Station and Differential Global Positioning System (''DGPS'') Station to part 2 of the Commission's Rules, as follows:

Differential Radionavigation Satellite Service (Differential RNSS) Station. A station used for the transmission of differential correction data and related information (such as ionospheric data and RNSS satellite integrity information) as an augmentation to an RNSS system for the purpose of improved navigation accuracy.

Differential Global Positioning System (DGPS) Station. A differential RNSS station for specific augmentation of GPS.

13. Additionally, the Commission requested comment on whether the band 1164–1189 MHz should be added to a new footnote US343 that was proposed in WT Docket No. 01–289. This footnote would provide that DGPS stations may be authorized on a primary basis in the bands 108–117.975 MHz and 1559–1610 MHz for the specific purpose of transmitting DGPS information intended for aircraft navigation. The Commission further sought comment on whether it should allocate domestically the international RNSS allocation at 1189–1215 MHz, and in particular on whether this allocation is needed to support U.S. requirements. In the *NPRM*, the Commission observed that studies continue in the international process to determine the aggregate impact of multiple RNSS systems on incumbent aeronautical radionavigation service (''ARNS'') systems and that, given the safety-of-life aspects of these ARNS systems, the Commission did not anticipate adopting this additional allocation unless a need is demonstrated and studies are done that support such a move.

14. The *NPRM* also proposed to add a space-to-space directional indicator to the primary RNSS allocation in the bands 1215–1240 MHz and 1559–1610 MHz, which are currently limited to downlink transmissions, to recognize current and future use of spaceborne RNSS receivers for scientific and commercial applications. Finally, the *NPRM* declined to propose adding the RNSS L1 and L5 frequencies to § 25.202(a) of the Commission's Rules, as requested by the Lockheed Martin petition for rule making.

15. *Decision.* Since adoption of the NPRM in this docket, WRC–03 has taken certain decisions regarding RNSS that are relevant to issues raised in this proceeding. In particular, as noted by NTIA, WRC–03 has modified footnote 5.328A of the international Table of Allocations to clarify that all stations in the RNSS operating in the band 1164–1215 MHz shall operate in accordance with specified aggregate interference protection criteria for ARNS (-121.5 dB(W/m^2) in any 1 MHz band) and not claim protection from stations in the ARNS operating in the 960–1215 MHz band. Administrations operating RNSS stations in these bands are to cooperate to ensure that the protection criteria are satisfied. In the *NPRM* in this proceeding, we proposed to add a primary RNSS allocation in the band 1164–1189 MHz, and sought comment on whether we should extend the allocation to the band 1189–1215 MHz, noting in regard to the latter band that studies were underway in the international process to determine the aggregate impacts of multiple RNSS systems on incumbent ARNS systems. We stated that we would not anticipate adopting this additional allocation unless a need was demonstrated and studies completed. Although we did not propose pfd limits on RNSS systems, we did propose to adopt a new United States footnote that would require RNSS stations to not cause interference to, nor claim protection from, stations in the ARNS. Given the WRC–03 results and support on the record in this proceeding, we conclude that the RNSS allocation should extend from 1164–1215 MHz. This increased allocation will provide flexibility for potential future GPS implementation plans and facilitate cooperative efforts among administrations operating RNSS systems in these bands to protect ARNS systems. However, we concur with NTIA that a footnote—rather than a table—allocation for the new 1164–1215 MHz RNSS band is appropriate, and that this footnote should include language specifying that RNSS shall not cause harmful interference to ARNS. While Inmarsat Ventures plc (''Inmarsat'') contends that this language could be construed as an additional requirement or superfluous to the WRC–03 aggregate interference protection criteria, we find it appropriate as an interim measure. We intend to address how best to reference the WRC–03 protection criteria for ARNS, whether by adopting international footnote 5.328A or modifying our part 25 satellite service rules, when we initiate a proceeding to address WRC–03 implementation.

16. With regard to Lockheed Martin's recommendations that we expand the current GPS L2 spectrum at 1215–1240 MHz to 1215–1300 MHz and permit non-Federal government RNSS use of the band 1215–1300 MHz, we observe that the *NPRM* did not propose either of those changes and thus we have declined to consider these changes at this time. With regard to Lockheed Martin's recommendation that we add the international RNSS allocations at 1164–1215 MHz and 1559–1610 MHz to the part 25 list of frequency bands available for satellite services, we see no advantage to be gained by taking that action now. As the Commission stated in the *NPRM,* such action would be more appropriate in connection with development of service and licensing rules for the RNSS frequency bands, and following development of international technical criteria for operations in these bands. We will explore all of these issues when we consider the WRC–03 protection criteria for ARNS in the WRC–03 implementation proceeding.

17. With regard to Inmarsat's recommendation that we not adopt the proposed definitions of Differential RNSS and DGPS stations, we disagree with Inmarsat that these definitions create ambiguity or confusion between them and any current definition in either our rules or in the ITU rules. The definitions are simply informational. As we observed in the *NPRM,* differential RNSS correction data and related information is transmitted in a data link and sometimes is not within the RNSS. These definitions clarify that this information augments the RNSS system and improves navigation accuracy. Accordingly, we are adding the proposed definitions of Differential RNSS and DGPS stations to part 2 of the rules.

18. Finally, with regard to Inmarsat's comments on whether the band 1164–1189 MHz should be added to proposed footnote US343, we note that this footnote was proposed in the *Notice of Proposed Rule Making* in WT Docket No. 01–289, which is still pending. We do not wish to prejudge whether proposed US343 will be adopted in that proceeding; hence, we will defer consideration of the possible addition of the band 1164–1189 MHz to proposed US343 to *the Report and Order* in WT Docket No. 01–289.

C. Satellite DARS and Adjacent Bands

19. *Proposals.* In the *NPRM,* the Commission proposed to revise footnote US328 to permit flight testing

operations to continue on a secondary basis in the band 2320–2345 MHz. The Commission also proposed to delete the radiolocation service from footnote US328 because there are no non-Federal government radiolocation operations in the Satellite DARS band and because the Federal government already has a secondary direct Table allocation for this service. It further proposed to delete the requirement that Satellite DARS licensees take cognizance of the launch vehicle frequency 2332.5 MHz because satellite DARS systems have been implemented. In addition, the Commission requested comment on whether all secondary operations should be deleted from this band in order to protect Satellite DARS operations. It proposed to amend § 87.303(d)(1) to state that frequencies in the band 2310–2360 MHz may be assigned on a secondary basis for telemetry and telecommand operations associated with the flight testing of manned or unmanned aircraft and missiles, or their major component, and proposed to delete the launch vehicle frequency 2332.5 MHz from § 87.303(d)(1). The Commission also proposed to add cross-references in the U.S. Table to part 25, Satellite Communications, in the band 2320–2345 MHz, and to part 87, Aviation Services, in the band 2310–2390 MHz. Finally, the *NPRM* proposed to delete footnote 5.396 from the band 2310–2360 MHz from the Federal Government Table because that footnote pertains to the broadcasting-satellite service, which is not regulated by NTIA; and to delete footnote US338 from the band 2310–2320 MHz because that footnote does not pertain to that band. These combined actions were designed to clarify use of the band 2310–2390 MHz and to permit the new satellite DARS service to operate in an interference-free environment in the band 2320–2345 MHz.

20. *Decision.* We are adopting the proposals pertaining to the band 2310–2390 MHz set forth in the *NPRM,* except that we are deleting the mobile service allocation from band 2320–2345 MHz in the U.S. Table and are deleting footnotes US276 and US328, which limit uses under the mobile allocation, from that band. The comments of the Aerospace and Flight Test Radio Coordinating Council and the Boeing Company (''Boeing'') convince us that there is no need to maintain a secondary aeronautical telemetry allocation in the band 2320–2345 MHz because such an allocation would be unusable due to potential interference from new Satellite DARS operations. Because footnote US276 currently limits the use of the mobile service in the band 2320–2385 MHz to aeronautical telemetry, this United States footnote is retained but henceforth will apply only to the band 2360–2385 MHz. In contrast, footnote US328, which applies only to the band 2320–2345 MHz, is deleted in its entirety. In all other respects, we adopt the proposals for the band 2310–2390 MHz set forth in the *NPRM.* This action will eliminate possible interference to Satellite DARS operations, as well as remove confusion regarding use of the band 2310–2390 MHz.

D. ITFS/MDS Band

21. *Proposals.* In the *NPRM,* the Commission stated its belief that FSS and BSS operations in the band 2500–2690 MHz could affect the reliability of point-to-multipoint channels and low-power consumer response channels in that band and noted that service rules for advanced mobile operations may also be implemented in that band in the future. Therefore, the Commission proposed to delete the unused and limited FSS and BSS allocations from the band 2500–2690 MHz in order to remove regulatory uncertainty. Consistent with its proposal to delete these allocations, the Commission also proposed to delete footnotes NG101 and NG102, which limit the use of the allocations. In addition, it proposed to delete footnote NG47 so as to make the band 2655–2690 MHz available for ITFS/MDS use in Alaska.

22. *Decision.* We are adopting the proposals pertaining to the band 2500–2690 MHz set forth in the *NPRM.* No party objects to the proposal to delete the FSS allocation in that band, and only AirTV Limited (''AirTV'') objects to the proposal to delete the BSS allocation in that band. We make no finding on the potential benefits of AirTV's proposed based Direct-to-Aircraft entertainment and e-mail system in the band 2535–2670 MHz. However, we find that such a system would increase costs for terrestrial services due to the need to mitigate interference caused by AirTV's system. We concur with Boeing that the World Trade Organization agreement does not apply to AirTV's system and thus the U.S. may limit new satellite authorizations when faced with potential interference issues with incumbent operations. We concur with the Wireless Communications Association International, Inc. that AirTV has not met the burden of demonstrating that its system will not cause interference to terrestrial services that use the band 2520–2670 MHz. Accordingly, as proposed in the *NPRM,* we are deleting the FSS and BSS allocations from the band 2500–2690 MHz and are deleting footnotes NG47, NG101, and NG102.

E. Space Science Services

23. *Proposals.* With respect to active spaceborne sensors, in the *NPRM* the Commission proposed, in response to a request from NTIA, to allocate the bands 1215–1300 MHz, 3100–3300 MHz, 5255–5350 MHz, 8550–8650 MHz, 9500–9800 MHz, 13.25–13.4 GHz, 17.2–17.3 GHz, and 35.5–36 GHz to the EESS (active) and SRS (active); the bands 5250–5255 MHz and 13.4–13.75 GHz to the EESS (active) and SRS; and the band 5350–5460 MHz to the EESS (active). These allocation changes would implement WRC–97 allocation changes for the space science services. For the Federal Government Table, the Commission proposed that all of these active spaceborne sensor allocations have primary status, except in the band 3100–3300 MHz, where the sensors would continue to have secondary status. For the non-Federal Government Table, the Commission proposed that all of these allocations have secondary status. At the request of NTIA, the Commission also proposed to add five international footnotes to the U.S. Table to ensure that active spaceborne sensors not cause harmful interference to, nor constrain the use and development of, incumbent primary services in the bands 1215–1300 MHz, 5350–5460 MHz, and 13.25–13.75 GHz. Finally, and also at the request of NTIA, the Commission proposed to add two international footnotes to the U.S. Table to ensure that primary SRS allocations in the bands 5250–5255 MHz and 13.4–13.75 GHz are limited to active spaceborne sensors and that other space research users are on a secondary basis. Consistent with these proposals, the Commission proposed to delete from the U.S. Table international footnotes 5.333 and 5.551, which provide the current secondary active spaceborne sensor allocations, and also proposed to delete the secondary allocation for the SRS (Earth-to-space) in the band 13.25–13.4 GHz.

