FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 1, 2, 15, 18, 27 and 95

[ET Docket No. 19–289; DA 19–1326; FRS 16510]

WRC–15 Order

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document makes non-substantive, editorial revisions to the Table of Frequency Allocations (Allocation Table) and to various other Commission rules. The purpose of this action is to update the International Table of Frequency Allocations (International Table) to reflect the decisions made at an international conference, to update the Federal Table of Frequency Allocations (Federal Table) within the Commission's rules in those frequency bands where such an action would have no substantive effect on non-Federal licensees, to remove outdated provisions from the Commission's rules, and to ensure that the Allocation Table and related rules are consistent with the Commission's decisions in recent rulemaking proceedings.

DATES: Effective July 27, 2020.

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

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Order* in ET Docket No. 19–289, DA 19–1326, which was adopted and released on December 23, 2019. The full text of this document is available for inspection and copying during normal business hours in the FCC Reference Center (Room CY–A257), 445 12th Street SW, Washington, DC 20554. The full text may also be downloaded at: *https://apps.fcc.gov/edocs_public/attachmatch/DA-19-1326A1.pdf.* People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an email to *fcc504@fcc.gov* or call the Consumer & Governmental Affairs Bureau at 202–418–0530 (voice), 202–418–0432 (TTY).

Synopsis

ORDER

1. By this action, the Commission amends parts 1, 2, 15, 18, 27, and 95 of its rules to make non-substantive, editorial revisions to the Allocation Table and to revise various other rules. This action is not intended to modify or otherwise change any party's underlying rights and/or responsibilities. In particular, the Commission updates the International Table within the Allocation Table to reflect, for informational purposes only, the decisions made at the World Radiocommunication Conference 2015 (WRC–15). In addition, the Commission makes certain amendments to the Federal Table, for informational purposes only, based on the recommendations of the National Telecommunications and Information Administration (NTIA), which pertain solely to spectrum allocated exclusively for Federal use or where non-Federal use is limited to secondary services. WRC–15 implementation matters of a substantive nature will be addressed in a separate notice of proposed rulemaking.

DISCUSSION

A. Reflecting WRC–15 Revisions in the International Table

2. The Commission updates the International Table within section 2.106 of the rules to reflect Article 5, Section IV of the Radio Regulations (Edition of 2016), except where minor corrections or updates have been made. The International Table is included within the Commission's Allocation Table for informational purposes only.

B. Reflecting WRC–15 Revisions in the U.S. Table

References to International Footnotes in the U.S. Table

3. The United States Table of Frequency Allocations (U.S. Table) includes references to ten international footnotes (5.134, 5.223, 5.260, 5.268, 5.287, 5.327A, 5.443B, 5.396, 5.501A, and 5.511C), which WRC–15 revised or deleted. Because these footnotes are included in the U.S. Table, the Commission reviewed these footnotes and finds that the WRC–15 revisions will have no substantive effect on non-Federal operations. Specifically, the Commission:

- Removes the references to international footnotes 5.223 and 5.260 from the U.S. Table because WRC–15 removed these international footnotes and the underlying primary radionavigation-satellite service allocation from the 149.9–150.05 MHz and 399.9–400.05 MHz bands from the Radio Regulations, making the references to these international footnotes in the U.S. Table no longer necessary.
- Revises international footnotes 5.327A and 5.443B by updating the cross references from Resolution 417 (Rev.WRC–12) and Resolution 741 (Rev.WRC–12), respectively, to the version of these resolutions that are currently shown in the Radio Regulations, *i.e.,* ''(Rev.WRC–15).'' As noted above, the Commission is also updating cross references to Resolution 517 (Rev.WRC–07) and Resolution 33 (Rev.WRC–03) contained in footnotes 5.134 and 5.396, respectively. WRC–15 made editorial changes to the text of these resolutions. The revised text of these international footnotes can be used in the U.S. Table since the changes do not have a substantive impact on non-Federal operations.
- Revises international footnote 5.268 by removing the extra-vehicular activity (EVA) and five-kilometer restrictions from Federal space research service (SRS) operations in the 410–420 MHz band. Because non-Federal stations in the 410–420 MHz band don't have a co-primary status, they ''cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date,'' and thus, applying the text that WRC–15 adopted for footnote 5.268 is a non-substantive, editorial action.
- Updates the text of international footnote 5.287 to reflect the changes adopted by WRC–15, noting that this footnote was revised to specify the frequency bands that are available for on-board communication stations in the maritime mobile service and to state that the ''characteristics of the equipment and the channelling arrangement shall be in accordance with Recommendation ITU–R M.1174–3.'' These changes increase the number of available frequencies from the existing ten to 34 and also could be misinterpreted as requiring the use of a channeling plan different from that currently used in U.S. territorial waters, which is shown in footnote US288. As a result, because footnote 5.287 appears in the 456–470 MHz range in the U.S. Table, the Commission moves the pre-WRC–15 text of footnote 5.287 into placeholder footnote US287 so that these changes to the international footnote can be considered by the Commission in its planned WRC–15 implementation notice of proposed rulemaking. Consequently, the Commission also amends the respective frequency bands in the U.S. Table by replacing the reference to footnote 5.287 with that of footnote US287.

Revisions to the Federal Table

4. In this section, the Commission addresses the modifications NTIA made to certain Federal allocations for

purposes of implementing the *WRC–15 Final Acts,* which were submitted to the Commission on September 10, 2018. In line with NTIA's changes, the Commission revises the Federal Table in its rules to reflect, for informational purposes only, changes to the following bands that are allocated exclusively for Federal use: 7190–7250 MHz, 7300–7750 MHz and 14.5–14.8 GHz; and the following bands with primary Federal allocations that contain only secondary non-Federal allocations: 1215–1240 MHz and 13.4–13.75 GHz. Specifically, the Commission:

- Adds to the Federal Table a primary allocation for the Earth exploration-satellite service (EESS) (Earth-to-space) in the 7190–7250 MHz band and two international footnotes (5.460A, 5.460B) that limit the use of this EESS uplink allocation. Footnote 5.460A limits the EESS uplink allocation to tracking, telemetry and command for the operation of spacecraft, and, *e.g.,* specifies that space stations operating under this allocation in the 7190–7250 MHz band may not claim protection from stations in the fixed and mobile services. Footnote 5.460B states that EESS geostationary satellites receiving in the 7190–7235 MHz band may not claim protection from existing and future stations of the space research service. The Commission also replaces footnote G133 with international footnote 5.460.
- Adds to the Federal Table a primary allocation for the maritime mobile-satellite service (MMSS) (space-to-Earth) in the 7375–7750 MHz bands and two international footnotes (5.461AA, 5.461AB) that limit the use of this MMSS downlink allocation. Footnote 5.461AA limits MMSS use of the band to geostationary-satellite orbit (GSO) networks and footnote 5.461AB specifies that MMSS earth stations receiving in the band may not claim protection from, nor constrain the use and development of, stations in the fixed and mobile, except aeronautical mobile, services. In addition, the Commission replaces the existing secondary mobile-satellite service (space-to-Earth) allocation entry in the 7375–7750 MHz band with a secondary mobile-satellite ''except maritime mobile-satellite'' service (space-to-Earth) allocation entry, and in the 7375–7450 MHz band, the Commission also adds a primary mobile except aeronautical mobile service allocation.
- Adds to the Federal Table international footnote 5.509G to the right of the existing secondary space research service (SRS) allocation entry in the 14.5–14.8 GHz band. Footnote 5.509G states that the 14.5–14.8 GHz band is also allocated to SRS on a primary basis, limited to satellite systems operating in the Earth-to-space (uplink) direction to relay data to space stations in the geostationary-satellite orbit (GSO) from associated earth stations; that primary stations in the SRS may not cause harmful interference to, or claim protection from, stations operating under the fixed, mobile, and fixed-satellite services; and that other uses of this frequency band by the SRS are on a secondary basis.
- Updates footnote G132, which applies to the 1215–1240 MHz band, to cross reference the revised Resolution 608, replacing ''(WRC–03)'' with ''(Rev.WRC–15).'' WRC–15 revised Resolution 608 (WRC–03) by noting that Recommendation ITU–R M.1902 and Report ITU–R M.2284 apply to radionavigation-satellite service (space-to-Earth) use of the 1215–1300 MHz band.
- Subjects the use of the existing primary Federal space research service (SRS) allocation in the 13.4–13.75 GHz band to new international footnotes 5.499C and 5.499D as well as modified footnote 5.501A. Because footnote 5.501B limits the impact of the space research service (active) in the band on the radiolocation service and the only non-Federal licensee in the band is in the radiolocation service, the Commission finds that this action is non-substantial.

Other Revisions to the U.S. Table

5. The Commission makes the following non-substantive, editorial changes to the U.S. Table and to FCC Rule part cross references within section 2.106 of the rules:

- Update footnote NG159 to remove the reference to part 74, subpart E, because the aural broadcast auxiliary stations are no longer licensed to operate on frequencies in the 698–806 MHz band, which has been reallocated and licensed for mobile broadband use.
- Add footnote US84 to the 941–944 MHz band in the Federal Table, which was inadvertently omitted when the Commission revised footnote US84 by adding the 941.5–944 MHz band.
- Add footnote NG527A to the 10.7–11.7 GHz band, which was inadvertently omitted from the non-Federal Table of Frequency Allocations (non-Federal Table) when the footnote was adopted in the *ESIMs Report and Order and Further Notice of Proposed Rulemaking*.
- Delete the entries for EESS (passive), SRS (passive), and footnotes 5.562B, 5.562F, and 5.562G from the 155.5–158.5 GHz band. The transition period concluded in 2018, and these two allocations and three footnotes are no longer needed.
- Update the contact information for the National Science Foundation in footnotes US99 and US385 and sections 27.1321(b) and 95.2309(f)(3) of the Commission's Rules.
- Revise the FCC Rule Part(s) column of the Allocation Table by adding a part 15 cross reference (*i.e.,* ''RF Devices (15)'') to the 902–928 MHz, 2400–2483.5 MHz, 5850–5925 MHz, 28.35–29.1 GHz, and 84–86 GHz bands; by removing the part 15 cross reference from the 29.1–29.25 GHz and 45.5–46.9 GHz bands; and by adding a part 101 cross reference (*i.e.,* ''Fixed Microwave (101)'') to the 84–86 GHz band.

C. Other Conforming Rule Revisions

6. The Commission makes the following non-substantive, editorial updates to the Commission's rules:

- Correct sections 1.1307(b)(2)(ii), 2.1091(c)(2), and 2.1093(c)(1) of the rules by revising the cross reference to section 15.255 from paragraph ''(g)'' to ''(f).'' This action reflects the paragraph re-designation adopted in the *Spectrum Frontiers 1st R&O.*
- Revise section 2.100 to note that the International Table has been updated to reflect the 2016 edition of the Radio Regulations.
- Revise section 2.101 to reflect Section I of Article 2 of the Radio Regulations. Specifically, the Commission deletes the column titled ''Metric abbreviations for the bands'' from the table in section 2.101, and also delete the duplicate table from that section.
- Revise sections 2.102 and 2.105 by replacing the archaic term ''band(s) of frequencies'' with ''frequency band(s).''
- Revise section 2.104 to state that the international footnotes shown in the International Table are applicable only to the relationships between the United States and other countries (unless a reference to an international footnote has been added to the U.S. Table).
- Revise the text in section 2.105(d)(2) without changing its underlying meaning or implication. Also revise the factual description in section 2.105(e) of the informational cross references that appear in column 6 of the Table of Allocations set out in section 2.106. The revision would recognize that the column 6 cross references sometimes include a reference to an FCC Rule subpart instead of an FCC Rule part and that an FCC Rule part or subpart may apply to only a portion of a frequency band. Finally, the Commission adds the following clarifying note: The radio frequency devices authorized pursuant

to 47 CFR part 15 are not based on allocated radio services. In the Allocation Table, the cross references to part 15 are used to note those frequency bands that are most typically associated with unlicensed use.

• Revise section 2.107 to cross reference the international notification requirements of radio astronomy stations, specified in No. 11.12 of Article 11 and Annex 2 of Appendix 4 of the Radio Regulations.

• Correct a typographical error in the heading of section 15.510 to provide consistency with paragraphs (b) and (c).

• Revise section 18.301 by replacing ''allocated'' with ''designated'' in the second sentence, simplifying the display of three ISM frequencies (*i.e.,* remove unnecessary commas from 2,450 MHz and 5,800 MHz and change 24,125 MHz to 24.125 GHz) in the table, and by deleting the note below the table. The Commission takes these actions to make this rule more consistent with international footnote 5.150 and to remove an unneeded and outdated cross reference.

Paperwork Reduction Act Analysis

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

Congressional Review Act

8. The Commission has determined, and the Administrator of the Office of Information and Regulatory Affairs, Office of Management and Budget, concurs that this rule is non-major under the Congressional Review Act, 5 U.S.C. 804(2). The Commission will send a copy of this Order to Congress and the Government Accountability Office pursuant to 5 U.S.C. 801(a)(1)(A).