24. With respect to other space science services, in the band 401–403 MHz the Commission proposed in the *NPRM,* in response to a request from NTIA, to upgrade the secondary EESS and METSAT allocations to primary status for Federal government use and to limit non-Federal government use of these allocations to earth stations transmitting to Federal government space stations. The Commission requested comment on whether non-Federal government use of these allocations should be limited to earth

stations transmitting to Federal government space stations. The Commission proposed to allocate the band 410–420 MHz to the SRS (space-to-space) on a primary basis for Federal government use and to limit its use, through the application of footnote 5.268, to permit communications among astronauts and their base spacecraft while those astronauts are performing activities outside the base spacecraft. In the band 7750–7850 MHz, the Commission proposed an allocation for Federal government METSAT downlink use, limited to NGSO satellites, as requested by NTIA. In the band 8400–8450 MHz, the Commission proposed an allocation for Deep Space downlinks on a secondary basis, to permit non-Federal government entities, such as educational institutions, to perform scientific research in cooperation with the National Aeronautics and Space Administration (''NASA''). In the 32 GHz band range, the Commission proposed to delete the unused ISS allocation from the band 32–32.3 GHz in order to protect deep space reception at Goldstone, California, and proposed to move the text of an international footnote into a U.S. footnote to reflect the anticipated prohibition on use of the band 32–32.3 GHz by the ISS. Finally, in the 34 GHz frequency range, the Commission proposed to move the SRS (deep space) (Earth-to-space) allocation at 34.2–34.7 GHz from a U.S. footnote into the U.S. Table as a direct Table allocation, with Federal government use on a primary basis and with non-Federal government use on a secondary basis; and proposed to move the Goldstone site restriction in that same band from footnote US252 to US262.

25. *Decision.* We are adopting the proposals to provide a primary Federal government allocation and a secondary non-Federal government allocation for EESS (active) and SRS (active) in the band 1215–1260 MHz. With regard to Lockheed Martin's concerns that a primary allocation for EESS (active) and SRS (active) would pose a threat of harmful interference to domestic and global RNSS, we disagree. First, we are adding international footnote 5.332, which states that, for the band 1215–1260 MHz, active spaceborne sensors in the EESS and SRS shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the RNSS and other services allocated on a primary basis. Second, we observe that the international frequency table already contains primary allocations for RNSS, EESS (active) and SRS (active) in the band 1215–1300 MHz. Thus, if the U.S., in the future, decides to add a primary RNSS allocation to the 1260–1300 MHz band, such a decision would be consistent with the existing international allocation. Any appropriate sharing criteria can be worked out at that time. With regard to Medtronic Inc.''s recommendation that non-Federal government use of the EESS and METSAT allocations in the band 401–403 MHz be limited to earth stations transmitting to Federal government space stations, no party supports permitting earth stations to transmit to non-Federal government space stations in this band and we did not propose such use. Accordingly, we decline to permit that use.

F. The Band 25.25–27.5 GHz

26. *Proposals.* In the *NPRM,* the Commission noted that there are currently no FCC licensees using the secondary EESS allocation in the band 25.25–27.5 GHz and proposed to: (1) generally reflect changes previously made to the Federal government Table in the *NTIA Manual,* including adopting a primary ISS allocation in that band and changing the directional indicator for the secondary EESS allocation in the sub-band 25.5–27 GHz from space-to-space to space-to-Earth; (2) correspondingly change the directional indicator for the secondary non-Federal government EESS allocation in that sub-band; (3) upgrade the Federal government EESS allocation in that sub-band to primary status; and (4) delete the remainder of the secondary EESS allocation (25.25–25.5 GHz and 27–27.5 GHz).

27. *Decision.* We are adopting the proposals pertaining to the band 25.25–27.5 GHz set forth in the *NPRM,* except that we are maintaining, rather than deleting, the secondary non-Federal government allocation for the EESS (space-to-space) in that band. We take the latter action to allow flexibility for both space-to-space and space-to-Earth operations by Federal and non-Federal government users in that band. With respect to DigitalGlobe Inc.''s and Space Imaging, LLC's concerns about non-Federal government EESS systems, we find that these two companies have presented evidence that the non-Federal government, as well as the Federal government, EESS allocation in the sub-band 25.5–27 GHz band should be upgraded to primary status, but we conclude that we have insufficient basis to upgrade that allocation at this time. The *NPRM* did not propose to upgrade the non-Federal government allocation, and ''based on the limited record in this proceeding ''we are unable to conclusively determine whether Federal government fixed, mobile, ISS, and EESS users of the sub-band 25.5–27 GHz would be adversely affected by this upgrade. Accordingly, we decline to take that action at this time. However, we plan to explore in the WRC–03 implementation proceeding referenced in paragraph 24, of the R&O, whether that change could be made without adversely impacting Federal government users of that sub-band. In the interim, because non-Federal government EESS providers will use that sub-band on a secondary basis to Federal government users, it is incumbent that EESS applicants coordinate their proposed operations with NTIA in order to protect those users. Accordingly, we are adopting the changes for the band 25.25–27.5 GHz proposed in the *NPRM,* except for maintaining the secondary non-Federal government allocation for the EESS (space-to-space) in that band.

G. Other Allocation Issues

(1) Secondary AMS(R)S Allocation in the Band 136–137 MHz

28. *Proposals.* The *NPRM* proposed a footnote change in the U.S. Table in order to delete the unused AMS(R)S allocation from the band 136–137 MHz. In addition, the *NPRM* proposed a footnote change to remove the expired transition plan for METSAT use of the band 136–137 MHz.

29. *Decision.* No party commented on the proposals pertaining to the band 136–137 MHz set forth in the *NPRM.* We are adopting these proposals. This action will bring the U.S. Table in the band 136–137 MHz into conformance with the band's use by the AM(R)S, remove the potentially conflicting AMS(R)S secondary allocation, and remove the expired transition plan for METSAT use of the band.

(2) The Band 420–450 MHz

30. *Proposals.* In the *NPRM,* the Commission, in response to a request from NTIA on behalf of the U.S. Army, proposed to modify footnotes to the U.S. Table to more than double the combined size of the geographical area in Texas and New Mexico where the maximum transmitter power that amateur radio stations may use in the band 420–450 MHz would generally be limited to 50 watts PEP, rather than the usual limit of 1.5 kW PEP. In its request to the Commission, NTIA states that this geographical area must be extended to prevent interference from amateur radio operations to a New Mexico missile test range. NTIA cites Army concerns that amateur operations in this area present an interference threat to missiles

launched at Fort Wingate, NM, aimed at the airspace over White Sands Missile Range, NM, because there is now a Department of Defense test and evaluation center that uses areas west and south of Albuquerque, NM. Also in response to a request from NTIA, the Commission stated that it intended to place an informational footnote in its Rules pertaining to Federal government wind profiler radar (''WPR'') radiolocation use of the sub-band 448–450 MHz. Finally, the *NPRM* requested comment on whether non-Federal government WPRs should also be allowed in that sub-band on either a primary or secondary basis and on the impact of WPRs on non-Federal government operations permitted in that sub-band.

31. *Decision.* We are adopting the proposals pertaining to the band 420–450 MHz set forth in the *NPRM.* With regard to the recommendation of ARRL, the National Association for Amateur Radio (''ARRL''), that the Commission establish an expedited method of processing amateur radio license requests in cases where amateurs are able to reach agreements with military area frequency coordinators, we note that our license processing procedures are not subject to rulemaking; however, we always seek to process applications as expeditiously as possible. With regard to the concern of Douglas Hanz—an amateur radio licensee—that amateur radio stations be permitted to use 110 watts PEP in that band with a restriction of 6dBi antenna gain, inclusive of transmission line loss, we observe that there already is a procedure by which amateur licensees can use powers greater than 50 watts; *i.e.*, by reaching agreement with a military area frequency coordinator. As indicated in NTIA's correspondence to us of August 2002, the Army finds that the area in Texas and New Mexico where amateur transmitter power in the band must be limited should be expanded to protect missile testing and evaluation at a test range in New Mexico. Accordingly, we are adopting our proposal to modify footnotes to the U.S. Table to expand the area in Texas and New Mexico where the maximum transmitter power that amateur radio stations may use in the band 420–450 MHz would generally be limited to 50 watts PEP. With regard to permitting non-Federal government WPR use of the sub-band 448–450 MHz, only ARRL commented, and it is strongly opposed. Because no one expresses an interest in such non-Federal use, we will not permit non-Federal government WPR use in the 448–450 MHz sub-band.

(3) On-Board Mobile Radiotelephony Communications

32. *Proposals.* In the *NPRM,* the Commission proposed to replace international footnote 669 with footnote 5.287 in the U.S. Table for the band 456–470 MHz. The effect of this proposal would be to permit U.S. licensees to use maritime mobile equipment that is more spectrum-efficient and that has access to ten instead of six channels for on-board communications in areas outside U.S. territorial waters.

33. *Decision.* No party commented on our proposal to replace international footnote 669 with footnote 5.287 in the U.S. Table for the band 456–470 MHz, thereby revising the frequency use provision for on-board mobile radiotelephony maritime communications. Accordingly we are adopting this proposal. This action will permit more efficient maritime mobile equipment to be employed outside U.S. territorial waters.

(4) IFPRS Use in the Bands 2.1–2.2 GHz and 10.7–11.7 GHz

34. *Proposals.* In the *NPRM,* the Commission, in order to remove regulations that are no longer needed, proposed to delete footnote NG23, which pertains to the band 2100–2200 MHz, and to revise footnote NG41 to remove the band 10.7–11.7 GHz because there are no longer any IFPRS licensees operating in either of these bands. The Commission also proposed to delete all cross-references to part 23, except for C-band, from column 6 of the Table of Frequency Allocations.

35. *Decision.* We are adopting the proposals pertaining to the IRPRS set forth in the *NPRM,* but are rejecting the recommendation of the PanAmSat Corporation (''PanAmSat'') to prohibit new C-band IFPRS facilities. There is no opposition to the proposals relating to the IFPRS; however, PanAmSat recommends that we take additional action. While we concur with PanAmSat that new IFPRS facilities are unlikely to be required in C-band, we do not want to foreclose the opportunity for additional use of this service in remote island areas if it is required. Further, we have not given interested parties sufficient notice in this proceeding to prohibit such facilities. Additionally, there would be no significant administrative advantage of such a prohibition, as C-band IFPRS rules must be retained for existing facilities. Accordingly, we deny PanAmSat's request.

(5) Secondary MSS Use of the Band 14–14.5 GHz

36. *Proposals.* In the *NPRM,* the Commission observed that LMSS operates on the band 14–14.5 GHz in the United States on a secondary basis without causing harmful interference to ubiquitously deployed VSATs and that other nations have implemented MMSS uplinks in the band 14–14.5 GHz on a secondary basis. The Commission also observed that it agreed with the *U.S. WRC–97 Proposals* that using the same or similar terminals to offer MMSS services in the band 14–14.5 GHz should be compatible with other services in this band, especially since the LMSS allocation has been successfully used in the United States for some time. Accordingly, the Commission proposed in the *NPRM* to allocate the band 14–14.5 GHz to the MSS (Earth-to-space) except AMSS on a secondary basis for non-Federal government use.