Administrative Procedure Act Requirements

9. The Commission amends parts 1, 2, 15, 18, 27, and 95 of the Commission's rules herein by incorporating non-substantive, editorial revisions only. Therefore, there is good cause for not employing the notice and comment procedure in this case. Specifically, the Commission finds that the normal procedures for notice and comment and for publication as required under section 553 of the Administrative Procedure Act would be impracticable, unnecessary, or contrary to the public interest. See 5 U.S.C. 553(b)(3)(B); *Kessler* v. *FCC,* 326 F.2d 673 (D.C. Cir. 1963).

Ordering Clause

10. *It is ordered* that parts 1, 2, 15, 18, 27, and 95 of the Commission's rules, 47 CFR parts 1, 2, 15, 18, 27, and 95, *are amended* as set forth in the Appendix of the Order, effective 30 days after publication in the **Federal Register**. This action is taken pursuant to authority found in sections 4(i) and 303 of the Communications Act of 1934, as amended, 47 U.S.C. 154(i) and 303, and in sections 0.11, 0.31, 0.231(b) and 0.241(i) of the Commission's Rules, 47 CFR 0.11, 0.31, 0.231(b) and 0.241(i).

11. Petitions for reconsideration under 47 CFR 1.429 or applications for review by the Commission under 47 CFR 1.115 may be filed within 30 days after publication in the **Federal Register**. Should no petitions for reconsideration or applications for review be timely filed, this proceeding shall be terminated, and its docket closed.

List of Subjects in 47 CFR Part 1, 2, 15, 18, 27, and 95

Radio.

Federal Communications Commission.

Ronald Repasi,

Acting Chief, Office of Engineering and Technology.

Final Rules

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 1, 2, 15, 18, 27, and 95 as follows:

PART 1—PRACTICE AND PROCEDURE

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

Authority: 47 U.S.C. chs. 2, 5, 9, 13; 28 U.S.C. 2461 note, unless otherwise noted.

■ 2. Section 1.1307 is amended by revising paragraph (b)(2)(ii) to read as follows:

§ 1.1307 Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.

* * * * *

(b) * * *

(2) * * *

(ii) Unlicensed PCS, unlicensed NII, and millimeter-wave devices are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use, as specified in §§ 15.255(f), 15.257(g), 15.319(i), and 15.407(f) of this chapter.

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

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

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

■ 4. Section 2.100 is revised to read as follows:

§ 2.100 International regulations in force.

The Radio Regulations of the International Telecommunication Union (Radio Regulations) (Edition of 2012) have been incorporated to the extent practicable in this part, except that the International Table within § 2.106 has been updated to reflect the Radio Regulations (Edition of 2016).

■ 5. Section 2.101 is amended by revising the table in paragraph (b) and by removing the table in paragraph (c).

The revision reads as follows:

§ 2.101 Frequency and wavelength bands.

* * * * *

(b) * * *

TABLE 1 TO PARAGRAPH (b)

Band No.	Symbols	Frequency range (lower limit exclusive, upper limit inclusive)	Corresponding metric subdivision
4	VLF	3 to 30 kHz	Myriametric waves.
5	LF	30 to 300 kHz	Kilometric waves.
6	MF	300 to 3 000 kHz	Hectometric waves.
7	HF	3 to 30 MHz	Decametric waves.
8	VHF	30 to 300 MHz	Metric waves.
9	UHF	300 to 3 000 MHz	Decimetric waves.
10	SHF	3 to 30 GHz	Centimetric waves.

TABLE 1 TO PARAGRAPH (b)—Continued

Band No.	Symbols	Frequency range (lower limit exclusive, upper limit inclusive)	Corresponding metric subdivision
11	EHF	30 to 300 GHz	Millimetric waves.
12		300 to 3 000 GHz	Decimillimetric waves.

Note 1: "Band N" (N = band number) extends from 0.3×10^N Hz to 3×10^N Hz.
Note 2: Prefix: k = kilo (10^3), M = mega (10^6), G = giga (10^9).

* * * * *

■ 6. Section 2.102 is amended by revising paragraph (a) to read as follows:

§ 2.102 Assignment of frequencies.

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

* * * * *

■ 7. Section 2.104 is amended by adding paragraph (h)(8) to read as follows:

§ 2.104 International Table of Frequency Allocations.

* * * * *

(h) * * *

(8) The international footnotes shown in the International Table are applicable only to the relationships between the United States and other countries (unless a reference to an international footnote has been added to the United States Table of Frequency Allocations).

* * * * *

■ 8. Section 2.105 is amended by revising paragraphs (d)(1) and (2) and (e) to read as follows:

§ 2.105 United States Table of Frequency Allocations.

* * * * *

(d) * * *

(1) The frequency band referred to in each allocation, column 4 for Federal operations and column 5 for non-Federal operations, is indicated in the left-hand top corner of the column. If there is no service or footnote indicated for a frequency band in column 4, then the Federal sector has no access to that band except as provided for by § 2.103. If there is no service or footnote indicated for a frequency band in column 5, then the non-Federal sector has no access to that band except as provided for by § 2.102.

(2) When the type of service(s) permitted and any applicable footnote(s) are the same for a frequency band in the Federal Table and the non-Federal Table, columns 4 and 5 are merged, indicating that the frequency band is shared between the Federal and non-Federal sectors under the same conditions.

* * * * *

(e) *Rule part cross-references.* If a frequency or frequency band has been allocated to a radiocommunication service in the non-Federal Table, then a cross reference may be added to the pertinent FCC Rule part (column 6 of § 2.106) or, where greater specificity would be useful, to the pertinent subpart. For example, the band 849–851 MHz is allocated to the aeronautical mobile service for non-Federal use, rules for the use of the 849–851 MHz band have been added to part 22—Public Mobile Services (47 CFR part 22), and a cross reference, Public Mobile (22), has been added in column 6 of § 2.106. The exact use that can be made of any given frequency or frequency band (*e.g.,* channeling plans, allowable emissions, etc.) is given in the FCC Rule part(s) so indicated. The FCC Rule parts in this column are not allocations, may apply to only a portion of a band, and are provided for informational purposes only. This column also may contain explanatory notes for informational purposes only.

Note 1 to paragraph (e): The radio frequency devices authorized pursuant to 47 CFR part 15 are not based on allocated radio services. In the Allocation Table, the cross references to part 15 are used to note those frequency bands that are most typically associated with unlicensed use.

* * * * *

■ 9. Section 2.106, the Table of Frequency Allocations, is amended as follows:

■ a. Revise pages 7 through 9, 19, 22 through 27, 29 through 34, and 38 through 68.

■ b. In the list of International Footnotes:

■ i. Revise footnotes 5.54B, 5.55, 5.68, 5.93, 5.96, 5.98, 5.102, 5.119, 5.122, 5.132B, 5.133A, 5.134, 5.140, 5.141B, 5.145B, 5.149A, 5.158, 5.159, 5.161B, 5.164, 5.167, 5.167A, 5.170, 5.172, 5.173, 5.185, 5.201, 5.202, 5.208B, 5.211, 5.220, 5.221, 5.256A, 5.268, 5.275, 5.276, 5.279A, 5.286AA, 5.287, 5.288, 5.291A, 5.292, 5.293, 5.294, 5.296, 5.297, 5.300, 5.309, 5.312, 5.312A, 5.313A, 5.316B, 5.317, 5.317A, 5.325A, 5.327A, 5.329, 5.338A, 5.342, 5.345, 5.351A, 5.352A, 5.359, 5.382, 5.384A, 5.386, 5.388, 5.391, 5.393, 5.396, 5.401, 5.418, 5.428, 5.429, 5.430, 5.430A, 5.431, 5.431A, 5.432B, 5.433A, 5.438, 5.442, 5.443B, 5.444, 5.444A, 5.444B, 5.446, 5.446C, 5.447E, 5.447F, 5.450A, 5.457A, 5.457B, 5.457C, 5.459, 5.460, 5.462A, 5.468, 5.471, 5.477, 5.480, 5.481, 5.486, 5.494, 5.495, 5.500, 5.504B, 5.504C, 5.505, 5.506B, 5.508A, 5.509A, 5.510, 5.511A, 5.511C, 5.512, 5.514, 5.521, 5.524, 5.530A, 5.530D, 5.536B, 5.543A, 5.551H, and 5.562D;

■ ii. Add footnotes 5.133B, 5.228AA, 5.265, 5.295, 5.296A, 5.308, 5.308A, 5.328AA, 5.341A, 5.341B, 5.341C, 5.346, 5.346A, 5.429A, 5.429B, 5.429C, 5.429D, 5.429E, 5.429F, 5.431B, 5.434, 5.436, 5.437, 5.441A, 5.441B, 5.460A, 5.460B, 5.461AA, 5.461AB, 5.474A, 5.474B, 5.474C, 5.474D, 5.499A, 5.499B, 5.499C, 5.499D, 5.499E, 5.501A, 5.509B, 5.509C, 5.509D, 5.509E, 5.509F, and 5.509G; and

■ iii. Remove footnotes 5.166, 5.222, 5.223, 5.224A, 5.224B, 5.232, 5.234, 5.260, 5.313B, 5.314, 5.315, 5.316, 5.316A, 5.362B, 5.362C, 5.417A, 5.417B, 5.417C, 5.417D, 5.456, 5.458C, 5.511D, and 5.530C.

■ c. In the list of United States (US) footnotes, revise footnote US99, add footnote US287, and revise footnote US385;

■ d. In the list of Non-Federal Government (NG) footnotes, revise footnote NG159; and

■ e. In the list of Federal Government (G) footnotes, revise footnote G132 and remove footnote G133.

The revisions and additions read as follows:

§ 2.106 Table of Frequency Allocations.

* * * * *

Table of Frequency Allocations — 3.23-5.73 MHz (HF)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
3.23-3.4 FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116 5.118			3.23-3.4 FIXED MOBILE except aeronautical mobile Radiolocation US340		Maritime (80) Aviation (87) Private Land Mobile (90)
3.4-3.5 AERONAUTICAL MOBILE (R)			3.4-3.5 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
3.5-3.8 AMATEUR FIXED MOBILE except aeronautical mobile 5.92	3.5-3.75 AMATEUR 5.119	3.5-3.9 AMATEUR FIXED MOBILE	3.5-4	3.5-4 AMATEUR	Amateur Radio (97)
3.8-3.9 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	3.75-4 AMATEUR FIXED MOBILE except aeronautical mobile (R)				
3.9-3.95 AERONAUTICAL MOBILE (OR) 5.123		3.9-3.95 AERONAUTICAL MOBILE BROADCASTING			
3.95-4 FIXED	5.122 5.125	3.95-4 FIXED	US340	US340	

BROADCASTING		BROADCASTING 5.126			
4-4.063 FIXED MARITIME MOBILE 5.127 5.126			4-4.063 FIXED MARITIME MOBILE US340		Maritime (80)
4.063-4.438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128			4.063-4.438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 US82 US296 US340		Maritime (80) Aviation (87)
4.438-4.488 FIXED MOBILE except aeronautical mobile (R) Radiolocation 5.132A 5.132B	4.438-4.488 FIXED MOBILE except aeronautical mobile (R) RADIOLOCATION 5.132A	4.438-4.488 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	4.438-4.488 FIXED MOBILE except aeronautical mobile (R) RADIOLOCATION 5.132A US340		Maritime (80) Private Land Mobile (90)
4.488-4.65 FIXED MOBILE except aeronautical mobile (R)		4.488-4.65 FIXED MOBILE except aeronautical mobile	4.488-4.65 FIXED MOBILE except aeronautical mobile (R) US22 US340		Maritime (80) Aviation (87) Private Land Mobile (90)
4.65-4.7 AERONAUTICAL MOBILE (R)			4.65-4.7 AERONAUTICAL MOBILE (R) US282 US283 US340		Aviation (87)
4.7-4.75 AERONAUTICAL MOBILE (OR)			4.7-4.75 AERONAUTICAL MOBILE (OR) US340		

4.75-4.85 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	4.75-4.85 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113	4.75-4.85 FIXED BROADCASTING 5.113 Land mobile	4.75-4.85 FIXED MOBILE except aeronautical mobile (R) US340		Maritime (80) Private Land Mobile (90)
4.85-4.995 FIXED LAND MOBILE BROADCASTING 5.113			4.85-4.995 FIXED MOBILE US340	4.85-4.995 FIXED US340	Aviation (87) Private Land Mobile (90)
4.995-5.003 STANDARD FREQUENCY AND TIME SIGNAL (5 MHz)			4.995-5.005 STANDARD FREQUENCY AND TIME SIGNAL (5 MHz)		
5.003-5.005 STANDARD FREQUENCY AND TIME SIGNAL Space research			US1 US340		
5.005-5.06 FIXED BROADCASTING 5.113			5.005-5.06 FIXED US22 US340		Aviation (87) Private Land Mobile (90)
5.06-5.25 FIXED Mobile except aeronautical mobile 5.133			5.06-5.25 FIXED US22 Mobile except aeronautical mobile US212 US340		Maritime (80) Aviation (87) Private Land Mobile (90)
5.25-5.275 FIXED MOBILE except aeronautical mobile	5.25-5.275 FIXED MOBILE except aeronautical mobile	5.25-5.275 FIXED MOBILE except aeronautical mobile	5.25-5.275 FIXED MOBILE except aeronautical mobile		Maritime (80) Private Land Mobile (90)