37. *Decision.* We are allocating the band 14–14.5 GHz to the MSS, including AMSS (Earth-to-space), for non-Federal government use on a secondary basis. There is no opposition to this allocation. Consistent with the comments of Boeing regarding AMSS, we believe that such use of the band appears to be technically feasible and would be helpful in meeting the growing demand for two-way broadband data and communications capabilities for commercial aircraft passengers and crew. Further, WRC–03 added a worldwide secondary AMSS allocation in this band. We find that conforming the U.S. Table to this recent international allocation is desirable because it will facilitate an important new use of the 14–14.5 GHz band on a non-interference basis to other uses of the band. We further find that no party need be adversely impacted by this action. However, we note that the SRS has a secondary allocation in a portion of this band and NASA uses that allocation as a downlink for its Tracking and Data Relay Satellite System (''TDRSS''). Further, the National Science Foundation (''NSF'') operates radio astronomy services (''RAS'') in the band 14.47–14.50 GHz in accordance with footnote US203 and Radio Astronomy is allocated on a secondary basis internationally. Therefore, users of AMSS will need to deal with protection of radio astronomy. We also note that a number of administrations have specified specific protection requirements for radio astronomy. In December 2001, we issued Boeing a license to operate mobile earth stations aboard aircraft in the 14–14.5 GHz band

and imposed several conditions on that license, including the conditions that Boeing not constrain deployment of additional government stations operated by NASA in the SRS and that Boeing design and operate its system in accordance with its Technical Operational Coordination Agreement with NSF to facilitate the protection of RAS. Boeing must continue to operate in accordance with the conditions that we imposed on its license and thus must continue to protect the TDRSS and RAS operations in the 14–14.5 GHz band. Further, in accordance with a Memorandum of Understanding (''MOU'') that we reached with NTIA in July 2002, we will protect those operations from interference by any future AMSS operations that we authorize in that band. Until we adopt final rules relating to allocation changes in the 14–14.5 GHz band or licensing of AMSS terminals in that band, we will place the following conditions on any additional system authorizations that we may issue in that band for a service similar to Boeing's:

(1) The system shall be designed and operated so as not to cause harmful interference to TDRSS or RAS operations in the United States; and

(2) The system shall not constrain future deployment of additional Federal Earth Stations in the SRS and RAS authorized pursuant to existing allocations.

Because RAS operations in the band 14.47–14.5 GHz operate on an unprotected basis domestically, we will maintain the protection of RAS as articulated in the conditions specified above. However, we note that the Commission may explore in a future rulemaking the protection levels or mechanism necessary to protect these services. The NTIA/FCC MOU states that ''[t]he FCC will endeavor to reflect in its decisions conditions and constraints that explicitly protect NASA, NSF and other government operations (*i.e.*, ITU–R Recommendation RA. 769 for Radio Astronomy and ITU–R Recommendations S.A. 5.10, S.A. 1017, S.A. 1155, S.A. 1414, M. AMSS for TDRSS earth stations, and Boeing's Technical Operational Coordination Agreement with NSF, dated 13 December 2001, and the letter of guidance provided to Boeing by NASA, dated December 18, 2001.''

38. Lastly, as noted in paragraph 55, of the R&O, government fixed and mobile services are allocated on a secondary basis in the band 14.4–14.5 GHz. Protection criteria for these government terrestrial operations may need to be developed in conjunction with AMSS service rules in the 14–14.5 GHz band.

39. Accordingly, we are allocating the 14–14.5 GHz band to all MSS uses on a secondary basis to the primary FSS in that band, as well as on a secondary basis to the primary radionavigation service in the 14–14.2 GHz sub-band. Finally, with regard to PanAmSat's concern about MMSS, we observe that such use of the band 14–14.5 GHz—like other MSS use of this band—will be on a secondary basis to FSS, and we find no need to further restrict how MMSS should operate in the band.

H. Ministerial Amendments

40. *Proposals.* In the *NPRM,* the Commission proposed to make a number of ministerial amendments to part 2 of the Commission's rules. First, to eliminate both confusion and outdated provisions, the Commission proposed to:

(1) Replace international footnotes 599A, 608A, 608B, and 647B in the ''Little LEO'' bands of the U.S. Table with footnotes 5.208, 5.219, 5.220, and 5.264, respectively, which are non-substantive changes;

(2) Merge footnote US322 into US320, that is, add the bands 149.9–150.05 MHz and 399.9–400.05 MHz to footnote US320, and delete superfluous footnotes US322 and 599B from the U.S. Table;

(3) Delete expired footnote US318 from the band 137–138 MHz and the part 25 cross reference from the band 136–137 MHz; and

(4) Delete expired text from section 25.202(a)(3), which concerns the allocation status of certain of the Little LEO bands.

41. Second, the Commission observed that, in WT Docket No. 01–289, it proposed to delete the Civil Air Patrol (''CAP'') from part 87 of the rules because the Commission has no formal relationship with the CAP, which is authorized by the U.S. Air Force and NTIA. To be consistent with that proposal, in the *NPRM* the Commission proposed to delete footnote US10, which states that several frequencies in the band 138–144 MHz are available for use by the CAP.

42. Third, the Commission proposed to delete international footnote 510 from the band 144–146 MHz in the non-Federal Government Table. This footnote, through its reference of Resolution 640, invited administrations to provide for the needs of international disaster communications and for the needs of emergency communications using certain amateur bands.

43. Fourth, the Commission proposed to revise footnote US48 to remove provisions regarding the band 5350–5460 MHz that are already provided elsewhere in the Table. That is, there is already a primary direct Table allocation for Federal government radiolocation and a secondary direct Table allocation for non-Federal government radiolocation in the band 5350–5460 MHz for this purpose.

44. Fifth, the Commission proposed to revise footnote US110 to remove provisions regarding certain bands that are already shown in the Table. That is, there are primary direct Table allocations for Federal government radiolocation and secondary direct Table allocations for non-Federal government radiolocation in all of the bands listed in footnote US110, except for the band 9200–9300 MHz, which is allocated to both the Federal and non-Federal government radiolocation service on a secondary basis.

45. Sixth, the Commission proposed to revise footnote US310 to specify the pfd limits for all angles of arrival. Currently US310 specifies only the maximum and minimum pfd limits and references CCIR Recommendation 510–1, which has been renumbered as Recommendation ITU–R SA.510–2, for the specific requirements.

46. Seventh, the Commission proposed to add a reference to footnote NG167 in the band 17.3–17.7 GHz to explicitly tie the allocation for the broadcasting-satellite service in the band 17.3–17.7 GHz to its feeder link allocation in the band 24.75–25.25 GHz.

47. Eighth, the Commission proposed to make the following changes to the rule part cross-references in column 6 of the Table of Frequency Allocations:

(1) Delete part 87, the Aviation Services, from the band 29.8–30 MHz and add part 87 to the bands 72–73 MHz, 74.6–74.8 MHz, and 156.2475–157.0375 MHz;

(2) Add part 90, the Private Land Mobile Radio Services, to the band 410–420 MHz;

(3) Add part 80, the Maritime Services, to the band 1525–1535 MHz; and

(4) Add part 25, Satellite Communications, to the band 1660–1660.5 MHz.

48. Ninth, the Commission proposed to make the following changes to eliminate outdated requirements or correct typographical errors:

(1) Clarify in footnote US217 that spread spectrum radiolocation systems may be authorized for Federal and non-Federal government use in the sub-band 420–435 MHz within Alaska and the contiguous 48 states and correct several typographical errors;

(2) Correct a typographical error in footnote US316 by changing the

NEXRAD expansion band from 2900–3100 MHz to 2900–3000 MHz;

(3) Delete the references to footnote NG30 in the band 806–894 MHz and to footnote NG43 in the band 806–849 MHz from the non-Federal Government Table because these footnotes have previously been deleted, but were not fully removed from the non-Federal Government Table;

(4) Delete footnote NG63 because the Commission's licensing files show that there are no television broadcast translator stations still authorized to operate in the band 806–890 MHz (old TV channels 70–83); and

(5) Delete footnote US54 because Federal government radiolocation systems that could cause harmful interference to ARNS have had at least since 1961 to move to other frequency bands.

49. Tenth, the Commission proposed to replace the reference to international footnote 5.149 with footnote US342 in the U.S. Table for several frequency bands and proposed to add two additional bands to the text of that footnote. In addition, it proposed to delete footnote 5.149 from the band 1660.5–1668.4 MHz, and proposed to revise US342 by deleting the indication showing which frequency bands are used for spectral line observations. The Commission also requested comment on whether US342 could be revised to state that licensees are ''urged,'' (similar to footnote 5.149) instead of ''required'' to take all practicable steps to protect the radio astronomy service (''RAS'') from harmful interference.

50. Finally, the Commission observed that the band 73–74.6 MHz is allocated exclusively to the RAS, which is a passive service, and that passive bands are listed in footnote US246. Accordingly, it proposed to add the band 73–74.6 MHz to US246.

51. *Decision.* No party commented on any of the proposals pertaining to ministerial amendments to part 2 of the Commission's rules set forth in the *NPRM.* We are adopting these proposals, to enhance the accuracy of the U.S. Table. In addition, on our own motion, we are making nine additional ministerial changes. We are merging the bands 698–746 MHz and 746–764 MHz as the band 698–764 MHz because the allocations in these bands are exactly the same and thus, this action simplifies our Table. We are deleting the band 34.2–34.7 GHz from footnote US252 because the SRS allocation for this band has been made a direct Table allocation. We are deleting the obsolete list of coordinated observatories from footnote US277 and are instead cross referencing the list of observatories in footnote US355. We are correcting footnote US355 in order to use the proper symbols for degree, minute, and second. We remove the ''S'' reference in footnote US303 to make the cross-reference to ITU Radio Regulation No. 21.16 consistent with current practice. We are updating footnote NG114 to refer to the Public Mobile Service, not the Domestic Public Service, which no longer exists. At the request of NTIA, we are adding footnote 5.391, which prohibits high-density mobile systems, to the band 2200–2290 MHz, which is Federal government exclusive band. We are adding cross reference to the Aviation Services (part 87) in the bands 2310–2320 MHz and 2345–2385 MHz. We also remove those footnotes to the Table of Frequency Allocations that are no longer in effect because they have been suppressed in the *ITU Radio Regulations.* These additional ministerial actions will update and otherwise remove errors from the U.S. Table.

Final Regulatory Flexibility Certification

52. The Regulatory Flexibility Act of 1980, as amended (''RFA'') requires that a final regulatory analysis be prepared for notice-and-comment rule making proceedings, unless the agency certifies that the ''the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. The RFA generally defines the term ''small entity'' as having the same meaning as the terms ''small business,'' ''small organization,'' and ''small governmental jurisdiction.'' In addition, the term ''small business'' has the same meaning as the term ''small business concern'' under the Small Business Act. A ''small business concern'' is one which: (1) Is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (''SBA'').

53. The Report and Order amends parts 2, 25, and 87 of our rules in order to implement domestically various allocation decisions from several World Radiocommunication Conferences concerning the frequency bands between 28 MHz and 36 GHz and to otherwise update our rules in this frequency range. These allocations mainly affect Federal agencies. Those allocations that are most significant to non-Federal government operations are: (1) Implementing generic L-band MSS allocations; (2) allocating the band 1164–1189 MHz to the RNSS; and (3) deleting unused and limited FSS and BSS allocations from the band 2500–2690 MHz. Concerning L-band MSS, currently there is only one U.S. licensee. Concerning the RNSS allocation, only one or at most a few large companies are expected to be able to launch and maintain RNSS systems, which are expensive. The last action merely deletes unused allocations, with no direct effect on licensees or regulatees.