Radiolocation 5.132A 5.133A	RADIOLOCATION 5.132A	Radiolocation 5.132A	RADIOLOCATION 5.132A US340	
5.275-5.3515 FIXED MOBILE except aeronautical mobile			5.275-5.45 FIXED US22 Mobile except aeronautical mobile	Maritime (80) Aviation (87) Private Land Mobile (90) Amateur Radio (97)
5.3515-5.3665 FIXED MOBILE except aeronautical mobile Amateur 5.133B			US23 US340	
5.3665-5.45 FIXED MOBILE except aeronautical mobile				
5.45-5.48 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5.45-5.48 AERONAUTICAL MOBILE (R)	5.45-5.48 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5.45-5.68 AERONAUTICAL MOBILE (R) 5.111 5.115 US283 US340	Aviation (87)
5.48-5.68 AERONAUTICAL MOBILE (R) 5.111 5.115				
5.68-5.73 AERONAUTICAL MOBILE (OR) 5.111 5.115			5.68-5.73 AERONAUTICAL MOBILE (OR) 5.111 5.115 US340	

Table of Frequency Allocations			5.73-11.175 MHz (HF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
5.73-5.9 FIXED LAND MOBILE	5.73-5.9 FIXED MOBILE except aeronautical mobile (R)	5.73-5.9 FIXED Mobile except aeronautical mobile (R)	5.73-5.9 FIXED MOBILE except aeronautical mobile (R) US340		Maritime (80) Aviation (87) Private Land Mobile (90)
5.9-5.95 BROADCASTING 5.134 5.136			5.9-6.2 BROADCASTING 5.134		International Broadcast Stations (73F)
5.95-6.2 BROADCASTING			US136 US340		
6.2-6.525 MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137			6.2-6.525 MARITIME MOBILE 5.109 5.110 5.130 5.132 US82 US296 US340		Maritime (80)
6.525-6.685 AERONAUTICAL MOBILE (R)			6.525-6.685 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
6.685-6.765 AERONAUTICAL MOBILE (OR)			6.685-6.765 AERONAUTICAL MOBILE (OR) US340		
6.765-7 FIXED MOBILE except aeronautical mobile (R)			6.765-7 FIXED US22 MOBILE except aeronautical mobile (R)		ISM Equipment (18) Private Land Mobile (90)

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5.138			5.138 US340		
7-7.1 AMATEUR AMATEUR-SATELLITE 5.140 5.141 5.141A			7-7.2	7-7.1 AMATEUR AMATEUR-SATELLITE US340	Amateur Radio (97)
7.1-7.2 AMATEUR 5.142 5.141A 5.141B			US340	7.1-7.2 AMATEUR US340	
7.2-7.3 BROADCASTING	7.2-7.3 AMATEUR 5.142	7.2-7.3 BROADCASTING	7.2-7.3 US142 US340	7.2-7.3 AMATEUR US142 US340	International Broadcast Stations (73F) Amateur Radio (97)
7.3-7.4 BROADCASTING 5.134 5.143 5.143A 5.143B 5.143C 5.143D			7.3-7.4 BROADCASTING 5.134 US136 US340		International Broadcast Stations (73F) Maritime (80)
7.4-7.45 BROADCASTING 5.143B 5.143C	7.4-7.45 FIXED MOBILE except aeronautical mobile (R)	7.4-7.45 BROADCASTING 5.143A 5.143C	7.4-7.45 FIXED MOBILE except aeronautical mobile (R) US142 US340		Private Land Mobile (90)
7.45-8.1 FIXED MOBILE except aeronautical mobile (R) 5.144			7.45-8.1 FIXED US22 MOBILE except aeronautical mobile (R) US340		Maritime (80) Aviation (87) Private Land Mobile (90)

Table of Frequency Allocations			41.015-117.975 MHz (VHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
40.98-41.015 FIXED MOBILE Space research 5.160 5.161			(See previous page)		
41.015-42 FIXED MOBILE 5.160 5.161 5.161A			41.015-41.665 FIXED MOBILE RADIOLOCATION US132A US220	41.015-41.665 RADIOLOCATION US132A US220	Private Land Mobile (90)
			41.665-42 FIXED MOBILE US220	41.665-42 US220	
42-42.5 FIXED MOBILE Radiolocation 5.132A 5.160 5.161B	42-42.5 FIXED MOBILE 5.161		42-43.35	42-43.35 FIXED LAND MOBILE NG124 NG141	Public Mobile (22) Private Land Mobile (90)
42.5-44 FIXED			43.35-44 RADIOLOCATION US132A	43.35-43.69 FIXED	

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MOBILE 5.160 5.161 5.161A				LAND MOBILE RADIOLOCATION US132A NG124	
				43.69-44 LAND MOBILE RADIOLOCATION US132A NG124	Private Land Mobile (90)
44-47 FIXED MOBILE 5.162 5.162A			44-46.6	44-46.6 LAND MOBILE NG124 NG141	
			46.6-47 FIXED MOBILE	46.6-47	
47-68 BROADCASTING	47-50 FIXED MOBILE	47-50 FIXED MOBILE BROADCASTING 5.162A	47-49.6	47-49.6 LAND MOBILE NG124	Private Land Mobile (90)
			49.6-50 FIXED MOBILE	49.6-50	
	50-54 AMATEUR 5.162A 5.167 5.167A 5.168 5.170		50-73	50-54 AMATEUR	Amateur Radio (97)

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 5.208B 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			144-148	144-146 AMATEUR	Amateur Radio (97)

AMATEUR-SATELLITE				AMATEUR-SATELLITE		
5.216						
146-148	146-148	146-148		146-148		
FIXED	AMATEUR	AMATEUR		AMATEUR		
MOBILE except aeronautical mobile (R)		FIXED				
		MOBILE				
	5.217	5.217				
148-149.9	148-149.9			148-149.9	148-149.9	Satellite Communications (25)
FIXED	FIXED			FIXED	MOBILE-SATELLITE	
MOBILE except aeronautical mobile (R)	MOBILE			MOBILE	(Earth-to-space) US320	
MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space) 5.209			MOBILE-SATELLITE	US323 US325	
5.209				(Earth-to-space) US319		
				US320 US323 US325		
5.218 5.219 5.221	5.218 5.219 5.221			5.218 5.219 G30	5.218 5.219 US319	
149.9-150.05				149.9-150.05		
MOBILE-SATELLITE (Earth-to-space) 5.209 5.220				MOBILE-SATELLITE (Earth-to-space) US319 US320		
				RADIONAVIGATION-SATELLITE		
150.05-153	150.05-154			150.05-150.8	150.05-150.8	
FIXED	FIXED			FIXED		
MOBILE except aeronautical mobile	MOBILE			MOBILE		
RADIO ASTRONOMY						
				US73 G30	US73	
5.149						
	5.225					

Table of Frequency Allocations — 150.8-174 MHz (VHF)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
(See previous page)	(See previous page)		150.8-152.855	150.8-152.855 FIXED LAND MOBILE NG4 NG51 NG112	Public Mobile (22) Private Land Mobile (90) Personal Radio (95)
			US73	US73 NG124	
153-154 FIXED MOBILE except aeronautical mobile (R) Meteorological aids			152.855-156.2475	152.855-154 LAND MOBILE NG4 NG124	Remote Pickup (74D) Private Land Mobile (90)
154-156.4875 FIXED MOBILE except aeronautical mobile (R)	154-156.4875 FIXED MOBILE	154-156.4875 FIXED MOBILE		154-156.2475 FIXED LAND MOBILE NG112	Maritime (80) Private Land Mobile (90) Personal Radio (95)
5.225A 5.226	5.226	5.225A 5.226		5.226 NG22 NG124 NG148	
			156.2475-156.5125	156.2475-156.5125 MARITIME MOBILE NG22	Maritime (80) Aviation (87)
156.4875-156.5625 MARITIME MOBILE (distress and calling via DSC)			5.226 US52 US227 US266	5.226 US52 US227 US266 NG124	
			156.5125-156.5375 MARITIME MOBILE (distress, urgency, safety and calling via DSC) 5.111 5.226 US266		
5.111 5.226 5.227			156.5375-156.7625 5.226 US52 US227 US266	156.5375-156.7625 MARITIME MOBILE	

156.5625-156.7625 FIXED MOBILE except aeronautical mobile (R) 5.226	156.5625-156.7625 FIXED MOBILE 5.226			5.226 US52 US227 US266	
156.7625-156.7875 MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	156.7625-156.7875 MARITIME MOBILE MOBILE-SATELLITE (Earth-to-space) 5.111 5.226 5.228	156.7625-156.7875 MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	156.7625-156.7875 MOBILE-SATELLITE (Earth-to-space) (AIS 3) 5.226 US52 US266		Satellite Communications (25) Maritime (80)
156.7875-156.8125 MARITIME MOBILE (distress and calling) 5.111 5.226			156.7875-156.8125 MARITIME MOBILE (distress, urgency, safety and calling) 5.111 5.226 US266		Maritime (80) Aviation (87)
156.8125-156.8375 MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	156.8125-156.8375 MARITIME MOBILE MOBILE-SATELLITE (Earth-to-space) 5.111 5.226 5.228	156.8125-156.8375 MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	156.8125-156.8375 MOBILE-SATELLITE (Earth-to-space) (AIS 4) 5.226 US52 US266		Satellite Communications (25) Maritime (80)
156.8375-161.9375 FIXED MOBILE except aeronautical mobile	156.8375-161.9375 FIXED MOBILE		156.8375-157.0375 5.226 US52 US266	156.8375-157.0375 MARITIME MOBILE 5.226 US52 US266	Maritime (80) Aviation (87)
			157.0375-157.1875 MARITIME MOBILE US214 5.226 US266 G109	157.0375-157.1875 5.226 US214 US266	Maritime (80)
			157.1875-161.575	157.1875-157.45 MOBILE except aeronautical mobile US266	Maritime (80) Aviation (87)

				5.226 NG111	Private Land Mobile (90)
				157.45-161.575 FIXED LAND MOBILE NG28 NG111 NG112 5.226 NG6 NG70 NG124 NG148 NG155	Public Mobile (22) Remote Pickup (74D) Maritime (80) Private Land Mobile (90)
			161.575-161.625 5.226 US52	161.575-161.625 MARITIME MOBILE 5.226 US52 NG6 NG17	Public Mobile (22) Maritime (80)
			161.625-161.9625	161.625-161.775 LAND MOBILE NG6 5.226	Public Mobile (22) Remote Pickup (74D) Low Power Auxiliary (74H)
5.226	5.226			161.775-161.9625 MOBILE except aeronautical mobile US266 NG6	Maritime (80) Private Land Mobile (90)
161.9375-161.9625 FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226	161.9375-161.9625 FIXED MOBILE Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226		US266	5.226	
161.9625-161.9875 FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space)	161.9625-161.9875 AERONAUTICAL MOBILE (OR) MARITIME MOBILE MOBILE-SATELLITE (Earth-to-space)	161.9625-161.9875 MARITIME MOBILE Aeronautical mobile (OR) 5.228E Mobile-satellite (Earth-to-space) 5.228F	161.9625-161.9875 AERONAUTICAL MOBILE (OR) (AIS 1) MARITIME MOBILE (AIS 1) MOBILE-SATELLITE (Earth-to-space) (AIS 1)		Satellite Communications (25) Maritime (80)

5.228F 5.226 5.228A 5.228B	5.228C 5.228D	5.226	5.228C US52		
161.9875-162.0125 FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226 5.229	161.9875-162.0125 FIXED MOBILE Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226		161.9875-162.0125	161.9875-162.0125 MOBILE except aeronautical mobile 5.226	Maritime (80)
162.0125-162.0375 FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B 5.229	162.0125-162.0375 AERONAUTICAL MOBILE (OR) MARITIME MOBILE MOBILE-SATELLITE (Earth-to-space) 5.228C 5.228D	162.0125-162.0375 MARITIME MOBILE Aeronautical mobile (OR) 5.228E Mobile-satellite (Earth-to-space) 5.228F 5.226	162.0125-162.0375 AERONAUTICAL MOBILE (OR) (AIS 2) MARITIME MOBILE (AIS 2) MOBILE-SATELLITE (Earth-to-space) (AIS 2) 5.228C US52		Satellite Communications (25) Maritime (80)
162.0375-174 FIXED MOBILE except aeronautical mobile 5.226 5.229	162.0375-174 FIXED MOBILE 5.226 5.230 5.231		162.0375-173.2 FIXED MOBILE US8 US11 US13 US55 US73 US300 US312 G5	162.0375-173.2 US8 US11 US13 US55 US73 US300 US312	Remote Pickup (74D) Private Land Mobile (90)
			173.2-173.4	173.2-173.4 FIXED Land mobile	Private Land Mobile (90)
			173.4-174 FIXED MOBILE G5	173.4-174	

Table of Frequency Allocations — 174-400.15 MHz (VHF/UHF)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
174-223 BROADCASTING	174-216 BROADCASTING Fixed Mobile	174-223 FIXED MOBILE BROADCASTING	174-216	174-216 BROADCASTING NG5 NG14 NG115 NG149	Broadcast Radio (TV)(73) LPTV, TV Translator/ Booster (74G) Low Power Auxiliary (74H)
	216-220 FIXED MARITIME MOBILE Radiolocation 5.241 5.242		216-217 Fixed Land mobile US210 US241 G2	216-219 FIXED MOBILE except aeronautical mobile US210 US241 NG173	Maritime (80) Private Land Mobile (90) Personal Radio (95)
			217-220 Fixed Mobile US210 US241	219-220 FIXED MOBILE except aeronautical mobile Amateur NG152 US210 US241 NG173	Maritime (80) Private Land Mobile (90) Amateur Radio (97)
	220-225 AMATEUR FIXED MOBILE Radiolocation 5.241		220-222 FIXED LAND MOBILE US241 US242		Private Land Mobile (90)
5.235 5.237 5.243		5.233 5.238 5.240 5.245	222-225	222-225 AMATEUR	Amateur Radio (97)
223-230 BROADCASTING		223-230 FIXED			

Fixed Mobile 5.243 5.246 5.247	225-235 FIXED MOBILE	MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation 5.250	225-235 FIXED MOBILE G27	225-235	
230-235 FIXED MOBILE 5.247 5.251 5.252		230-235 FIXED MOBILE AERONAUTICAL RADIONAVIGATION 5.250			
235-267 FIXED MOBILE 5.111 5.252 5.254 5.256 5.256A			235-267 FIXED MOBILE 5.111 5.256 G27 G100	235-267 5.111 5.256	
267-272 FIXED MOBILE Space operation (space-to-Earth) 5.254 5.257			267-322 FIXED MOBILE	267-322	

272-273 SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254			
273-312 FIXED MOBILE 5.254			
312-315 FIXED MOBILE Mobile-satellite (Earth-to-space) 5.254 5.255			
315-322 FIXED MOBILE 5.254	G27 G100		
322-328.6 FIXED MOBILE RADIO ASTRONOMY 5.149	322-328.6 FIXED MOBILE US342 G27	322-328.6 US342	
328.6-335.4	328.6-335.4		

AERONAUTICAL RADIONAVIGATION 5.258 5.259	AERONAUTICAL RADIONAVIGATION 5.258		Aviation (87)
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 5.208B 5.254 5.255			
390-399.9 FIXED MOBILE 5.254	G27 G100		
399.9-400.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.220	399.9-400.05 MOBILE-SATELLITE (Earth-to-space) US319 US320 RADIONAVIGATION-SATELLITE		Satellite Communications (25)
400.05-400.15 STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261 5.262	400.05-400.15 STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261		

Table of Frequency Allocations			400.15-456 MHz (UHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
400.15-401 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.262 5.264			400.15-401 METEOROLOGICAL AIDS (radiosonde) US70 METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 US324 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.264	400.15-401 METEOROLOGICAL AIDS (radiosonde) US70 MOBILE-SATELLITE (space-to-Earth) US319 US320 US324 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.264	Satellite Communications (25)
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) US64 US384	401-402 METEOROLOGICAL AIDS (radiosonde) US70 SPACE OPERATION (space-to-Earth) Earth exploration-satellite (Earth-to-space) Meteorological-satellite (Earth-to-space) US64 US384	MedRadio (95I)
402-403 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space)			402-403 METEOROLOGICAL AIDS (radiosonde) US70	402-403 METEOROLOGICAL AIDS (radiosonde) US70	

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METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) US64 US384	Earth exploration-satellite (Earth-to-space) Meteorological-satellite (Earth-to-space) US64 US384	
403-406 METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile 5.265	403-406 METEOROLOGICAL AIDS (radiosonde) US70 US64 G6	403-406 METEOROLOGICAL AIDS (radiosonde) US70 US64	
406-406.1 MOBILE-SATELLITE (Earth-to-space) 5.265 5.266 5.267	406-406.1 MOBILE-SATELLITE (Earth-to-space) 5.266 5.267		Maritime (EPIRBs) (80V) Aviation (ELTs) (87F) Personal Radio (95)
406.1-410 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.265	406.1-410 FIXED MOBILE RADIO ASTRONOMY US74 US13 US55 US117 G5 G6	406.1-410 RADIO ASTRONOMY US74 US13 US55 US117	Private Land Mobile (90)
410-420 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268	410-420 FIXED MOBILE SPACE RESEARCH (space-to-space) 5.268 US13 US55 US64 G5	410-420 US13 US55 US64	Private Land Mobile (90) MedRadio (95I)

Table of Frequency Allocations			456-894 MHz (UHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
456-459 FIXED MOBILE 5.286AA 5.271 5.287 5.288			456-459 US287 US64 US288	456-460 FIXED LAND MOBILE	Public Mobile (22) Maritime (80) Private Land Mobile (90) MedRadio (95I)
459-460 FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	459-460 FIXED MOBILE 5.286AA MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209	459-460 FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	459-460	US64 US287 US288 NG32 NG112 NG124 NG148	
460-470 FIXED MOBILE 5.286AA Meteorological-satellite (space-to-Earth)			460-470 Meteorological-satellite (space-to-Earth)	460-462.5375 FIXED LAND MOBILE US209 US289 NG124	Private Land Mobile (90)
				462.5375-462.7375 LAND MOBILE US289	Personal Radio (95)
				462.7375-467.5375 FIXED LAND MOBILE US73 US209 US287 US288 US289 NG124	Maritime (80) Private Land Mobile (90)

				467.5375-467.7375	
				LAND MOBILE	Maritime (80)
					Personal Radio (95)
				US287 US288 US289	
				467.7375-470	
				FIXED	Maritime (80)
				LAND MOBILE	Private Land Mobile (90)
			US73 US209 US287 US288		
5.287 5.288 5.289 5.290			US289	US73 US288 US289 NG124	
470-694	470-512	470-585	470-608	470-512	
BROADCASTING	BROADCASTING	FIXED		FIXED	Public Mobile (22)
	Fixed	MOBILE 5.296A		LAND MOBILE	Broadcast Radio (TV)(73)
	Mobile	BROADCASTING		BROADCASTING	LPTV, TV Translator/Booster (74G)
					Low Power Auxiliary (74H)
	5.292 5.293 5.295			NG5 NG14 NG66 NG115 NG149	Private Land Mobile (90)
	512-608	5.291 5.298		512-608	
	BROADCASTING	585-610		BROADCASTING	Broadcast Radio (TV)(73)
		FIXED			LPTV, TV Translator/Booster (74G)
		MOBILE 5.296A			Low Power Auxiliary (74H)
	5.295 5.297	BROADCASTING		NG5 NG14 NG115 NG149	
	608-614	RADIONAVIGATION	608-614		
	RADIO ASTRONOMY		LAND MOBILE (medical telemetry and medical telecommand)		Personal Radio (95)
	Mobile-satellite except aeronautical		RADIO ASTRONOMY US74		
	mobile-satellite (Earth-to-space)	5.149 5.305 5.306 5.307			
		610-890			
		FIXED			
		MOBILE 5.296A 5.313A 5.317A			
		BROADCASTING		US246	

5.149 5.291A 5.294 5.296 5.300 5.304 5.306 5.311A 5.312	614-698 BROADCASTING Fixed Mobile 5.293 5.308 5.308A 5.309 5.311A	
694-790 MOBILE except aeronautical mobile 5.312A 5.317A BROADCASTING	698-806 MOBILE 5.317A BROADCASTING Fixed	
5.300 5.311A 5.312		
790-862 FIXED	5.293 5.309 5.311A	
614-890	614-698 FIXED MOBILE NG5 NG14 NG33 NG115 NG149	RF Devices (15) Wireless Communications (27) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)
	698-758 FIXED MOBILE BROADCASTING NG159	Wireless Communications (27) LPTV and TV Translator (74G)
	758-775 FIXED MOBILE NG34 NG159	Public Safety Land Mobile (90R)
	775-788 FIXED MOBILE BROADCASTING NG159	Wireless Communications (27) LPTV and TV Translator (74G)
	788-805 FIXED MOBILE	Public Safety Land Mobile (90R)

MOBILE except aeronautical mobile 5.316B 5.317A BROADCASTING			NG34 NG159
			805-806 FIXED MOBILE BROADCASTING NG159
			Wireless Communications (27) LPTV and TV Translator (74G)
	806-890 FIXED MOBILE 5.317A BROADCASTING		806-809 LAND MOBILE
			Public Safety Land Mobile (90S)
			809-849 FIXED LAND MOBILE
			Public Mobile (22) Private Land Mobile (90)
			849-851 AERONAUTICAL MOBILE
			Public Mobile (22)
			851-854 LAND MOBILE
			Public Safety Land Mobile (90S)
5.312 5.319			854-894 FIXED LAND MOBILE
			Public Mobile (22) Private Land Mobile (90)
862-890 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322		5.149 5.305 5.306 5.307	
5.319 5.323	5.317 5.318	5.311A 5.320	US116 US268

Table of Frequency Allocations			894-1400 MHz (UHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
890-942 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation	890-902 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation 5.318 5.325	890-942 FIXED MOBILE 5.317A BROADCASTING Radiolocation	890-902 US116 US268 G2	(See previous page)	
				894-896 AERONAUTICAL MOBILE US116 US268	Public Mobile (22)
				896-901 FIXED LAND MOBILE US116 US268	Private Land Mobile (90)
				901-902 FIXED MOBILE US116 US268	Personal Communications (24)
	902-928 FIXED Amateur Mobile except aeronautical mobile 5.325A Radiolocation 5.150 5.325 5.326		902-928 RADIOLOCATION G59 5.150 US218 US267 US275 G11	902-928 5.150 US218 US267 US275	RF Devices (15) ISM Equipment (18) Private Land Mobile (90) Amateur Radio (97)
	928-942 FIXED MOBILE except aeronautical		928-932	928-929 FIXED US116 US268 NG35	Public Mobile (22) Private Land Mobile (90) Fixed Microwave (101)

	mobile 5.317A Radiolocation			929-930 FIXED LAND MOBILE US116 US268	Private Land Mobile (90)
				930-931 FIXED MOBILE US116 US268	Personal Communications (24)
			US116 US268 G2	931-932 FIXED LAND MOBILE US116 US268	Public Mobile (22)
			932-935 FIXED US268 G2	932-935 FIXED US268 NG35	Public Mobile (22) Fixed Microwave (101)
			935-941	935-940 FIXED LAND MOBILE US116 US268	Private Land Mobile (90)
			US116 US268 G2	940-941 FIXED MOBILE US116 US268	Personal Communications (24)
5.323	5.325	5.327			

942-960 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.323	942-960 FIXED MOBILE 5.317A	942-960 FIXED MOBILE 5.317A BROADCASTING 5.320	941-944 FIXED US84 US268 US301 G2 944-960	941-944 FIXED US84 US268 US301 NG30 NG35 944-960 FIXED NG35	Public Mobile (22) Aural Broadcast Auxiliary (74E) Low Power Auxiliary (74H) Fixed Microwave (101)
960-1164 AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328 5.328AA			960-1164 AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328 US224		Aviation (87)
1164-1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.328A			1164-1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328A US224		
1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332			1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) G132 SPACE RESEARCH (active) 5.332	1215-1240 Earth exploration-satellite (active) Space research (active)	
1240-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A			1240-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 SPACE RESEARCH (active)	1240-1300 AERONAUTICAL RADIONAVIGATION Amateur Earth exploration-satellite (active)	Amateur Radio (97)

SPACE RESEARCH (active) Amateur 5.282 5.330 5.331 5.332 5.335 5.335A		AERONAUTICAL RADIONAVIGATION 5.332 5.335	Space research (active) 5.282	
1300-1350 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 RADIONAVIGATION-SATELLITE (Earth-to-space) 5.149 5.337A		1300-1350 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation G2 US342	1300-1350 AERONAUTICAL RADIONAVIGATION 5.337 US342	Aviation (87)
1350-1400 FIXED MOBILE RADIOLOCATION	1350-1400 RADIOLOCATION 5.338A	1350-1390 FIXED MOBILE RADIOLOCATION G2 5.334 5.339 US342 US385 G27 G114	1350-1390 5.334 5.339 US342 US385	
		1390-1395 5.339 US79 US342 US385	1390-1395 FIXED MOBILE except aeronautical mobile 5.339 US79 US342 US385 NG338A	Wireless Communications (27)
		1395-1400 LAND MOBILE (medical telemetry and medical telecommand) 5.339 US79 US342 US385		Personal Radio (95)
5.149 5.338 5.338A 5.339	5.149 5.334 5.339			

Table of Frequency Allocations — 1400-1626.5 MHz (UHF)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
1400-1427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			1400-1427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 US246		
1427-1429 SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.341A 5.341B 5.341C 5.338A 5.341			1427-1429.5 LAND MOBILE (medical telemetry and medical telecommand) US350 5.341 US79	1427-1429.5 LAND MOBILE (telemetry and telecommand) Fixed (telemetry) 5.341 US79 US350 NG338A	Private Land Mobile (90) Personal Radio (95)
1429-1452 FIXED MOBILE except aeronautical mobile 5.341A 5.338A 5.341 5.342	1429-1452 FIXED MOBILE 5.341B 5.341C 5.343 5.338A 5.341		1429.5-1432 5.341 US79 US350	1429.5-1432 FIXED (telemetry and telecommand) LAND MOBILE (telemetry and telecommand) 5.341 US79 US350 NG338A	
			1432-1435 5.341 US83	1432-1435 FIXED MOBILE except aeronautical mobile 5.341 US83 NG338A	Wireless Communications (27)