54. We have determined that the rules adopted in this R&O will not have a significant economic impact on a substantial number of small entities. Accordingly, we hereby certify that this R&O will not have a significant economic impact on a substantial number of small entities. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of this R&O, including this certification, to the Chief Counsel for Advocacy of the Small Business Administration.

Ordering Clauses

55. Pursuant to sections 1, 4, 301, 302(a), 303, 307, 309, 316, 332, 334, and 336 of the Communications Act of 1934, as amended, 47 U.S.C. sections 151, 154, 301, 302(a), 303, 307, 309, 316, 332, 334, and 336, the Report and Order and final rules are adopted.

56. The late-filed comments of DigitalGlobe, Inc. to the *Notice of Proposed Rule Making* in this proceeding are accepted.

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

58. This proceeding is terminated.

List of Subjects

47 CFR Part 2

Communications equipment, Radio.

47 CFR Part 25

Commmunications equipment, Satellites.

47 CFR Part 87

Air transportation.

Federal Communications Commission.

Marlene H. Dortch,

Secretary.

Final Rules

■ For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 2, 25, and 87 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 adding the following definitions in alphabetic order:

§ 2.1 Terms and definitions.

* * * * *

Differential Global Positioning System (DGPS) Station. A differential RNSS station for specific augmentation of GPS.

Differential Radionavigation Satellite Service (Differential RNSS) Station. A station used for the transmission of differential correction data and related information (such as ionospheric data and RNSS satellite integrity information) as an augmentation to an RNSS system for the purpose of improved navigation accuracy.

* * * * *

■ 3. Section 2.106 is amended as follows:

■ a. Revise pages 22 through 75 of the Table.

■ b. In the list of International Footnotes under heading I, remove footnotes 5.120, 5.148, 5.333, and 5.551; add footnotes 5.457A, 5.457B, 5.504A, 5.504B, 5.504C, 5.506A, 5.506B, 5.508A, and 5.509A; and revise footnotes 5.505 and 5.508.

■ c. In the list of International Footnotes under heading II, remove footnotes 591, 599A, 599B, 608A, 608B, 647B, 669, and 792A.

■ d. In the list of United States (US) Footnotes, revise US7, US48, US78, US110, US217, US244, US246, US252, US258, US262, US276, US277, US278, US303, US310, US316, US320, US342, and US355; remove US10, US54, US228, US269, US318, US322, and US328; and add footnotes US384, US385, and US386.

■ e. In the list of Non-Federal Government (NG) Footnotes, remove NG23, NG47, NG63, NG101, and NG102; and revise NG41 and NG114.

■ f. In the list of Federal Government (G) Footnotes, revise footnote G2 and add footnote G129.

The revisions and additions read as follows:

§ 2.106 Table of Frequency Allocations.

* * * * *

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28-33 MHz (HF/VHF)

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
28-29.7 AMATEUR AMATEUR-SATELLITE			28-29.89	28-29.7 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
29.7-30.005 FIXED MOBILE				29.7-29.8 LAND MOBILE US340	Private Land Mobile (90)
			US340	29.8-29.89 FIXED US340	
			29.89-29.91 FIXED MOBILE US340	29.89-29.91 US340	
			29.91-30 US340	29.91-30 FIXED US340	
30.005-30.01 SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH			30-30.56 FIXED MOBILE	30-30.56	
30.01-37.5 FIXED MOBILE			30.56-32	30.56-32 FIXED LAND MOBILE NG124	Private Land Mobile (90)
			32-33 FIXED MOBILE	32-33	
			See next page for 33-37.5 MHz		See next page for 33-37.5 MHz

33-50 MHz (VHF)					Page 23
International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
See previous page for 30.01-37.5 MHz			33-34	33-34 FIXED LAND MOBILE NG124	Private Land Mobile (90)
			34-35 FIXED MOBILE	34-35	
			35-36	35-36 FIXED LAND MOBILE	Public Mobile (22) Private Land Mobile (90)
			36-37 FIXED MOBILE US220	36-37 US220	
			37-37.5	37-37.5 LAND MOBILE NG124	Private Land Mobile (90)
37.5-38.25 FIXED MOBILE Radio astronomy			37.5-38 Radio astronomy US342	37.5-38 LAND MOBILE Radio astronomy US342 NG59 NG124	
5.149			38-38.25 FIXED MOBILE RADIO ASTRONOMY US81 US342	38-38.25 RADIO ASTRONOMY US81 US342	
38.25-39.986 FIXED MOBILE			38.25-39 FIXED MOBILE	38.25-39	
			39-40	39-40 LAND MOBILE NG124	Private Land Mobile (90)
39.986-40.02 FIXED MOBILE Space research			40-42 FIXED MOBILE	40-40.98	ISM Equipment (18) Private Land Mobile (90)

40.02-40.98 FIXED MOBILE 5.150				5.150 US210	
40.98-41.015 FIXED MOBILE Space research 5.160 5.161				40.98-42	
41.015-44 FIXED MOBILE			5.150 US210 US220	US220	
			42-46.6	42-43.69 FIXED LAND MOBILE NG124 NG141	Public Mobile (22) Private Land Mobile (90)
5.160 5.161				43.69-46.6 LAND MOBILE NG124 NG141	Private Land Mobile (90)
44-47 FIXED MOBILE 5.162 5.162A			46.6-47 FIXED MOBILE	46.6-47	
47-68 BROADCASTING	47-50 FIXED MOBILE	47-50 FIXED MOBILE BROADCASTING 5.162A	47-49.6	47-49.6 LAND MOBILE NG124	Private Land Mobile (90)
			49.6-50 FIXED MOBILE	49.6-50	
5.162A 5.163 5.164 5.165 5.169 5.171	See next page for 50-68 MHz		See next page for 50-73 MHz	See next page for 50-72 MHz	See next page for 50-72 MHz

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
See previous page for 47-68 MHz	50-54 AMATEUR 5.162A 5.166 5.167 5.168 5.170		50-73	50-54 AMATEUR	Amateur (97)
	54-68 BROADCASTING Fixed Mobile 5.172	54-68 FIXED MOBILE BROADCASTING 5.162A		54-72 BROADCASTING NG115 NG128 NG149	Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
68-74.8 FIXED MOBILE except aeronautical mobile	68-72 BROADCASTING Fixed Mobile 5.173	68-74.8 FIXED MOBILE			
	72-73 FIXED MOBILE			72-73 FIXED MOBILE NG3 NG49 NG56	Public Mobile (22) Aviation (87) Private Land Mobile (90) Personal Radio (95)
	73-74.6 RADIO ASTRONOMY 5.178		73-74.6 RADIO ASTRONOMY US74 US246		
5.149 5.174 5.175 5.177 5.179	74.6-74.8 FIXED MOBILE	5.149 5.176 5.179	74.6-74.8 FIXED MOBILE US273		Aviation (87) Private Land Mobile (90)
74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180 5.181			74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180		Aviation (87)
75.2-87.5 FIXED MOBILE except aeronautical mobile	75.2-75.4 FIXED MOBILE 5.179		75.2-75.4 FIXED MOBILE US273		Private Land Mobile (90)

	75.4-76 FIXED MOBILE	75.4-87 FIXED MOBILE	75.4-88	75.4-76 FIXED MOBILE NG3 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 NG128 NG129 NG149	Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
5.175 5.179 5.184 5.187	5.185				
87.5-100 BROADCASTING	88-100 BROADCASTING		88-108	88-108 BROADCASTING	Broadcast Radio (FM) (73) Auxiliary Broadcasting (74)
5.190					
100-108 BROADCASTING					
5.192 5.194			US93	US93 NG2 NG128 NG129	
108-117.975 AERONAUTICAL RADIONAVIGATION			108-117.975 AERONAUTICAL RADIONAVIGATION		Aviation (87)
5.197 5.197A			US93 US343		
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	121.9375-123.0875 AERONAUTICAL MOBILE	
			5.198 US30 US31 US33 US80 US102 US213	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

123.5875-148 MHz (VHF) Page 27

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
See previous page for 117.975-137 MHz			123.5875-128.8125 AERONAUTICAL MOBILE (R) 5.198 US26		Aviation (87)
			128.8125-132.0125 5.198	128.8125-132.0125 AERONAUTICAL MOBILE (R) 5.198	
			132.0125-136 AERONAUTICAL MOBILE (R) 5.198 US26		
			136-137 US244	136-137 AERONAUTICAL MOBILE (R) US244	
137-137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137-137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 SPACE RESEARCH (space-to-Earth) 5.208		Satellite Communications (25)
137.025-137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.209 Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137.025-137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) US319 US320 5.208		
137.175-137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.209 SPACE RESEARCH (space-to-Earth) Fixed			137.175-137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 SPACE RESEARCH (space-to-Earth)		

Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			5.208		
137.825-138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.209 Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137.825-138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) US319 US320 5.208		
138-143.6 AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	138-143.6 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	138-143.6 FIXED MOBILE Space research (space-to-Earth) 5.207 5.213	138-144 FIXED MOBILE	138-144	
143.6-143.65 AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) 5.211 5.212 5.214	143.6-143.65 FIXED MOBILE RADIOLOCATION SPACE RESEARCH (space-to-Earth)	143.6-143.65 FIXED MOBILE SPACE RESEARCH (space-to-Earth) 5.207 5.213			
143.65-144 AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	143.65-144 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	143.65-144 FIXED MOBILE Space research (space-to-Earth) 5.207 5.213	G30		
144-146 AMATEUR AMATEUR-SATELLITE 5.216			144-148	144-146 AMATEUR AMATEUR-SATELLITE	Amateur (97)
146-148 FIXED MOBILE except aeronautical mobile (R)	146-148 AMATEUR 5.217	146-148 AMATEUR FIXED MOBILE 5.217		146-148 AMATEUR	

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
148-149.9 FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221	148-149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221		148-149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) US319 US320 US323 US325 5.218 5.219 G30	148-149.9 MOBILE-SATELLITE (Earth-to-space) US319 US320 US323 US325 5.218 5.219	Satellite Communications (25)
149.9-150.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223			149.9-150.05 MOBILE-SATELLITE (Earth-to-space) US319 US320 RADIONAVIGATION-SATELLITE 5.223		
150.05-153 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	150.05-156.7625 FIXED MOBILE		150.05-150.8 FIXED MOBILE US216 G30	150.05-150.8 US216	
			150.8-152.855 US216	150.8-152.855 FIXED LAND MOBILE NG112 US216 NG4 NG51 NG124	Public Mobile (22) Private Land Mobile (90) Personal Radio (95)
153-154 FIXED MOBILE except aeronautical mobile (R) Meteorological aids			152.855-154	152.855-154 LAND MOBILE NG4 NG124	Auxiliary Broadcasting (74) Private Land Mobile (90)
154-156.7625 FIXED MOBILE except aeronautical mobile (R) 5.226 5.227			154-156.2475 5.226	154-156.2475 FIXED LAND MOBILE NG112 5.226 NG117 NG124 NG148	Maritime (80) Private Land Mobile (90) Personal Radio (95)
	5.225 5.226 5.227		156.2475-157.0375	156.2475-157.0375 MARITIME MOBILE	Aviation (87)