1452-1492 FIXED MOBILE except aeronautical mobile 5.346 BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.342 5.345	1452-1492 FIXED MOBILE 5.341B 5.343 5.346A BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.344 5.345		1435-1525 MOBILE (aeronautical telemetry) US338A	
1492-1518 FIXED MOBILE except aeronautical mobile 5.341A 5.341 5.342	1492-1518 FIXED MOBILE 5.341B 5.343 5.341 5.344	1492-1518 FIXED MOBILE 5.341C 5.341		
1518-1525 FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341 5.342	1518-1525 FIXED MOBILE 5.343 MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341 5.344	1518-1525 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341	5.341 US84 US343	Aviation (87)

1525-1530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.208B 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) 5.208B 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) 5.208B 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) 5.208B 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) 5.208B 5.351A 5.353A Earth exploration-satellite Fixed Mobile 5.343 5.341 5.351 5.354			
1535-1559 MOBILE-SATELLITE (space-to-Earth) 5.208B 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) 5.208B 5.328B 5.329A 5.341			1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth)(space-to-space) 5.341 US85 US208 US260	Aviation (87)

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1610-1610.6	1610-1610.6	1610-1610.6	1610-1610.6	
MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space) US319 US380	Satellite
5.351A	5.351A	5.351A	AERONAUTICAL RADIONAVIGATION US260	Communications (25)
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	RADIODETERMINATION-SATELLITE (Earth-to-space)	Aviation (87)
	RADIODETERMINATION-SATELLITE (Earth-to-space)	Radiodetermination-satellite (Earth-to-space)		
5.341 5.355 5.359 5.364 5.366	5.341 5.364 5.366 5.367 5.368	5.341 5.355 5.359 5.364 5.366	5.341 5.364 5.366 5.367 5.368 5.372 US208	
5.367 5.368 5.369 5.371 5.372	5.370 5.372	5.367 5.368 5.369 5.372		
1610.6-1613.8	1610.6-1613.8	1610.6-1613.8	1610.6-1613.8	
MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space) US319 US380	
5.351A	5.351A	5.351A	RADIO ASTRONOMY	
RADIO ASTRONOMY	RADIO ASTRONOMY	RADIO ASTRONOMY	AERONAUTICAL RADIONAVIGATION US260	
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	RADIODETERMINATION-SATELLITE (Earth-to-space)	
	RADIODETERMINATION-SATELLITE (Earth-to-space)	Radiodetermination-satellite (Earth-to-space)		
5.149 5.341 5.355 5.359 5.364 5.366	5.149 5.341 5.364 5.366 5.367 5.368	5.149 5.341 5.355 5.359 5.364 5.366		
5.367 5.368 5.369 5.371 5.372	5.370 5.372	5.367 5.368 5.369 5.372	5.341 5.364 5.366 5.367 5.368 5.372 US208 US342	
1613.8-1626.5	1613.8-1626.5	1613.8-1626.5	1613.8-1626.5	
MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space) US319 US380	
5.351A	5.351A	5.351A	AERONAUTICAL RADIONAVIGATION US260	
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	RADIODETERMINATION-SATELLITE (Earth-to-space)	
Mobile-satellite (space-to-Earth)	RADIODETERMINATION-SATELLITE (Earth-to-space)	Mobile-satellite (space-to-Earth) 5.208B	Mobile-satellite (space-to-Earth)	
5.208B	Mobile-satellite (space-to-Earth) 5.208B	Radiodetermination-satellite (Earth-to-space)		
5.341 5.355 5.359 5.364 5.365 5.366	5.341 5.364 5.365 5.366 5.367 5.368	5.341 5.355 5.359 5.364 5.365 5.366		
5.367 5.368 5.369 5.371 5.372	5.370 5.372	5.367 5.368 5.369 5.372	5.341 5.364 5.365 5.366 5.367 5.368 5.372 US208	

2310-2320	2310-2320	Wireless
Fixed	FIXED	Communications (27)
Mobile US100	MOBILE	
Radiolocation G2	BROADCASTING-SATELLITE	
	RADIOLOCATION	
US97 US327	5.396 US97 US100 US327	
2320-2345	2320-2345	Satellite
Fixed	BROADCASTING-SATELLITE	Communications (25)
Radiolocation G2	RADIOLOCATION	
US327	5.396 US327	
2345-2360	2345-2360	Wireless
Fixed	FIXED	Communications (27)
Mobile US100	MOBILE US100	
Radiolocation G2	BROADCASTING-SATELLITE	
	RADIOLOCATION	
US327	5.396 US327	
2360-2390	2360-2390	Aviation (87)
MOBILE US276	MOBILE US276	Personal Radio (95)
RADIOLOCATION G2 G120		
Fixed		
US101	US101	
2390-2395	2390-2395	Aviation (87)
MOBILE US276	AMATEUR	

5.150 5.282 5.395 5.150 5.282 5.393 5.394 5.396

						MOBILE US276	Personal Radio (95)
							Amateur Radio (97)
					US101	US101	
					2395-2400	2395-2400	
						AMATEUR	Personal Radio (95)
							Amateur Radio (97)
					US101 G122	US101	
					2400-2417	2400-2417	
						AMATEUR	RF Devices (15)
							ISM Equipment (18)
					5.150 G122	5.150 5.282	Amateur Radio (97)
					2417-2450	2417-2450	
					Radiolocation G2	Amateur	
						5.150 5.282	
					5.150		
2450-2483.5	2450-2483.5				2450-2483.5	2450-2483.5	RF Devices (15)
FIXED	FIXED					FIXED	ISM Equipment (18)
MOBILE	MOBILE					MOBILE	TV Auxiliary
Radiolocation	RADIOLOCATION					Radiolocation	Broadcasting (74F)
							Private Land Mobile (90)
							Fixed Microwave (101)
5.150	5.150				5.150 US41	5.150 US41	

Table of Frequency Allocations		2483.5-3500 MHz (UHF/SHF)			
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 Radiolocation 5.398A	2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398	2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398	2483.5-2500 MOBILE-SATELLITE (space-to-Earth) US319 US380 US391 RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398	2483.5-2495 MOBILE-SATELLITE (space-to-Earth) US380 RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.402 US41 US319 NG147	ISM Equipment (18) Satellite Communications (25)
				2495-2500 FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) US380 RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.402 US41 US319 US391	ISM Equipment (18) Satellite Communications (25) Wireless Communications (27)
5.150 5.399 5.401 5.402	5.150 5.402	5.150 5.401 5.402	5.150 5.402 US41	NG147	
2500-2520 FIXED 5.410 MOBILE except aeronautical mobile 5.384A 5.412	2500-2520 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A 5.404	2500-2520 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A 5.404 5.415A	2500-2655	2500-2655 FIXED US205 MOBILE except aeronautical mobile	Wireless Communications (27)

2520-2655	2520-2655	2520-2535			
FIXED 5.410	FIXED 5.410	FIXED 5.410			
MOBILE except aeronautical	FIXED-SATELLITE (space-to-	FIXED-SATELLITE (space-to-Earth) 5.415			
mobile 5.384A	Earth) 5.415	MOBILE except aeronautical mobile 5.384A			
BROADCASTING-SATELLITE	MOBILE except aeronautical	BROADCASTING-SATELLITE 5.413 5.416			
5.413 5.416	mobile 5.384A				
	BROADCASTING-SATELLITE	5.403 5.414A 5.415A			
	5.413 5.416	2535-2655			
		FIXED 5.410			
		MOBILE except aeronautical mobile 5.384A			
		BROADCASTING-SATELLITE 5.413 5.416			
5.339 5.412 5.418B 5.418C	5.339 5.418B 5.418C	5.339 5.418 5.418A 5.418B 5.418C	5.339 US205	5.339	
2655-2670	2655-2670	2655-2670	2655-2690	2655-2690	
FIXED 5.410	FIXED 5.410	FIXED 5.410	Earth exploration-satellite (passive)	FIXED US205	
MOBILE except aeronautical	FIXED-SATELLITE (Earth-to-space)	FIXED-SATELLITE (Earth-to-space) 5.415	Radio astronomy US385	MOBILE except aeronautical mobile	
mobile 5.384A	(space-to-Earth) 5.415	MOBILE except aeronautical mobile 5.384A	Space research (passive)	Earth exploration-satellite (passive)	
BROADCASTING-SATELLITE	MOBILE except aeronautical mobile	BROADCASTING-SATELLITE 5.413 5.416		Radio astronomy	
5.208B 5.413 5.416	5.384A	Earth exploration-satellite (passive)		Space research (passive)	
Earth exploration-satellite	BROADCASTING-SATELLITE	Radio astronomy			
(passive)	5.413 5.416	Space research (passive)			
Radio astronomy	Earth exploration-satellite (passive)				
Space research (passive)	Radio astronomy				
	Space research (passive)				
5.149 5.412	5.149 5.208B	5.149 5.208B 5.420			

2670-2690 FIXED 5.410 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.412	2670-2690 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.208B 5.415 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149	2670-2690 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A 5.419 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149	US205	US385	
2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.422			2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
2700-2900 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423 5.424			2700-2900 METEOROLOGICAL AIDS AERONAUTICAL RADIONAVIGATION 5.337 US18 Radiolocation G2 5.423 G15	2700-2900 5.423 US18	Aviation (87)
2900-3100 RADIOLOCATION 5.424A RADIONAVIGATION 5.426			2900-3100 RADIOLOCATION 5.424A G56 MARITIME RADIONAVIGATION	2900-3100 MARITIME RADIONAVIGATION Radiolocation US44	Maritime (80) Private Land Mobile (90)

5.425 5.427			5.427 US44 US316	5.427 US316	
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 Earth exploration-satellite (active) Space research (active) Radiolocation US342	Private Land Mobile (90)
3300-3400 RADIOLOCATION 5.149 5.429 5.429A 5.429B 5.430	3300-3400 RADIOLOCATION Amateur Fixed Mobile 5.149 5.429C 5.429D	3300-3400 RADIOLOCATION Amateur 5.149 5.429 5.429E 5.429F	3300-3500 RADIOLOCATION US108 G2	3300-3500 Amateur Radiolocation US108	Private Land Mobile (90) Amateur Radio (97)
3400-3600 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.430A Radiolocation 5.431	3400-3500 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.431A 5.431B Amateur Radiolocation 5.433 5.282	3400-3500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile 5.432 5.432B Radiolocation 5.433 5.282 5.432A	US342	5.282 US342	

Table of Frequency Allocations	3500-5460 MHz (SHF)				
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
(See previous page)	3500-3600 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.431B Radiolocation 5.433	3500-3600 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.433A Radiolocation 5.433	3500-3550 RADIOLOCATION G59 AERONAUTICAL RADIONAVIGATION (ground-based) G110	3500-3550 Radiolocation	Private Land Mobile (90)
			3550-3650 RADIOLOCATION G59 AERONAUTICAL RADIONAVIGATION (ground-based) G110 US105 US107 US245 US433	3550-3600 FIXED MOBILE except aeronautical mobile US105 US433	Citizens Broadband (96)
3600-4200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile	3600-3700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.434 Radiolocation 5.433	3600-3700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.435		3600-3650 FIXED FIXED-SATELLITE (space-to-Earth) US107 US245 MOBILE except aeronautical mobile US105 US433	Satellite Communications (25) Citizens Broadband (96)
			3650-3700 US109 US349	3650-3700 FIXED FIXED-SATELLITE (space-to-Earth) NG169 NG185 MOBILE except aeronautical mobile US109 US349	
	3700-4200 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile		3700-4200	3700-4000 FIXED MOBILE except aeronautical mobile NG182 NG457A	Wireless Communications (27)
				4000-4200	

			FIXED FIXED-SATELLITE (space-to-Earth) NG457A NG182	Satellite Communications (25)
4200-4400 AERONAUTICAL MOBILE (R) 5.436 AERONAUTICAL RADIONAVIGATION 5.438 5.437 5.439 5.440		4200-4400 AERONAUTICAL RADIONAVIGATION 5.440 US261		Aviation (87)
4400-4500 FIXED MOBILE 5.440A		4400-4940 FIXED MOBILE	4400-4500	
4500-4800 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE 5.440A			4500-4800 FIXED-SATELLITE (space-to-Earth) 5.441 US245	
4800-4990 FIXED MOBILE 5.440A 5.441A 5.441B 5.442 Radio astronomy 5.149 5.339 5.443		US113 US245 US342	4800-4940 US113 US342	
		4940-4990 5.339 US342 US385 G122	4940-4990 FIXED MOBILE except aeronautical mobile 5.339 US342 US385	Public Safety Land Mobile (90Y)
4990-5000 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149		4990-5000 RADIO ASTRONOMY US74 Space research (passive) US246		

5000-5010 AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space)	5000-5010 AERONAUTICAL MOBILE (R) US115 AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION US260 RADIONAVIGATION-SATELLITE (Earth-to-space) US211		Aviation (87)
5010-5030 AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B	5010-5030 AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION US260 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.443B US115 US211		
5030-5091 AERONAUTICAL MOBILE (R) 5.443C AERONAUTICAL MOBILE-SATELLITE (R) 5.443D AERONAUTICAL RADIONAVIGATION 5.444	5030-5091 AERONAUTICAL MOBILE (R) 5.443C AERONAUTICAL MOBILE-SATELLITE (R) 5.443D AERONAUTICAL RADIONAVIGATION US260 US211 US444		
5091-5150 FIXED-SATELLITE (Earth-to-space) 5.444A AERONAUTICAL MOBILE 5.444B AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION 5.444	5091-5150 AERONAUTICAL MOBILE US111 US444B AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION US260 US211 US344 US444 US444A		Satellite Communications (25) Aviation (87)
5150-5250 FIXED-SATELLITE (Earth-to-space) 5.447A	5150-5250 AERONAUTICAL RADIONAVIGATION	5150-5250 FIXED-SATELLITE (Earth-to-space) 5.447A	RF Devices (15)