156.7625-156.8375 MARITIME MOBILE (distress and calling) 5.111 5.226		5.226 5.227 US77 US106 US107 US266	5.226 5.227 US77 US106 US107 US266 NG117	
156.8375-174 FIXED MOBILE except aeronautical mobile	156.8375-174 FIXED MOBILE	157.0375-157.1875 MARITIME MOBILE 5.226 US214 US266 G109	157.0375-157.1875 5.226 US214 US266	Private Land Mobile (90)
		157.1875-157.45 5.226 US223 US266	157.1875-157.45 LAND MOBILE MARITIME MOBILE 5.226 US223 US266 NG111	Maritime (80) Private Land Mobile (90)
		157.45-161.575 5.226 US266	157.45-161.575 FIXED LAND MOBILE 5.226 US266 NG6 NG28 NG70 NG111 NG112 NG124 NG148 NG155	Public Mobile (22) Maritime (80) Private Land Mobile (90)
		161.575-161.625 5.226 US77	161.575-161.625 MARITIME MOBILE 5.226 US77 NG6 NG17	Public Mobile (22) Maritime (80)
		161.625-161.775 5.226	161.625-161.775 LAND MOBILE 5.226 NG6	Public Mobile (22) Auxiliary Broadcasting (74)
		161.775-162.0125 5.226 US266	161.775-162.0125 LAND MOBILE MARITIME MOBILE 5.226 US266 NG6	Public Mobile (22) Maritime (80) Private Land Mobile (90)
5.226 5.229	5.226 5.230 5.231 5.232	See next page for 162.0125-174 MHz		See next page for 162.0125-174 MHz

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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 156.8375-174 MHz			162.0125-173.2 FIXED US13 MOBILE 5.226 US8 US11 US216 US223 US300 US312 G5	162.0125-173.2 5.226 US8 US11 US13 US216 US223 US300 US312	Auxiliary Broadcasting (74) Private Land Mobile (90)
			173.2-173.4	173.2-173.4 FIXED Land mobile	Private Land Mobile (90)
			173.4-174 FIXED MOBILE G5	173.4-174	
174-223 BROADCASTING	174-216 BROADCASTING Fixed Mobile 5.234	174-223 FIXED MOBILE BROADCASTING	174-216	174-216 BROADCASTING NG115 NG128 NG149	Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
	216-220 FIXED MARITIME MOBILE Radiolocation 5.241 5.242		216-220 Fixed Mobile Radiolocation 5.241 G2 US210 US229	216-220 FIXED MOBILE except aeronautical mobile US210 US229 NG152 NG173	Maritime (80) Private Land Mobile (90) Personal Radio (95) Amateur (97)
	220-225 AMATEUR FIXED MOBILE Radiolocation 5.241		220-222 FIXED LAND MOBILE Radiolocation 5.241 G2 US335	220-222 FIXED LAND MOBILE US335	Private Land Mobile (90)
5.235 5.237 5.243		5.233 5.238 5.240 5.245	222-225 Radiolocation 5.241 G2	222-225 AMATEUR	Amateur (97)

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			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		

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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		
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)

	SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth)	Space operation (space-to-Earth)	
5.262 5.264	5.264	5.264	
401-402 METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	401-402 METEOROLOGICAL AIDS (radiosonde) US70 SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space)	401-402 METEOROLOGICAL AIDS (radiosonde) US70 SPACE OPERATION (space-to-Earth) Earth exploration-satellite (Earth-to-space) Meteorological-satellite (Earth-to-space)	
	US384	US384	
402-403 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	402-403 METEOROLOGICAL AIDS (radiosonde) US70 EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space)	402-403 METEOROLOGICAL AIDS (radiosonde) US70 Earth exploration-satellite (Earth-to-space) Meteorological-satellite (Earth-to-space)	Personal Radio (95)
	US345 US384	US345 US384	
403-406 METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	403-406 METEOROLOGICAL AIDS (radiosonde) US70	403-406 METEOROLOGICAL AIDS (radiosonde) US70	
	US345 G6	US345	
406-406.1 MOBILE-SATELLITE (Earth-to-space)	406-406.1 MOBILE-SATELLITE (Earth-to-space)		
5.266 5.267	5.266 5.267		
406.1-410 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY	406.1-410 FIXED US13 MOBILE RADIO ASTRONOMY US74	406.1-410 RADIO ASTRONOMY US74	
5.149	US117 G5 G6	US13 US117	

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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)
430-440 AMATEUR RADIOLOCATION 5.138 5.271 5.272 5.273 5.274 5.275 5.276 5.277 5.280 5.281 5.282 5.283	430-440 RADIOLOCATION Amateur 5.271 5.276 5.277 5.278 5.279 5.281 5.282				
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 G8	5.282 5.286 US87 US217 US230	
450-455 FIXED MOBILE 5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E			450-454 5.286 US87	450-454 LAND MOBILE 5.286 US87 NG112 NG124	Auxiliary Broadcasting (74) Private Land Mobile (90)
			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	456-460 FIXED LAND MOBILE	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	5.287 5.288	5.287 5.288 NG112 NG124 NG148	
460-470 FIXED MOBILE Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 5.290			460-470 Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 US201 US209 US216	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 US201 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 5.288 5.289 US201 US216 NG124	Private Land Mobile (90)

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
470-790 BROADCASTING	470-512 BROADCASTING Fixed Mobile 5.292 5.293	470-585 FIXED MOBILE BROADCASTING 5.291 5.298	470-608	470-512 FIXED NG127 LAND MOBILE NG66 BROADCASTING NG149 NG114 NG115 NG128	Public Mobile (22) Broadcast Radio (TV) (73) Auxiliary Broadcasting (74) Private Land Mobile (90)
	512-608 BROADCASTING 5.297	585-610 FIXED MOBILE BROADCASTING RADIONAVIGATION 5.149 5.305 5.306 5.307		512-608 BROADCASTING NG149 NG115 NG128	Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)	610-890 FIXED MOBILE 5.317A BROADCASTING	608-614 RADIO ASTRONOMY US74 LAND MOBILE US350 US246		Personal (95)
	614-806 BROADCASTING Fixed Mobile		614-890	614-698 BROADCASTING NG149 NG115 NG128	Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
				698-764 FIXED MOBILE BROADCASTING NG159 NG115 NG128	Wireless Communications (27) Broadcast Radio (TV) (73) Auxiliary Broadcasting (74) Private Land Mobile (90)
				764-776 FIXED MOBILE NG115 NG128 NG158 NG159	Auxiliary Broadcasting (74) Private Land Mobile (90)

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	5.293 5.309 5.311			794-806 FIXED MOBILE NG115 NG128 NG158 NG159	Auxiliary Broadcasting (74) Private Land Mobile (90)
	806-890 FIXED MOBILE BROADCASTING			806-821 FIXED LAND MOBILE NG31	Public Mobile (22) Private Land Mobile (90)
				821-824 LAND MOBILE	Private Land Mobile (90)
				824-849 FIXED LAND MOBILE NG151	Public Mobile (22)
5.312 5.314 5.315 5.316 5.319 5.321					
See next page for 862-890 MHz	5.317 5.318	5.149 5.305 5.306 5.307 5.311 5.320		See next page for 849-894 MHz	See next page for 866-896 MHz

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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 pages for 470-862 MHz	See previous pages for 614-890 MHz	See previous pages for 585-890 MHz	See previous pages for 614-890 MHz	See previous pages for 614-849 MHz	See previous pages for 614-849 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 5.319 5.323				866-869 LAND MOBILE	Private Land Mobile (90)
				869-894 FIXED LAND MOBILE US116 US268 NG151	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 US116 US268	Personal Communications (24)
	5.318 5.325		US116 US268 G2		

	902-928 FIXED Amateur Mobile except aeronautical mobile 5.325A Radiolocation 5.150 5.325 5.326		902-928 RADIOLOCATION G59 5.150 US215 US218 US267 US275 G11	902-928 5.150 US215 US218 US267 US275	ISM Equipment (18) Private Land Mobile (90) Amateur (97)
	928-942 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation		928-932	928-929 FIXED US116 US215 US268 NG120	Public Mobile (22) Private Land Mobile (90) Fixed Microwave (101)
				929-930 FIXED LAND MOBILE US116 US215 US268	Private Land Mobile (90)
				930-931 FIXED MOBILE US116 US215 US268	Personal Communications (24)
				931-932 FIXED LAND MOBILE US116 US215 US268	Public Mobile (22)
			932-935 FIXED US215 US268 G2	932-935 FIXED US215 US268 NG120	Public Mobile (22) Fixed Microwave (101)
			935-940 US116 US215 US268 G2	935-940 FIXED LAND MOBILE US116 US215 US268	Private Land Mobile (90)
			940-941 US116 US268 G2	940-941 FIXED MOBILE US116 US268	Personal Communications (24)
5.323	5.325	5.327	See next page for 941-944 MHz		See next page for 941-944 MHz

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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)
960-1215 AERONAUTICAL RADIONAVIGATION 5.328 5.328A			960-1215 AERONAUTICAL RADIONAVIGATION 5.328 US224 US385		Aviation (87)
1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 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) SPACE RESEARCH (active) 5.332	1215-1240 Earth exploration-satellite (active) Space research (active)	
1240-1260 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.329 5.329A SPACE RESEARCH (active) Amateur 5.330 5.331 5.332 5.334 5.335			1240-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 SPACE RESEARCH (active)	1240-1300 Earth exploration-satellite (active) Space research (active) Amateur	Amateur (97)
1260-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.329 5.329A SPACE RESEARCH (active) Amateur 5.282 5.330 5.331 5.334 5.335 5.335A			5.332 5.334 5.335	5.282 5.334	

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	5.149 5.334 5.339	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		

1427-1610 MHz (UHF)					Page 43
International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
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)
1429-1452 FIXED MOBILE except aeronautical Mobile 5.341 5.342	1429-1452 FIXED MOBILE 5.343 5.341		1429.5-1432 5.341 US350 US352	1429.5-1430 FIXED (telemetry) LAND MOBILE (telemetry) 5.341 US350 US352	
				1430-1432 FIXED (telemetry) LAND MOBILE (telemetry) FIXED-SATELLITE (space-to-Earth) US368 5.341 US350 US352	
			1432-1435 5.341 US361	1432-1435 FIXED MOBILE except aeronautical mobile 5.341 US361	Wireless Communications (27)
1452-1492 FIXED MOBILE except aeronautical mobile BROADCASTING 5.345 5.347 BROADCASTING-SATELLITE 5.345 5.347 5.341 5.342	1452-1492 FIXED MOBILE 5.343 BROADCASTING 5.345 5.347 BROADCASTING-SATELLITE 5.345 5.347 5.341 5.344		1435-1525 MOBILE (aeronautical telemetry)		Aviation (87)
1492-1525 FIXED MOBILE except aeronautical mobile 5.341 5.342	1492-1525 FIXED MOBILE 5.343 MOBILE-SATELLITE (space-to-Earth) 5.348A 5.341 5.344 5.348	1492-1525 FIXED MOBILE 5.341 5.348A	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 5.350 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 5.351 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 5.351 5.352A 5.354	1525-1535 MOBILE-SATELLITE (space-to-Earth) US315 US380 5.341 5.351	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 5.351 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 5.351 5.354			
1535-1559 MOBILE-SATELLITE (space-to-Earth) 5.351A 5.341 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 US343	Aviation (87)

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International Table			United States Table		FCC Rule Part(s)
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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) 5.341 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) 5.341 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) 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)
1660.5-1668.4 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) 5.341 US246	
1668.4-1670 METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.341	1668.4-1670 METEOROLOGICAL AIDS (radiosonde) RADIO ASTRONOMY US74 5.341 US99 US342	

International Table			United States Table		FCC Rule Part(s)
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1670-1675 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE 5.380 5.341			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	1675-1690 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) 5.341 5.377	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) MOBILE-SATELLITE (Earth-to-space) 5.289 5.341 5.377 5.381	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-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) 5.289 5.341 5.377	1700-1710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341 5.384	1700-1710 FIXED G118 METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341	1700-1710 METEOROLOGICAL-SATELLITE (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 NG176	