MOBILE except aeronautical mobile 5.446A 5.446B AERONAUTICAL RADIONAVIGATION 5.446 5.446C 5.447 5.447B 5.447C	US260 US211 US307 US344	US344 AERONAUTICAL RADIONAVIGATION US260 5.447C US211 US307	Satellite Communications (25) Aviation (87)
5250-5255 EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F RADIOLOCATION SPACE RESEARCH 5.447D 5.447E 5.448 5.448A	5250-5255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.447D 5.448A	5250-5255 Earth exploration-satellite (active) Radiolocation Space research	RF Devices (15) Private Land Mobile (90)
5255-5350 EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F RADIOLOCATION SPACE RESEARCH (active) 5.447E 5.448 5.448A	5255-5350 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.448A	5255-5350 Earth exploration-satellite (active) Radiolocation Space research (active) 5.448A	
5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B RADIOLOCATION 5.448D AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448C	5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B RADIOLOCATION G56 AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) US390 G130	5350-5460 AERONAUTICAL RADIONAVIGATION 5.449 Earth exploration-satellite (active) 5.448B Radiolocation Space research (active) US390	Aviation (87) Private Land Mobile (90)

Table of Frequency Allocations			5460-7145 MHz (SHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
5460-5470 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION 5.448D RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448B			5460-5470 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 RADIONAVIGATION 5.449 US65 SPACE RESEARCH (active) 5.448B US49 G130	5460-5470 RADIONAVIGATION 5.449 US65 Earth exploration-satellite (active) Radiolocation Space research (active) 5.448B US49	Maritime (80) Aviation (87) Private Land Mobile (90)
5470-5570 EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B MARITIME RADIONAVIGATION SPACE RESEARCH (active) 5.448B 5.450 5.451			5470-5570 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 MARITIME RADIONAVIGATION US65 SPACE RESEARCH (active) 5.448B US50 G131	5470-5570 RADIOLOCATION MARITIME RADIONAVIGATION US65 Earth exploration-satellite (active) Space research (active) US50	RF Devices (15) Maritime (80) Private Land Mobile (90)
5570-5650 MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B MARITIME RADIONAVIGATION 5.450 5.451 5.452			5570-5600 RADIOLOCATION G56 MARITIME RADIONAVIGATION US65 US50 G131 5600-5650 METEOROLOGICAL AIDS RADIOLOCATION G56 MARITIME RADIONAVIGATION US65	5570-5600 RADIOLOCATION MARITIME RADIONAVIGATION US65 US50 5600-5650 METEOROLOGICAL AIDS RADIOLOCATION MARITIME RADIONAVIGATION US65	

			5.452 US50 G131	5.452 US50	
5650-5725 MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION Amateur Space research (deep space) 5.282 5.451 5.453 5.454 5.455			5650-5925 RADIOLOCATION G2 5.150 US245	5650-5830 Amateur 5.150 5.282	RF Devices (15) ISM Equipment (18) Amateur Radio (97)
5725-5830 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur 5.150 5.451 5.453 5.455	5725-5830 RADIOLOCATION Amateur 5.150 5.453 5.455				
5830-5850 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.451 5.453 5.455	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	5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		5850-5925 FIXED-SATELLITE (Earth-to-space) US245 MOBILE NG160 Amateur	RF Devices (15) ISM Equipment (18) Private Land Mobile (90) Personal Radio (95)

5.150	Amateur Radiolocation 5.150	Radiolocation 5.150		5.150	Amateur Radio (97)
5925-6700 FIXED 5.457 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B MOBILE 5.457C			5925-6425	5925-6425 FIXED FIXED-SATELLITE (Earth-to-space) NG457A	RF Devices (15) Satellite Communications (25) Fixed Microwave (101)
			6425-6525 5.440 5.458	6425-6525 FIXED-SATELLITE (Earth-to-space) MOBILE 5.440 5.458	RF Devices (15) Satellite Communications (25) TV Broadcast Auxiliary (74F) 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	RF Devices (15) 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		RF Devices (15)
FIXED NG118		Satellite Communications (25)
FIXED-SATELLITE (Earth-to-space)		TV Broadcast Auxiliary (74F)
(space-to-Earth) 5.441		Cable TV Relay (78)
MOBILE NG171		
5.458 5.458A 5.458B		
7025-7075		RF Devices (15)
FIXED NG118		TV Broadcast Auxiliary (74F)
FIXED-SATELLITE (Earth-to-space) NG172		Cable TV Relay (78)
MOBILE NG171		
5.458 5.458A 5.458B		
7075-7125		
FIXED NG118		
MOBILE NG171		
5.458		
7125-7145		RF Devices (15)
FIXED		
5.458 G116		
5.458		
5.458 5.458A 5.458B		
7075-7145		
FIXED		
MOBILE		
5.458 5.459		

Table of Frequency Allocations			7145-8650 MHz (SHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
7145-7190 FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) 5.458 5.459			7145-7190 FIXED SPACE RESEARCH (deep space)(Earth-to-space) US262 5.458 G116	7145-7235 	 RF Devices (15)
7190-7235 EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A 5.460B FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458 5.459			7190-7235 EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A 5.460B FIXED SPACE RESEARCH (Earth-to-space) 5.460 5.458 G134	 5.458 US262	
7235-7250 EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A FIXED MOBILE 5.458			7235-7250 EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A FIXED 5.458	7235-7250 5.458	
7250-7300 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 5.461			7250-7300 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Fixed G117	7250-8025	

7300-7375	7300-7375
FIXED	FIXED
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile	Mobile-satellite (space-to-Earth)
5.461	G117
7375-7450	7375-7450
FIXED	FIXED
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile
MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB	MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB
	Mobile-satellite except maritime mobile-satellite (space-to-Earth)
5.461A	G117
7450-7550	7450-7550
FIXED	FIXED
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)
METEOROLOGICAL-SATELLITE (space-to-Earth)	METEOROLOGICAL-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile	MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA
MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB	5.461AB
	Mobile-satellite except maritime mobile-satellite (space-to-Earth)
5.461A	G104 G117
7550-7750	7550-7750
FIXED	FIXED
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)

MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB	MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB Mobile-satellite except maritime mobile-satellite (space-to-Earth) G117		
7750-7900 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile	7750-7900 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B		
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	8025-8400	
8175-8215 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463	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)		

5.462A	US258 G104 G117		
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	US258	
8400-8500 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.465 5.466	8400-8450 FIXED SPACE RESEARCH (deep space)(space-to-Earth)	8400-8450 Space research (deep space) (space-to-Earth)	
	8450-8500 FIXED SPACE RESEARCH (space-to-Earth)	8450-8500 SPACE RESEARCH (space-to-Earth)	
8500-8550 RADIOLOCATION 5.468 5.469	8500-8550 RADIOLOCATION G59	8500-8550 Radiolocation	Private Land Mobile (90)
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)	

Table of Frequency Allocations			8.65-11.7 GHz (SHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
8.65-8.75 RADIOLOCATION 5.468 5.469			8.65-9 RADIOLOCATION G59	8.65-9 Radiolocation	Aviation (87) Private Land Mobile (90)
8.75-8.85 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470 5.471					
8.85-9 RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473			US53	US53	
9-9.2 AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION 5.471 5.473A			9-9.2 AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION G2 5.473A G19	9-9.2 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation	
9.2-9.3 EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473 5.474 5.474D			9.2-9.3 MARITIME RADIONAVIGATION 5.472 Radiolocation US110 G59 5.474	9.2-9.3 MARITIME RADIONAVIGATION 5.472 Radiolocation US110 5.474	Maritime (80) Private Land Mobile (90)

9.3-9.5 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION 5.475 SPACE RESEARCH (active) 5.427 5.474 5.475A 5.475B 5.476A	9.3-9.5 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 RADIONAVIGATION US475 SPACE RESEARCH (active) Meteorological aids 5.427 5.474 5.475A 5.475B US67 US71 US476A	9.3-9.5 RADIONAVIGATION US475 Meteorological aids Earth exploration-satellite (active) Radiolocation Space research (active) 5.427 5.474 US67 US71 US476A	Maritime (80) Aviation (87) Private Land Mobile (90)
9.5-9.8 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A	9.5-9.8 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active)	9.5-9.9 Earth exploration-satellite (active) Radiolocation Space research (active)	Private Land Mobile (90)
9.8-9.9 RADIOLOCATION Earth exploration-satellite (active) Fixed Space research (active) 5.477 5.478 5.478A 5.478B	9.8-9.9 RADIOLOCATION Earth exploration-satellite (active) Space research (active)		
9.9-10 EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C RADIOLOCATION Fixed	9.9-10 RADIOLOCATION	9.9-10 Radiolocation	

5.474D 5.477 5.478 5.479			5.479	5.479	
10-10.4 EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C FIXED MOBILE RADIOLOCATION Amateur 5.474D 5.479	10-10.4 EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C RADIOLOCATION Amateur 5.474D 5.479 5.480	10-10.4 EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C FIXED MOBILE RADIOLOCATION Amateur 5.474D 5.479	10-10.5 RADIOLOCATION US108 G32	10-10.45 Amateur Radiolocation US108 5.479 US128 NG50	Private Land Mobile (90) Amateur Radio (97)
10.4-10.45 FIXED MOBILE RADIOLOCATION Amateur	10.4-10.45 RADIOLOCATION Amateur 5.480	10.4-10.45 FIXED MOBILE RADIOLOCATION Amateur			
10.45-10.5 RADIOLOCATION Amateur Amateur-satellite 5.481			5.479 US128	10.45-10.5 Amateur Amateur-satellite Radiolocation US108 US128 NG50	
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			10.55-10.6	10.55-10.6 FIXED	Fixed Microwave (101)

MOBILE except aeronautical mobile Radiolocation				
10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482 5.482A		10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US130 US131 US482	10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) FIXED US482 SPACE RESEARCH (passive) US130 US131	
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) US131 US246		
10.7-10.95 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 (Earth-to-space) 5.484 MOBILE except aeronautical mobile	10.7-10.95 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE except aeronautical mobile	10.7-11.7	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 US131 US211 NG52	Satellite Communications (25) Fixed Microwave (101)
10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B (Earth-to-space) 5.484 MOBILE except aeronautical mobile	10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B MOBILE except aeronautical mobile			

			US131 US211	NG527A	

Table of Frequency Allocations		11.7-14.47 GHz (SHF)			
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
11.2-11.45 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 (Earth-to-space) 5.484 MOBILE except aeronautical mobile	11.2-11.45 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE except aeronautical mobile		(See previous page)		
11.45-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B (Earth-to-space) 5.484 MOBILE except aeronautical mobile	11.45-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B MOBILE except aeronautical mobile				
11.7-12.5 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	11.7-12.1 FIXED 5.486 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.488 Mobile except aeronautical mobile 5.485 12.1-12.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.488	11.7-12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492 5.487 5.487A	11.7-12.2	11.7-12.2 FIXED-SATELLITE (space-to-Earth) 5.485 5.488 NG143 NG527A	Satellite Communications (25)

	5.485 5.489				
5.487 5.487A	12.2-12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492 5.487A 5.488 5.490	12.2-12.5 FIXED FIXED-SATELLITE (space-to-Earth) 5.484B MOBILE except aeronautical mobile BROADCASTING 5.484A 5.487	12.2-12.75	12.2-12.7 FIXED BROADCASTING-SATELLITE 5.487A 5.488 5.490	Satellite Communications (25) Fixed Microwave (101)
12.5-12.75 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B (Earth-to-space) 5.494 5.495 5.496	12.7-12.75 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile	12.5-12.75 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.493		12.7-12.75 FIXED NG118 FIXED-SATELLITE (Earth-to-space) MOBILE	TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
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 NG52 NG57 MOBILE US251 NG53	Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
13.25-13.4 EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active)			13.25-13.4 EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active)	13.25-13.4 AERONAUTICAL RADIONAVIGATION 5.497 Earth exploration-satellite (active) Space research (active)	Aviation (87)

5.498A 5.499		5.498A		
13.4-13.65 EARTH EXPLORATION-SATELLITE (active) FIXED-SATELLITE (space-to-Earth) 5.499A 5.499B RADIOLOCATION SPACE RESEARCH 5.499C 5.499D Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.499E 5.500 5.501 5.501B	13.4-13.65 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.499C 5.499D 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 5.499C 5.499D 5.501A Standard frequency and time signal-satellite (Earth-to-space)	13.4-13.75 Earth exploration-satellite (active) Radiolocation Space research Standard frequency and time signal-satellite (Earth-to-space)	Private Land Mobile (90)
13.65-13.75 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		5.501B		
13.75-14 FIXED-SATELLITE (Earth-to-space) 5.484A RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research 5.499 5.500 5.501 5.502 5.503		13.75-14 RADIOLOCATION G59 Standard frequency and time signal-satellite (Earth-to-space) Space research US337 US356 US357	13.75-14 FIXED-SATELLITE (Earth-to-space) US337 Standard frequency and time signal-satellite (Earth-to-space) Space research Radiolocation US356 US357	Satellite Communications (25) Private Land Mobile (90)