			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 5.389D 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)

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<tr><td colspan="3">2110-2120
FIXED
MOBILE 5.388A
SPACE RESEARCH (deep space) (Earth-to-space)

5.388</td><td>2110-2120

US252</td><td>2110-2155
FIXED
MOBILE

US252</td><td>Domestic Public Fixed (21)
Public Mobile (22)
Fixed Microwave (101)</td></tr>
<tr><td>2120-2160
FIXED
MOBILE 5.388A

5.388</td><td>2120-2160
FIXED
MOBILE 5.388A
Mobile-satellite (space-to-Earth)

5.388</td><td rowspan="2">2120-2170
FIXED
MOBILE 5.388A

5.388</td><td rowspan="4">2120-2200</td><td>2155-2160
FIXED</td><td>Domestic Public Fixed (21)
Fixed Microwave (101)</td></tr>
<tr><td>2160-2170
FIXED
MOBILE 5.388A

5.388 5.392A</td><td>2160-2170
FIXED
MOBILE 5.388A
MOBILE-SATELLITE (space-to-Earth)
5.388 5.389C 5.389D
5.389E 5.390</td><td>2160-2180
FIXED NG153
MOBILE

NG178</td><td>Domestic Public Fixed (21)
Public Mobile (22)
Fixed Microwave (101)</td></tr>
<tr><td colspan="3">2170-2200
FIXED
MOBILE
MOBILE-SATELLITE (space-to-Earth) 5.351A

5.388 5.389A 5.389F 5.392A</td><td>2180-2200
MOBILE-SATELLITE (space-to-Earth) US380

NG168</td><td>Satellite Communications (25)</td></tr>
<tr><td colspan="3">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)</td><td>2200-2290
SPACE OPERATION (space-to-Earth) (space-to-space)
EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space)
FIXED (line-of-sight only)</td><td>2200-2290</td><td></td></tr>
</table>

5.392		MOBILE (line-of-sight only including aeronautical telemetry, but excluding flight testing of manned aircraft) 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) 5.392 US303	US303	
2290-2300 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)		2290-2300 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	2290-2300 SPACE RESEARCH (deep space) (space-to-Earth)	
2300-2450 FIXED MOBILE Amateur Radiolocation	2300-2450 FIXED MOBILE RADIOLOCATION Amateur	2300-2305 G123	2300-2305 Amateur	Amateur (97)
		2305-2310 US338 G123	2305-2310 FIXED MOBILE except aeronautical mobile RADIOLOCATION Amateur US338	Wireless Communications (27) Amateur (97)
		2310-2320 Fixed Mobile US339 Radiolocation G2 G120 US327	2310-2320 FIXED MOBILE US339 RADIOLOCATION BROADCASTING-SATELLITE 5.396 US327	Wireless Communications (27) Aviation (87)
		2320-2345 Fixed Radiolocation G2 G120 US327	2320-2345 BROADCASTING-SATELLITE 5.396 US327	Satellite Communications (25)
5.150 5.282 5.395	5.150 5.282 5.393 5.394 5.396	See next page for 2345-2360 MHz	See next page for 2345-2360 MHz	See next page for 2345-2360 MHz

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Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
See previous page for 2300-2450 MHz			2345-2360 Fixed Mobile US339 Radiolocation G2 G120 US327	2345-2360 FIXED MOBILE US339 RADIOLOCATION BROADCASTING- SATELLITE 5.396 US327	Wireless Communications (27) Aviation (87)
			2360-2385 MOBILE US276 RADIOLOCATION G2 G120 Fixed	2360-2385 MOBILE US276	Aviation (87)
			2385-2390 US363	2385-2390 FIXED MOBILE NG174 US363	Wireless Communications (27)
			2390-2400 G122	2390-2400 AMATEUR	Amateur (97)
			2400-2402 5.150 G123	2400-2417 AMATEUR	ISM Equipment (18) Amateur (97)
			2402-2417 5.150 G122	5.150 5.282	
			2417-2450 Radiolocation G2 5.150 G124	2417-2450 Amateur 5.150 5.282	
2450-2483.5 FIXED MOBILE Radiolocation 5.150 5.397	2450-2483.5 FIXED MOBILE RADIOLOCATION 5.150 5.394		2450-2483.5 5.150 US41	2450-2483.5 FIXED MOBILE Radiolocation 5.150 US41	ISM Equipment (18) Private Land Mobile (90) Fixed Microwave (101)

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 5.418 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 5.418B 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 5.418A 5.418B 5.418C	5.339 US205	5.339	

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
2655-2670 FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A BROADCASTING SATELLITE 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 5.420	2655-2670 FIXED 5.409 5.411 FIXED-SATELLITE (Earth-to-space) 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 5.420	2655-2690 Earth exploration-satellite (passive) Radio astronomy 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) 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) (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 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) Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.419 5.420 5.420A	US205		
2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.421 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 RADIO- NAVIGATION 5.337 METEOROLOGICAL AIDS Radiolocation G2 5.423 US18 G15	2700-2900 5.423 US18	

2900-3100 RADIONAVIGATION 5.426 Radiolocation 5.425 5.427			2900-3100 MARITIME RADIONAVIGATION Radiolocation G56 5.427 US44 US316	2900-3100 MARITIME RADIONAVIGATION Radiolocation US44 5.427 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	3300-3500 Amateur Radiolocation US108	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		US342	US342 5.282	
3600-4200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile	3500-3700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433 5.435		3500-3650 RADIOLOCATION G59 AERONAUTICAL RADIONAVIGATION (ground-based) G110 US245 3650-3700 US245 US348 US349	3500-3600 Radiolocation 3600-3650 FIXED-SATELLITE (space-to-Earth) US245 Radiolocation 3650-3700 FIXED FIXED-SATELLITE (space-to-Earth) NG169 MOBILE except aeronautical mobile NG170 US245 US348 US349	Private Land Mobile (90)
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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 3600-4200 MHz	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 Communications (25) Fixed Microwave (101)
4200-4400 AERONAUTICAL RADIONAVIGATION 5.438 5.439 5.440			4200-4400 AERONAUTICAL RADIONAVIGATION 5.440 US261		Aviation (87)
4400-4500 FIXED MOBILE			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		
5000-5150 AERONAUTICAL RADIONAVIGATION 5.367 5.443A 5.443B 5.444 5.444A			5000-5250 AERONAUTICAL RADIO-NAVIGATION US260	5000-5150 AERONAUTICAL RADIO-NAVIGATION US260 5.367 5.444A US211 US344 US370	Satellite Communications (25) Aviation (87)

5150-5250 AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A 5.446 5.447 5.447B 5.447C	5.367 US211 US307 US344 US370	5150-5250 AERONAUTICAL RADIO-NAVIGATION US260 FIXED-SATELLITE (Earth-to-space) 5.447A US344 5.447C US211 US307	Satellite Communications (25) Aviation (87)
5250-5255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D 5.448 5.448A	5250-5255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.447D	5250-5255 Earth exploration-satellite (active) Radiolocation Space research	Private Land Mobile (90)
5255-5350 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.448 5.448A	5255-5350 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active)	5255-5350 Earth exploration-satellite (active) Radiolocation Space research (active)	
5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B AERONAUTICAL RADIONAVIGATION 5.449 Radiolocation	5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B AERONAUTICAL RADIO-NAVIGATION 5.449 RADIOLOCATION G56	5350-5460 AERONAUTICAL RADIO-NAVIGATION 5.449 Earth exploration-satellite (active) Radiolocation	Aviation (87) Private Land Mobile (90)
5460-5470 RADIONAVIGATION 5.449 Radiolocation	5460-5470 RADIONAVIGATION 5.449 Radiolocation G56 US49 US65	5460-5470 RADIONAVIGATION 5.449 Radiolocation US49 US65	Private Land Mobile (90)
5470-5650 MARITIME RADIONAVIGATION Radiolocation	5470-5600 MARITIME RADIONAVIGATION Radiolocation G56 US50 US65	5470-5600 MARITIME RADIONAVIGATION Radiolocation US50 US65	Maritime (80) Private land Mobile (90)
	5600-5650 MARITIME RADIONAVIGATION METEOROLOGICAL AIDS Radiolocation US51 G56	5600-5650 MARITIME RADIONAVIGATION METEOROLOGICAL AIDS Radiolocation US51	
5.450 5.451 5.452	5.452 US65	5.452 US65	

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5650-5725 RADIOLOCATION Amateur Space research (deep space) 5.282 5.451 5.453 5.454 5.455			5650-5925 RADIOLOCATION G2	5650-5830 Amateur	ISM Equipment (18) Amateur (97)
5725-5830 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur 5.150 5.451 5.453 5.455 5.456	5725-5830 RADIOLOCATION Amateur 5.150 5.453 5.455			5.150 5.282	
5830-5850 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.451 5.453 5.455 5.456	5830-5850 RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.453 5.455			5830-5850 Amateur Amateur-satellite (space-to-Earth) 5.150	
5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.150	5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Amateur Radiolocation 5.150	5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Radiolocation 5.150	5.150 US245	5850-5925 FIXED-SATELLITE (Earth-to-space) US245 MOBILE NG160 Amateur 5.150	ISM Equipment (18) Private Land Mobile (90) Amateur (97)
5925-6700 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE			5925-6425	5925-6425 FIXED NG41 FIXED-SATELLITE (Earth-to-space)	International Fixed (23) Satellite Communications (25) Fixed Microwave (101)
			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)

5.149 5.440 5.458	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	
7075-7250 FIXED MOBILE	5.458	7075-7125 FIXED NG118 MOBILE NG171 5.458	Auxiliary Broadcasting (74) Cable TV Relay (78)
	7125-7190 FIXED 5.458 US252 G116	7125-7190 5.458 US252	
	7190-7235 FIXED SPACE RESEARCH (Earth-to-space) 5.458	7190-7250	
	7235-7250 FIXED 5.458		
5.458 5.459 5.460		5.458	

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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- SATELLITE (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	

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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 MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.465 5.466 5.467			8400-8450 FIXED SPACE RESEARCH (space-to-Earth) (deep space only) 8450-8500 FIXED SPACE RESEARCH (space-to-Earth)	8400-8450 Space research (space-to-Earth) (deep space only) 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					

8850-9000 RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473	US53	US53	
9000-9200 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.471	9000-9200 AERONAUTICAL RADIO-NAVIGATION 5.337 Radiolocation G2 US48 G19	9000-9200 AERONAUTICAL RADIO-NAVIGATION 5.337 Radiolocation US48	Aviation (87)
9200-9300 RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473 5.474	9200-9300 MARITIME RADIO-NAVIGATION 5.472 Radiolocation US110 G59 5.474	9200-9300 MARITIME RADIO-NAVIGATION 5.472 Radiolocation US110 5.474	
9300-9500 RADIONAVIGATION 5.476 Radiolocation 5.427 5.474 5.475	9300-9500 RADIONAVIGATION 5.476 US66 Radiolocation US51 G56 Meteorological aids 5.427 5.474 US67 US71	9300-9500 RADIONAVIGATION 5.476 US66 Radiolocation US51 Meteorological aids 5.427 5.474 US67 US71	
9500-9800 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A	9500-9800 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active)	9500-9800 Earth exploration-satellite (active) Radiolocation Space research (active)	
9800-10000 RADIOLOCATION Fixed 5.477 5.478 5.479	9800-10000 RADIOLOCATION 5.479	9800-10000 Radiolocation 5.479	

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10.45-10.5 RADIOLOCATION Amateur Amateur-satellite 5.481			10.45-10.5 RADIOLOCATION US58 US108 G32	10.45-10.5 Radiolocation Amateur Amateur-satellite US58 US108 NG42 NG134	
10.5-10.55 FIXED MOBILE Radiolocation	10.5-10.55 FIXED MOBILE RADIOLOCATION		10.5-10.55 RADIOLOCATION US59		Private Land Mobile (90)
10.55-10.6 FIXED MOBILE except aeronautical mobile Radiolocation			10.55-10.6	10.55-10.6 FIXED	Fixed Microwave (101)
10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482			10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US265 US277	10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) FIXED US265 SPACE RESEARCH (passive) US277	
10.68-10.7 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.483			10.68-10.7 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246 US355		

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		12.1-12.2		
5.487 5.487A 5.492	12.2-12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE	12.2-12.5 FIXED MOBILE except aeronautical mobile BROADCASTING 5.484A 5.487 5.491	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 See next page for 12.7-12.75 GHz	12.5-12.75 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.493	5.490 See next page for 12.7-12.75 GHz	5.487A 5.488 5.490	See next page for 12.7-12.75 GHz

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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 Standard frequency and time signal-satellite (Earth-to-space) Space research 5.499 5.500 5.501 5.502 5.503 5.503A			13.75-14 RADIOLOCATION G59 Standard frequency and time signal-satellite (Earth-to-space) Space research US337 5.503A US356 US357	13.75-14 FIXED-SATELLITE (Earth-to-space) US337 Radiolocation Standard frequency and time signal-satellite (Earth-to-space) Space research 5.503A US356 US357	Satellite Communications (25) Private Land Mobile (90)

14-14.25 FIXED-SATELLITE (Earth-to-space) 5.484A 5.506 5.457A 5.506B 5.457B 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) 5.484A 5.506 5.457A 5.457B 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) 5.484A 5.506 5.506B 5.457A 5.457B 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) 5.484A 5.506 5.457A 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.506 5.457A 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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14.8-15.35 FIXED MOBILE Space research			14.7145-15.1365 MOBILE Fixed Space research US310	14.7145-15.1365 US310	
5.339			15.1365-15.35 FIXED Mobile Space research 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 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) G117 5.519 US334	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 (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 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) 5.522B 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 5.522C	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) US255 G117 SPACE RESEARCH (passive) US254 US334	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) 5.523A MOBILE			18.8-20.2 FIXED-SATELLITE (space-to-Earth) 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 Mobile-satellite (space-to-Earth) 5.524	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 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 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 MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528			US334	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 5.530	21.4-22 FIXED MOBILE	21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 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		

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22.55-23.55 FIXED INTER-SATELLITE MOBILE 5.149			22.55-23.55 FIXED INTER-SATELLITE US278 MOBILE US342		Satellite Communications (25) Fixed Microwave (101)
23.55-23.6 FIXED MOBILE			23.55-23.6 FIXED MOBILE		Fixed Microwave (101)
23.6-24 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			23.6-24 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
24-24.05 AMATEUR AMATEUR-SATELLITE 5.150			24-24.05 5.150 US211	24-24.05 AMATEUR AMATEUR-SATELLITE 5.150 US211	ISM Equipment (18) Amateur (97)
24.05-24.25 RADIOLOCATION Amateur Earth exploration-satellite (active) 5.150			24.05-24.25 RADIOLOCATION G59 Earth exploration-satellite (active) 5.150	24.05-24.25 Amateur Earth exploration-satellite (active) Radiolocation 5.150	ISM Equipment (18) Private Land Mobile (90) Amateur (97)
24.25-24.45 FIXED	24.25-24.45 RADIONAVIGATION	24.25-24.45 RADIONAVIGATION FIXED MOBILE	24.25-24.45	24.25-24.45 FIXED	Fixed Microwave (101)

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)
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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 5.534	24.75-25.05 RADIONAVIGATION	24.75-25.05 FIXED-SATELLITE (Earth-to-space) NG167 RADIONAVIGATION	Satellite Communications (25) Aviation (87)
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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 Earth exploration-satellite (space-to-space) Standard frequency and time signal-satellite (Earth-to-space)	
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International Table			United States Table		FCC Rule Part(s)
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27.5-28.5 FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 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 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540					
29.1-29.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.523C 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 5.539 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 5.539 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 5.539 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 5.539 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	

30-31 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) 5.542			30-31 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) G117	30-31 Standard frequency and time signal-satellite (space-to-Earth)	
31-31.3 FIXED 5.543A MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.545 5.149			31-31.3 Standard frequency and time signal-satellite (space-to-Earth) US211 US342	31-31.3 FIXED MOBILE Standard frequency and time signal-satellite (space-to-Earth) US211 US342	Fixed Microwave (101)
31.3-31.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			31.3-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive)		
31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.546	31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149	US246		
31.8-32 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547B 5.548			31.8-32 RADIONAVIGATION US69 SPACE RESEARCH (deep space) (space-to-Earth) US262 5.548 US211	31.8-32 SPACE RESEARCH (deep space) (space-to-Earth) US262 5.548 US211	

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 5.548	32-32.3 SPACE RESEARCH (deep space) (space-to-Earth) US262 5.548	
32.3-33 FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.547D 5.548			32.3-33 INTER-SATELLITE US278 RADIONAVIGATION US69 5.548		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 5.551A			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	

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International Footnotes

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5.457A In the bands 5925–6425 MHz and 14–14.5 GHz, earth stations on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution 902 (WRC–03).

5.457B In the bands 5925–6425 MHz and 14–14.5 GHz, earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution 902 (WRC–03) in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Jordan, Kuwait, Libyan Arab Jamahiriya, Morocco, Mauritania, Oman, Qatar, Syrian Arab Republic, Sudan, Tunisia and Yemen, in the maritime mobile-satellite service on a secondary basis. Such use shall be in accordance with Resolution 902 (WRC–03).

* * * * *

5.504A In the band 14–14.5 GHz, aircraft earth stations in the secondary aeronautical mobile-satellite service may also communicate with space stations in the fixed-satellite service. The provisions of Nos. 5.29, 5.30 and 5.31 apply.

5.504B Aircraft earth stations operating in the aeronautical mobile-satellite service in the band 14–14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU–R M.1643, with respect to any radio astronomy station performing observations in the 14.47–14.5 GHz band located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa.

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, 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.

5.505 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Botswana, Brunei Darussalam, Cameroon, China, Congo, 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 Radiocommunication Bureau prior to 5 July 2003.

5.506B Earth stations 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.

5.508 *Additional allocation:* in Germany, Bosnia and Herzegovina, France, Italy, The Former Yugoslav Republic of Macedonia, Libyan Arab Jamahiriya, the United Kingdom, Slovenia and Serbia and Montenegro, 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, 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, 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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United States (US) Footnotes

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US7 In the band 420–450 MHz and within the following areas, the peak envelope power output of a transmitter employed in the amateur service shall not exceed 50 watts, unless expressly authorized by the Commission after mutual agreement, on a case-by-case basis, between the Federal Communications Commission Engineer in Charge at the applicable district office and the military area frequency coordinator at the applicable military base. For areas (e) through (j), the appropriate military coordinator is located at Peterson AFB, CO.

(a) The entire State of New Mexico and Texas west of longitude 104° 00′ West;

(b) The entire State of Florida including the Key West area and the areas enclosed within a 322-kilometer (200-mile) radius of Patrick Air Force Base, Florida (latitude 28° 21′ North, longitude 80° 43′ West), and within a 322-kilometer (200-mile) radius of Eglin Air Force Base, Florida (latitude 30° 30′ North, longitude 86° 30′ West);

(c) The entire State of Arizona;

(d) Those portions of California and Nevada south of latitude 37° 10′ North, and the areas enclosed within a 322-kilometer (200-mile) radius of the Pacific Missile Test Center, Point Mugu, California (latitude 34° 09′ North, longitude 119° 11′ West).

(e) In the State of Massachusetts within a 160-kilometer (100-mile) radius around locations at Otis Air Force Base, Massachusetts (latitude 41° 45′ North, longitude 70° 32′ West).

(f) In the State of California within a 240-kilometer (150-mile) radius around locations at Beale Air Force Base, California (latitude 39° 08′ North, longitude 121° 26′ West).

(g) In the State of Alaska within a 160-kilometer (100-mile) radius of Clear, Alaska (latitude 64° 17′ North, longitude 149° 10′ West).

(h) In the State of North Dakota within a 160-kilometer (100-mile) radius of Concrete, North Dakota (latitude 48° 43′ North, longitude 97° 54′ West).

(i) In the States of Alabama, Georgia and South Carolina within a 200-kilometer (124-mile) radius of Warner Robins Air Force Base, Georgia (latitude 32° 38′ North, longitude 83° 35′ West).

(j) In the State of Texas within a 200-kilometer (124-mile) radius of Goodfellow Air Force Base, Texas (latitude 31° 25′ North, longitude 100° 24′ West).

* * * * *

US48 In the band 9000–9200 MHz, the use of the radiolocation service by non-Federal Government licensees may be authorized on the condition that harmful interference is not caused to the aeronautical radionavigation service or to the Federal Government radiolocation service.

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US78 In the mobile service, the frequencies between 1435 and 1525 MHz will be assigned for aeronautical telemetry and associated telecommand operations for flight testing of manned or unmanned aircraft and missiles, or their major components. Permissible usage includes telemetry associated with launching and reentry into the Earth's atmosphere as well as any incidental orbiting prior to reentry of manned objects undergoing flight tests. The following frequencies are shared with flight telemetry mobile stations: 1444.5, 1453.5, 1501.5, 1515.5, and 1524.5 MHz.

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US110 In the band 9200–9300 MHz, the use of the radiolocation service by non-Federal Government licensees may be authorized on the condition that harmful interference is not caused to the maritime radionavigation service or to the Federal Government radiolocation service.

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US217 In the band 420–450 MHz, pulse-ranging radiolocation systems may be

authorized for Federal and non-Federal Government use along the shorelines of the contiguous 48 States and Alaska. In the Sub-band 420–435 MHz, spread spectrum radiolocation systems may be authorized for Federal and non-Federal Government use within the contiguous 48 States and Alaska. All stations operating in accordance with this provision shall be secondary to stations operating in accordance with the Table of Frequency Allocations. Authorizations shall be granted on a case-by-case basis; however, operations proposed to be located within the following geographic areas should not expect to be accommodated:

(a) The entire State of New Mexico and Texas west of longitude 104° 00′ West;

(b) The entire State of Florida including the Key West area and the areas enclosed within a 322-kilometer (200-mile) radius of Patrick Air Force Base, Florida (latitude 28° 21′ North, longitude 80° 43′ West), and within a 322-kilometer (200-mile) radius of Eglin Air Force Base, Florida (latitude 30° 30′ North, longitude 86° 30′ West);

(c) The entire State of Arizona;

(d) Those portions of California and Nevada south of latitude 37° 10′ North, and the areas enclosed within a 322-kilometer (200-mile) radius of the Pacific Missile Test Center, Point Mugu, California (latitude 34° 09′ North, longitude 119° 11′ West).

(e) In the State of Massachusetts within a 160-kilometer (100-mile) radius around locations at Otis Air Force Base, Massachusetts (latitude 41° 45′ North, longitude 70° 32′ West).

(f) In the State of California within a 240-kilometer (150-mile) radius around locations at Beale Air Force Base, California (latitude 39° 08′ North, longitude 121° 26′ West).