14-14.25 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research 5.504A 5.505			14-14.2 Space research US133	14-14.2 FIXED-SATELLITE (Earth-to-space) NG527A Mobile-satellite (Earth-to-space) Space research US133	Satellite Communications (25)
14.25-14.3 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508			14.2-14.4	14.2-14.47 FIXED-SATELLITE (Earth-to-space) NG527A Mobile-satellite (Earth-to-space)	
14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A			
14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B MOBILE except aeronautical mobile			14.4-14.47 Fixed Mobile		

Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth) 5.504A					
Table of Frequency Allocations		14.47-18.6 GHz (SHF)			
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
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 US113 US133 US342	14.47-14.5 FIXED-SATELLITE (Earth-to-space) NG527A Mobile-satellite (Earth-to-space) US113 US133 US342	Satellite Communications (25)
14.5-14.75 FIXED FIXED-SATELLITE (Earth-to-space) 5.509B 5.509C 5.509D 5.509E 5.509F 5.510 MOBILE Space research 5.509G			14.5-14.7145 FIXED Mobile Space research 5.509G 14.7145-14.8 MOBILE Fixed Space research 5.509G	14.5-14.8	
14.75-14.8 FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research 5.509G		14.75-14.8 FIXED FIXED-SATELLITE (Earth-to-space) 5.509B 5.509C 5.509D 5.509E 5.509F 5.510 MOBILE Space research 5.509G			
14.8-15.35 FIXED			14.8-15.1365 MOBILE SPACE RESEARCH	14.8-15.1365	

MOBILE Space research 5.339	Fixed US310 15.1365-15.35 FIXED SPACE RESEARCH Mobile 5.339 US211	US310 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 RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION	15.4-15.43 RADIOLOCATION 5.511E 5.511F US511E AERONAUTICAL RADIONAVIGATION US260 US211	15.4-15.43 AERONAUTICAL RADIONAVIGATION US260 US211 US511E	Aviation (87)
15.43-15.63 FIXED-SATELLITE (Earth-to-space) 5.511A RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511C	15.43-15.63 RADIOLOCATION 5.511E 5.511F US511E AERONAUTICAL RADIONAVIGATION US260 5.511C US211 US359	15.43-15.63 FIXED-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION US260 5.511C US211 US359 US511E	Satellite Communications (25) Aviation (87)

15.63-15.7 RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION			15.63-15.7 RADIOLOCATION 5.511E 5.511F US511E AERONAUTICAL RADIONAVIGATION US260 US211	15.63-15.7 AERONAUTICAL RADIONAVIGATION US260 US211 US511E	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 Earth exploration-satellite (active) Radiolocation Space research (active)	
17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) 5.516A 5.516B	17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516	17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516	17.3-17.7 Radiolocation US259 G59	17.3-17.7 FIXED-SATELLITE (Earth-to-space) US271	Satellite Communications (25)

Radiolocation 5.514	BROADCASTING-SATELLITE Radiolocation 5.514 5.515	Radiolocation 5.514	US402 G117	BROADCASTING-SATELLITE US402 NG163 US259	
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) 5.517 (Earth-to-space) 5.516 BROADCASTING-SATELLITE Mobile 5.515	17.7-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	17.7-17.8 US334 G117	17.7-17.8 FIXED FIXED-SATELLITE (Earth-to-space) US271 US334	Satellite Communications (25) TV Broadcast Auxiliary (74F) 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 5.519		17.8-18.3 FIXED-SATELLITE (space-to-Earth) US334 G117 US519	17.8-18.3 FIXED Fixed-satellite (space-to-Earth) US334 US519	Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
18.1-18.4 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B (Earth-to-space) 5.520 MOBILE 5.519 5.521			18.3-18.6 FIXED-SATELLITE (space-to-Earth) US334 G117 US139	18.3-18.6 FIXED-SATELLITE (space-to-Earth) NG164 NG527A US139 US334	Satellite Communications (25)
18.4-18.6 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE					

Table of Frequency Allocations — 18.6-24.45 GHz (SHF)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A 5.522C	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.522B MOBILE except aeronautical mobile SPACE RESEARCH (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) US255 US334 G117 SPACE RESEARCH (passive) US139 US254	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) US255 NG164 NG527A SPACE RESEARCH (passive) US139 US254 US334	Satellite Communications (25)
18.8-19.3 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.523A MOBILE			18.8-20.2 FIXED-SATELLITE (space-to-Earth) US334 G117	18.8-19.3 FIXED-SATELLITE (space-to-Earth) NG165 US139 US334	
19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B 5.523C 5.523D 5.523E MOBILE				19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) NG166 US334	Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A Mobile-satellite (space-to-Earth)	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A MOBILE-SATELLITE (space-to-Earth)	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A Mobile-satellite (space-to-Earth)		19.7-20.2 FIXED-SATELLITE (space-to-Earth) NG527A MOBILE-SATELLITE (space-to-Earth)	Satellite Communications (25)

5.524	5.524 5.525 5.526 5.527 5.528 5.529	5.524			
20.1-20.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528			US139	5.525 5.526 5.527 5.528 5.529 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) US532		Fixed Microwave (101)
21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A 5.530B 5.530D	21.4-22 FIXED MOBILE 5.530A	21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A 5.530B 5.530D 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 US532	
22.5-22.55 FIXED MOBILE 	22.5-22.55 FIXED MOBILE US211	
22.55-23.15 FIXED INTER-SATELLITE 5.338A MOBILE SPACE RESEARCH (Earth-to-space) 5.532A 5.149	22.55-23.15 FIXED INTER-SATELLITE US145 US278 MOBILE SPACE RESEARCH (Earth-to-space) 5.532A US342	Satellite Communications (25) Fixed Microwave (101)
23.15-23.55 FIXED INTER-SATELLITE 5.338A	23.15-23.55 FIXED INTER-SATELLITE US145 US278	

MOBILE			MOBILE		
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 Radio (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	RF Devices (15) ISM Equipment (18) Private Land Mobile (90) Amateur Radio (97)
24.25-24.45 FIXED	24.25-24.45 RADIONAVIGATION	24.25-24.45 FIXED MOBILE RADIONAVIGATION	24.25-24.45	24.25-24.45 FIXED MOBILE	RF Devices (15) Upper Microwave Flexible Use (30)

Table of Frequency Allocations — 24.45-31.8 GHz (SHF/EHF)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
24.45-24.65 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		RF Devices (15) Satellite Communications (25)
24.65-24.75 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE	24.65-24.75 INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)	24.65-24.75 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE 5.533	24.65-24.75 INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)		
24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B	24.75-25.25 FIXED-SATELLITE (Earth-to-space) 5.535	24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE	24.75-25.25	24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) NG65 MOBILE	RF Devices (15) Satellite Communications (25) Upper Microwave Flexible Use (30)
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	25.25-25.5 Inter-satellite 5.536 Standard frequency and time signal-satellite (Earth-to-space)	RF Devices (15)

		signal-satellite (Earth-to-space)		
25.5-27 EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536B FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536A		25.5-27 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) Standard frequency and time signal-satellite (Earth-to-space) 5.536A US258	25.5-27 SPACE RESEARCH (space-to-Earth) Inter-satellite 5.536 Standard frequency and time signal-satellite (Earth-to-space) 5.536A US258	
27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE	27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 Inter-satellite 5.536	
27.5-28.5 FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540		27.5-30	27.5-28.35 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	RF Devices (15) Satellite Communications (25) Upper Microwave Flexible Use (30) Fixed Microwave (101)
			28.35-29.1 FIXED-SATELLITE (Earth-to-space) NG165 NG527A	RF Devices (15) Satellite Communications (25)

28.5-29.1 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540				NG62	
29.1-29.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540				29.1-29.25 FIXED FIXED-SATELLITE (Earth-to-space) NG166 MOBILE 29.25-29.5 FIXED-SATELLITE (Earth-to-space) NG527A NG535A NG62	Satellite Communications (25) Fixed Microwave (101) Satellite Communications (25)
29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 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 5.484B 5.516B 5.527A 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	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542		29.5-30 FIXED-SATELLITE (Earth-to-space) NG527A MOBILE-SATELLITE (Earth-to-space) 5.525 5.526 5.527 5.529 5.543	
29.9-30 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 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					
30-31 FIXED-SATELLITE (Earth-to-space) 5.338A 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 5.338A 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 NG60 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		

Table of Frequency Allocations			31.8-42 GHz (EHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
31.8-32 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547B 5.548			31.8-32.3 RADIONAVIGATION US69 SPACE RESEARCH (deep space) (space-to-Earth) US262	31.8-32.3 SPACE RESEARCH (deep space) (space-to-Earth) US262	
32-32.3 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547C 5.548			5.548 US211	5.548 US211	
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 5.549A	35.5-36 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) US360 G117	35.5-36 Earth exploration-satellite (active) Radiolocation Space research (active) US360	
36-37 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A	36-37 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) US342 US550A		

37-37.5 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.547	37-38 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth)	37-37.5 FIXED MOBILE except aeronautical mobile US151	Upper Microwave Flexible Use (30)
37.5-38 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547	US151	37.5-38 FIXED FIXED-SATELLITE (space-to-Earth) NG63 MOBILE except aeronautical mobile US151	Satellite Communications (25) Upper Microwave Flexible Use (30)
38-39.5 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth) 5.547	38-38.6 FIXED MOBILE 38.6-39.5	38-39.5 FIXED FIXED-SATELLITE (space-to-Earth) NG63 MOBILE NG175	
39.5-40 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547	39.5-40 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US382 G117	39.5-40 FIXED FIXED-SATELLITE (space-to-Earth) NG63 MOBILE NG175 US382	

40-40.5			40-40.5	40-40.5		Satellite
EARTH EXPLORATION-SATELLITE (Earth-to-space)			EARTH EXPLORATION-SATELLITE (Earth-to-space)	FIXED-SATELLITE (space-to-Earth)		Communications (25)
FIXED			FIXED-SATELLITE (space-to-Earth)	MOBILE-SATELLITE (space-to-Earth)		
FIXED-SATELLITE (space-to-Earth) 5.516B			MOBILE-SATELLITE (space-to-Earth)			
MOBILE			SPACE RESEARCH (Earth-to-space)			
MOBILE-SATELLITE (space-to-Earth)			Earth exploration-satellite (space-to-Earth)			
SPACE RESEARCH (Earth-to-space)			G117			
Earth exploration-satellite (space-to-Earth)						
40.5-41	40.5-41	40.5-41	40.5-41	40.5-41		
FIXED	FIXED	FIXED	FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)		
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth) 5.516B	FIXED-SATELLITE (space-to-Earth)	Mobile-satellite (space-to-Earth)	BROADCASTING		
BROADCASTING	BROADCASTING	BROADCASTING-SATELLITE		BROADCASTING-SATELLITE		
BROADCASTING-SATELLITE	BROADCASTING	Mobile		Fixed		
Mobile	BROADCASTING-SATELLITE	Mobile-satellite (space-to-Earth)		Mobile		
	Mobile			Mobile-satellite (space-to-Earth)		
	Mobile-satellite (space-to-Earth)					
5.547	5.547	5.547	US211 G117	US211		
41-42.5			41-42.5	41-42		
FIXED				FIXED		
FIXED-SATELLITE (space-to-Earth) 5.516B				FIXED-SATELLITE (space-to-Earth)		
BROADCASTING				MOBILE		
BROADCASTING-SATELLITE				BROADCASTING		
Mobile				BROADCASTING-SATELLITE		
				US211		
5.547 5.551F 5.551H 5.551I			US211			

Table of Frequency Allocations			42-56.9 GHz (EHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
(See previous page)			(See previous page)	42-42.5 FIXED MOBILE US211	
42.5-43.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.547			42.5-43.5 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile RADIO ASTRONOMY US342	42.5-43.5 RADIO ASTRONOMY US342	
43.5-47 MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE			43.5-45.5 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) G117	43.5-45.5	
			45.5-46.9 MOBILE MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE 5.554		
5.554			46.9-47 MOBILE MOBILE-SATELLITE (Earth-to-space)	46.9-47 FIXED MOBILE	

		RADIONAVIGATION-SATELLITE 5.554	MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE 5.554	
47-47.2 AMATEUR AMATEUR-SATELLITE		47-48.2	47-47.2 AMATEUR AMATEUR-SATELLITE	Amateur Radio (97)
47.2-47.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A			47.2-48.2 FIXED FIXED-SATELLITE (Earth-to-space) US297 NG65 MOBILE	Satellite Communications (25) Upper Microwave Flexible Use (30)
47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A MOBILE	47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE			
47.9-48.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A				
48.2-48.54 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B	48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.516B 5.552	48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) US156 US297		Satellite Communications (25)

5.554A 5.555B MOBILE	MOBILE	MOBILE US264		
48.54-49.44 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.149 5.340 5.555				
49.44-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	5.149 5.340 5.555	5.555 US342		
50.2-50.4 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340		50.2-50.4 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US246		
50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE Mobile-satellite (Earth-to-space)		50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) US156 MOBILE MOBILE-SATELLITE (Earth-to-space) G117	50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) US156 MOBILE MOBILE-SATELLITE (Earth-to-space) NG65	Satellite Communications (25)
51.4-52.6		51.4-52.6		