(g) In the State of Alaska within a 160-kilometer (100-mile) radius of Clear, Alaska (latitude 64° 17′ North, longitude 149° 10′ West).

(h) In the State of North Dakota within a 160-kilometer (100-mile) radius of Concrete, North Dakota (latitude 48° 43′ North, longitude 97° 54′ West).

(i) In the States of Alabama, Georgia and South Carolina within a 200-kilometer (124-mile) radius of Warner Robins Air Force Base, Georgia (latitude 32° 38′ North, longitude 83° 35′ West).

(j) In the State of Texas within a 200-kilometer (124-mile) radius of Goodfellow Air Force Base, Texas (latitude 31° 25′ North, longitude 100° 24′ West).

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US244 The band 136–137 MHz is allocated to the non-Federal Government aeronautical mobile (R) service on a primary basis, and is subject to pertinent international treaties and agreements. The frequencies 136, 136.025, 136.05, 136.075, 136.1, 136.125, 136.15, 136.175, 136.2, 136.225, 136.25, 136.275, 136.3, 136.325, 136.35, 136.375, 136.4, 136.425, 136.45, and 136.475 MHz are available on a shared basis to the Federal Aviation Administration for air traffic control purposes, such as automatic weather observation stations (AWOS), automatic terminal information services (ATIS), flight information services-broadcast (FIS–B), and airport control tower communications.

* * * * *

US246 No station shall be authorized to transmit in the following bands:

73–74.6 MHz,
608–614 MHz, except for medical telemetry equipment,[1]
1400–1427 MHz,
1660.5–1668.4 MHz,
2690–2700 MHz,
4990–5000 MHz,
10.68–10.7 GHz,
15.35–15.4 GHz,
23.6–24 GHz,
31.3–31.8 GHz,
50.2–50.4 GHz,
52.6–54.25 GHz,
86–92 GHz,
100–102 GHz,
105–116 GHz,
164–168 GHz,
182–185 GHz,
217–231 GHz.

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US252 The bands 2110–2120 MHz and 7145–7190 MHz are also allocated for Earth-to-space transmissions in the space research service, limited to deep space communications at Goldstone, California.

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US258 In the band 8025–8400 MHz, 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 use of the band 31.8–32.3 GHz by the space research service (deep space) (space-to-Earth) and of the band 34.2–34.7 GHz by the space research service (deep space) (Earth-to-space) are limited to Goldstone, California.

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US276 Except as otherwise provided for herein, use of the band 2360–2385 MHz by the mobile service is limited to aeronautical telemetering and associated telecommand operations for flight testing of manned or unmanned aircraft, missiles or major components thereof. The following three frequencies are shared on a co-equal basis by Federal Government and non-Federal Government stations for telemetering and associated telecommand operations of expendable and reusable launch vehicles whether or not such operations involve flight testing: 2364.5 MHz, 2370.5 MHz, and 2382.5 MHz. All other mobile telemetering uses shall be secondary to the above uses.

US277 The band 10.6–10.68 GHz is also allocated on a primary basis to the radio astronomy service. However, the radio astronomy service shall not receive protection from stations in the fixed service which are licensed to operate in the one hundred most populous urbanized areas as defined by the 1990 U.S. Census. For the list of observatories operating in this band *see* 47 CFR 2.106, footnote US355.

US278 In the bands 22.55–23.55 GHz and 32.3–33 GHz, non-geostationary inter-satellite links may operate on a secondary basis to geostationary inter-satellite links.

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US303 In the band 2285–2290 MHz, non-Federal government space stations in the space research, space operations and Earth exploration-satellite services may be authorized to transmit to the Tracking and Data Relay Satellite System 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 at the Earth's surface from such non-Federal Government stations shall not exceed –144 to –154 dBW/m^2/4 kHz, depending on angle of arrival, in accordance with ITU Radio Regulation 21.16.

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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 4 kHz band for all conditions and methods of modulation shall not exceed:

-148 dB(W/m^2) for $0° < \theta \leq 5°$
$-148 + (\theta \leq 5)/2$dB(W/m^2) for $5° < \theta \leq 25°$
-138 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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US316 The band 2900–3000 MHz is also allocated on a primary basis to the meteorological aids service. Operations in this service are limited to Federal Government Next Generation Weather Radar (NEXRAD) systems where accommodation in the 2700–2900 MHz band is not technically practical and are subject to coordination with existing authorized stations.

* * * * *

US320 The use of the bands 137–138 MHz, 148–150.05 MHz, and 400.15–401 MHz by the mobile-satellite service is limited to non-voice, non-geostationary satellite systems and may include satellite links between land earth stations at fixed locations.

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US342 In making assignments to stations of other services to which the bands:

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

13360–13410 kHz,
25550–25670 kHz,
37.5–38.25 MHz,
322–328.6 MHz,
1330–1400 MHz,
1610.6–1613.8 MHz,
1660–1660.5 MHz,
1668.4–1670 MHz,
3260–3267 MHz,
3332–3339 MHz,
3345.8–3352.5 MHz,
4825–4835 MHz,
4950–4990 MHz,
6650–6675.2 MHz,
14.47–14.5 GHz,
22.01–22.21 GHz,
22.21–22.5 GHz,
22.81–22.86 GHz,
23.07–23.12 GHz,
31.2–31.3 GHz,
36.43–36.5 GHz,
42.5–43.5 GHz,
48.94–49.04 GHz,
93.07–93.27 GHz,
97.88–98.08 GHz,
140.69–140.98 GHz,
144.68–144.98 GHz,
145.45–145.75 GHz,
146.82–147.12 GHz,
150–151 GHz,
174.42–175.02 GHz,
177–177.4 GHz,
178.2–178.6 GHz,
181–181.46 GHz,
186.2–186.6 GHz,
250–251 GHz,
257.5–258 GHz,
261–265 GHz,
262.24–262.76 GHz,
265–275 GHz

are allocated, all practicable steps shall be taken to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (*see* Nos. 4.5 and 4.6 and Article 29 of the ITU Radio Regulations).

* * * * *

US355 In the band 10.7–11.7 GHz, non-geostationary satellite orbit licensees in the fixed-satellite service (space-to-Earth), prior to commencing operations, shall coordinate with the following radio astronomy observatories to achieve a mutually acceptable agreement regarding the protection of the radio telescope facilities operating in the band 10.6–10.7 GHz:

Observatory	West longitude	North latitude	Elevation (in meters)
Arecibo Observatory	66°45′11″	18°20′46″	496
Green Bank Telescope (GBT)	79°50′24″	38°25′59″	825
Very Large Array (VLA)	107°37′04″	34°04′44″	2126
Very Long Baseline Array (VLBA) Stations:			
Brewster, WA	119°40′55″	48°07′53″	255
Fort Davis, TX	103°56′39′	30°38′06″	1615
Hancock, NH	71°59′12″	42°56′01″	309
Kitt Peak, AZ	111°36′42″	31°57′22″	1916
Los Alamos, NM	106°14′42″	35°46′30″	1967
Mauna Kea, HI	155°27′29″	19°48′16″	3720
North Liberty, IA	91°34′26″	41°46′17″	241
Owens Valley, CA	118°16′34″	37°13′54″	1207
Pie Town, NM	108°07′07″	34°18′04″	2371
St. Croix, VI	64°35′03″	17°45′31″	16

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US384 In the band 401–403 MHz, the non-Federal Government Earth exploration-satellite (Earth-to-space) and meteorological-satellite (Earth-to-space) services are limited to earth stations transmitting to Federal Government space stations.

US385 The band 1164–1215 MHz is also allocated to the radionavigation-satellite service (space-to-Earth, space-to-space) on a primary basis. In this band, stations in the radionavigation-satellite service shall not cause harmful interference to, nor claim protection from, stations of the aeronautical radionavigation service.

US386 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) (space-to-Earth) in the band 31.8–32.3 GHz, all necessary measures shall be taken to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service.

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Non-Federal Government (NG) Footnotes

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NG41 Frequencies in the bands 3700–4200 MHz and 5925–6425 MHz, may also be assigned to stations in the international fixed public and international control services located in Puerto Rico, the U.S. Virgin Islands, and Navassa Island.

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NG114 In the Gulf of Mexico offshore from the Louisiana-Texas coast, the band 476–494 MHz (TV channels 15, 16 and 17) is allocated to the Public Mobile and Private Land Mobile Radio Services in accordance with the regulations set forth in 47 C.F.R. parts 22 and 90, respectively.

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Federal Government (G) Footnotes

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G2 In the bands 216–225, 420–450 (except as provided by US217 and G129), 890–902, 928–942, 1300–1400, 2310–2385, 2417–2450, 2700–2900, 5650–5925 and 9000–9200 MHz, the Federal Government radiolocation service is limited to the military services.

* * * * *

G129 Federal Government wind profilers are authorized to operate on a primary basis in the radiolocation service in the frequency band 448–450 MHz with an authorized bandwidth of no more than 2 MHz centered on 449 MHz, subject to the following conditions: (1) wind profiler locations must be pre-coordinated with the military services to protect fixed military radars; and (2) wind profiler operations shall not cause harmful interference to, nor claim protection from, military mobile radiolocation stations that are engaged in critical national defense operations.

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 25.202(a)(3) is revised and paragraph 25.202(a)(4)(iii) is added to read as follows:

§ 25.202 Frequencies, frequency tolerance and emission limitations.

(a) * * *

(3) The following frequencies are available for use by the non-voice, non-geostationary mobile-satellite service:

137–138 MHz: Space-to-Earth
148–150.05 MHz: Earth-to-space
399.9–400.05 MHz: Earth-to-space
400.15–401 MHz: Space-to-Earth

(4) * * *

(iii)(A) The following frequencies are available for use by the L-band Mobile-Satellite Service:

1525–1559 MHz: Space-to-Earth
1626.5–1660.5 MHz: Earth-to-space

(B) The use of the frequencies 1544–1545 MHz and 1645.5–1646.5 MHz is limited to distress and safety communications.

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PART 87—AVIATION SERVICES

■ 6. The authority citation for part 87 continues to read as follows:

Authority: 47 U.S.C. 154, 303 and 307(e), unless otherwise noted.

■ 7. Section 87.303 is amended by revising paragraph (d)(1) to read as follows:

§ 87.303 Frequencies.

* * * * *

(d)(1) Frequencies in the bands 1435–1525 MHz and 2360–2385 MHz are assigned primarily for telemetry and telecommand operations associated with the flight testing of manned or unmanned aircraft and missiles, or their major components. The bands 2310–2320 MHz and 2345–2360 MHz are also available for these purposes on a secondary basis. Until January 1, 2007, flight test operations in the band 2385–2390 MHz may continue on a primary basis within 160 km of the nine sites listed in 47 CFR 2.106, footnote US363. Permissible uses of these bands include telemetry and telecommand transmissions associated with the launching and reentry into the Earth's atmosphere, as well as any incidental orbiting prior to reentry, of manned or unmanned objects undergoing flight tests. In the band 1435–1530 MHz, the following frequencies are shared with flight telemetry mobile stations: 1444.5, 1453.5, 1501.5, 1515.5, 1524.5, and 1525.5 MHz. In the band 2360–2390 MHz, the following frequencies may be assigned on a co-equal basis for telemetry and associated telecommand operations in fully operational or expendable and re-usable launch vehicles, whether or not such operations involve flight testing: 2364.5, 2370.5 and 2382.5 MHz. In the band 2360–2390 MHz, all other mobile telemetry uses are secondary to the above stated launch vehicle uses.

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[FR Doc. 03–31256 Filed 12–22–03; 8:45 am]

BILLING CODE 6712–01–P