FIXED 5.338A MOBILE 5.547 5.556	FIXED US157 MOBILE	
52.6-54.25 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556	52.6-54.25 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US246	
54.25-55.78 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive) 5.556B	54.25-55.78 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive)	Satellite Communications (25)
55.78-56.9 EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557	55.78-56.9 EARTH EXPLORATION-SATELLITE (passive) FIXED US379 INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) US353 US532	

Table of Frequency Allocations			56.9-81 GHz (EHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE G128 MOBILE 5.558 SPACE RESEARCH (passive) US532	56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE 5.558 SPACE RESEARCH (passive) US532	
57-58.2 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			57-58.2 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) US532		RF Devices (15) Satellite Communications (25)
58.2-59 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556			58.2-59 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) US353 US354		RF Devices (15)

59-59.3 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)	59-59.3 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive) US353	59-59.3 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive) US353	
59.3-64 FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138	59.3-64 FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138 US353	59.3-64 FIXED MOBILE 5.558 RADIOLOCATION 5.559 5.138 US353	RF Devices (15) ISM Equipment (18)
64-65 FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556	64-65 FIXED INTER-SATELLITE MOBILE except aeronautical mobile	64-65 FIXED MOBILE except aeronautical mobile	RF Devices (15)
65-66 EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH	65-66 EARTH EXPLORATION-SATELLITE FIXED MOBILE except aeronautical mobile SPACE RESEARCH	65-66 EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile	RF Devices (15) Satellite Communications (25)

5.547		SPACE RESEARCH	
66-71 INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	66-71 MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	66-71 INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	
71-74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)	71-74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) US389		Fixed Microwave (101)
74-76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) 5.561	74-76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Space research (space-to-Earth) US389	74-76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) US389	RF Devices (15) Fixed Microwave (101)
76-77.5 RADIO ASTRONOMY RADIOLOCATION	76-81 RADIO ASTRONOMY RADIOLOCATION	76-77 RADIO ASTRONOMY RADIOLOCATION Amateur	RF Devices (15) Personal Radio (95)

Amateur Amateur-satellite Space research (space-to-Earth) 5.149	Space research (space-to-Earth) 5.560 US342	Space research (space-to-Earth) US342 77-81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.560 US342	Amateur Radio (97)
77.5-78 AMATEUR AMATEUR-SATELLITE RADIOLOCATION 5.559B Radio astronomy Space research (space-to-Earth) 5.149			
78-79 RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth) 5.149 5.560			
79-81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149			

Table of Frequency Allocations			81-123 GHz (EHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
81-84			81-84		
FIXED 5.338A			FIXED		RF Devices (15)
FIXED-SATELLITE (Earth-to-space)			FIXED-SATELLITE (Earth-to-space) US297		Fixed Microwave (101)
MOBILE			MOBILE		
MOBILE-SATELLITE (Earth-to-space)			MOBILE-SATELLITE (Earth-to-space)		
RADIO ASTRONOMY			RADIO ASTRONOMY		
Space research (space-to-Earth)			Space research (space-to-Earth)		
5.149 5.561A			US161 US342 US389		
84-86			84-86		
FIXED 5.338A			FIXED		
FIXED-SATELLITE (Earth-to-space) 5.561B			FIXED-SATELLITE (Earth-to-space)		
MOBILE			MOBILE		
RADIO ASTRONOMY			RADIO ASTRONOMY		
5.149			US161 US342 US389		
86-92			86-92		
EARTH EXPLORATION-SATELLITE (passive)			EARTH EXPLORATION-SATELLITE (passive)		
RADIO ASTRONOMY			RADIO ASTRONOMY US74		
SPACE RESEARCH (passive)			SPACE RESEARCH (passive)		
5.340			US246		
92-94			92-94		
FIXED 5.338A			FIXED		RF Devices (15)
MOBILE			MOBILE		Fixed Microwave (101)
RADIO ASTRONOMY			RADIO ASTRONOMY		

RADIOLOCATION 5.149	RADIOLOCATION US161 US342		
94-94.1 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A	94-94.1 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A	94-94.1 RADIOLOCATION Radio astronomy 5.562A	RF Devices (15)
94.1-95 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	94.1-95 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION US161 US342		RF Devices (15) Fixed Microwave (101)
95-100 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554	95-100 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554 US342		

100-102 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	100-102 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 US246	
102-105 FIXED MOBILE RADIO ASTRONOMY 5.149 5.341	102-105 FIXED MOBILE RADIO ASTRONOMY 5.341 US342	
105-109.5 FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	105-109.5 FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.341 US342	
109.5-111.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	109.5-111.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 US246	
111.8-114.25 FIXED MOBILE RADIO ASTRONOMY	111.8-114.25 FIXED MOBILE RADIO ASTRONOMY	

SPACE RESEARCH (passive) 5.562B 5.149 5.341	SPACE RESEARCH (passive) 5.562B 5.341 US342		
114.25-116 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	114.25-116 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 US246		
116-119.98 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341	116-122.25 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive)		ISM Equipment (18)
119.98-122.25 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341	5.138 5.341 US211		
122.25-123 FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138	122.25-123 FIXED INTER-SATELLITE MOBILE 5.558 5.138	122.25-123 FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138	ISM Equipment (18) Amateur Radio (97)

Table of Frequency Allocations			123-191.8 GHz (EHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
123-130			123-130		
FIXED-SATELLITE (space-to-Earth)			FIXED-SATELLITE (space-to-Earth)		
MOBILE-SATELLITE (space-to-Earth)			MOBILE-SATELLITE (space-to-Earth)		
RADIONAVIGATION			RADIONAVIGATION		
RADIONAVIGATION-SATELLITE			RADIONAVIGATION-SATELLITE		
Radio astronomy 5.562D			Radio astronomy		
5.149 5.554			5.554 US211 US342		
130-134			130-134		
EARTH EXPLORATION-SATELLITE (active) 5.562E			EARTH EXPLORATION-SATELLITE (active) 5.562E		
FIXED			FIXED		
INTER-SATELLITE			INTER-SATELLITE		
MOBILE 5.558			MOBILE 5.558		
RADIO ASTRONOMY			RADIO ASTRONOMY		
5.149 5.562A			5.562A US342		
134-136			134-136	134-136	
AMATEUR			Radio astronomy	AMATEUR	Amateur Radio (97)
AMATEUR-SATELLITE				AMATEUR-SATELLITE	
Radio astronomy				Radio astronomy	
136-141			136-141	136-141	
RADIO ASTRONOMY			RADIO ASTRONOMY	RADIO ASTRONOMY	
RADIOLOCATION			RADIOLOCATION	RADIOLOCATION	
Amateur				Amateur	
Amateur-satellite				Amateur-satellite	

5.149	US342	US342	
141-148.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	141-148.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION US342		
148.5-151.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	148.5-151.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
151.5-155.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	151.5-155.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION US342		
155.5-158.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE	155.5-158.5 FIXED MOBILE RADIO ASTRONOMY		

RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.562F 5.562G	 US342	
158.5-164 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)	158.5-164 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) US211	
164-167 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	164-167 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246	
167-174.5 FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558 5.149 5.562D	167-174.5 FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558 US211 US342	
174.5-174.8 FIXED INTER-SATELLITE MOBILE 5.558	174.5-174.8 FIXED INTER-SATELLITE MOBILE 5.558	

174.8-182		174.8-182	
EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)	
INTER-SATELLITE 5.562H		INTER-SATELLITE 5.562H	
SPACE RESEARCH (passive)		SPACE RESEARCH (passive)	
182-185		182-185	
EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)	
RADIO ASTRONOMY		RADIO ASTRONOMY	
SPACE RESEARCH (passive)		SPACE RESEARCH (passive)	
5.340		US246	
185-190		185-190	
EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)	
INTER-SATELLITE 5.562H		INTER-SATELLITE 5.562H	
SPACE RESEARCH (passive)		SPACE RESEARCH (passive)	
190-191.8		190-191.8	
EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)	
SPACE RESEARCH (passive)		SPACE RESEARCH (passive)	
5.340		US246	

Table of Frequency Allocations			191.8-3000 GHz (EHF)		
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
191.8-200 FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554			191.8-200 FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.341 5.554 US211 US342		
200-209 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A			200-209 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 5.563A US246		
209-217 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.341			209-217 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.341 US342		
217-226 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE			217-226 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		

RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.341 US342	
226-231.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	226-231.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) US246	
231.5-232 FIXED MOBILE Radiolocation	231.5-232 FIXED MOBILE Radiolocation	
232-235 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	232-235 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	
235-238 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B	235-238 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B	
238-240 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	238-240 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	

RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE	RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE		
240-241 FIXED MOBILE RADIOLOCATION	240-241 FIXED MOBILE RADIOLOCATION		
241-248 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149	241-248 RADIO ASTRONOMY RADIOLOCATION 5.138 US342	241-248 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 US342	 ISM Equipment (18) Amateur Radio (97)
248-250 AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149	248-250 Radio astronomy US342	248-250 AMATEUR AMATEUR-SATELLITE Radio astronomy US342	 Amateur Radio (97)
250-252 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A	250-252 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.563A US246		
252-265	252-265		

FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554 US211 US342	
265-275 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.563A	265-275 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.563A US342	
275-3000 (Not allocated) 5.565	275-3000 (Not allocated) US565	Amateur Radio (97)

International Footnotes

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5.54B *Additional allocation:* In Algeria, Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, the Russian Federation, Iran (Islamic Republic of), Iraq, Kuwait, Lebanon, Morocco, Qatar, the Syrian Arab Republic, Sudan and Tunisia, the frequency band 8.3–9 kHz is also allocated to the radionavigation, fixed and mobile services on a primary basis. (WRC–15)

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5.55 *Additional allocation:* In Armenia, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the frequency band 14–17 kHz is also allocated to the radionavigation service on a primary basis. (WRC–15)

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5.68 *Alternative allocation:* In Congo (Rep. of the), the Dem. Rep. of the Congo and South Africa, the frequency band 160–200 kHz is allocated to the fixed service on a primary basis. (WRC–15)

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5.93 *Additional allocation:* In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Tajikistan, Chad, Turkmenistan and Ukraine, the frequency bands 1625–1635 kHz, 1800–1810 kHz and 2160–2170 kHz are also allocated to the fixed and land mobile services on a primary basis, subject to agreement obtained under No. 9.21. (WRC–15)

5.96 In Germany, Armenia, Austria, Azerbaijan, Belarus, Croatia, Denmark, Estonia, the Russian Federation, Finland, Georgia, Hungary, Ireland, Iceland, Israel, Kazakhstan, Latvia, Liechtenstein, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., the United Kingdom, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the frequency bands 1715–1800 kHz and 1850–2000 kHz. However, when allocating the frequency bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W. (WRC–15)

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5.98 *Alternative allocation:* In Armenia, Azerbaijan, Belarus, Belgium, Cameroon, Congo (Rep. of the), Denmark, Egypt, Eritrea, Spain, Ethiopia, the Russian Federation, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Tunisia, Turkmenistan and Turkey, the frequency band 1810–1830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC–15)

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5.102 *Alternative allocation:* In Bolivia, Chile, Paraguay and Peru, the frequency band 1850–2000 kHz is allocated to the fixed, mobile except aeronautical mobile, radiolocation and radionavigation services on a primary basis. (WRC–15)

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5.119 *Additional allocation:* In Peru, the frequency band 3500–3750 kHz is also allocated to the fixed and mobile services on a primary basis. (WRC–15)

5.122 *Alternative allocation:* In Bolivia, Chile, Ecuador, Paraguay and Peru, the frequency band 3750–4000 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC–15)

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5.132B *Alternative allocation:* In Armenia, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 4438–4488 kHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. (WRC–15)

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5.133A *Alternative allocation:* In Armenia, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency bands 5250–5275 kHz and 26200–26350 kHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC–15)

5.133B Stations in the amateur service using the frequency band 5351.5–5366.5 kHz shall not exceed a maximum radiated power of 15 W (e.i.r.p.). However, in Region 2 in Mexico, stations in the amateur service using the frequency band 5351.5–5366.5 kHz shall not exceed a maximum radiated power of 20 W (e.i.r.p.). In the following Region 2 countries: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Dominica, El Salvador, Ecuador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela, as well as the overseas territories of the Netherlands in Region 2, stations in the amateur service using the frequency band 5351.5–5366.5 kHz shall not exceed a maximum radiated power of 25 W (e.i.r.p.). (WRC–15)

5.134 The use of the bands 5900–5950 kHz, 7300–7350 kHz, 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 13570–13600 kHz, 13800–13870 kHz, 15600–15800 kHz, 17480–17550 kHz and 18900–19020 kHz by the broadcasting service is subject to the application of the procedure of Article 12. Administrations are encouraged to use these bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution 517 (Rev.WRC–15). (FCC)

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5.140 *Additional allocation:* In Angola, Iraq, Somalia and Togo, the frequency band 7000–7050 kHz is also allocated to the fixed service on a primary basis. (WRC–15)

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5.141B *Additional allocation:* In Algeria, Saudi Arabia, Australia, Bahrain, Botswana, Brunei Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United Arab Emirates, Eritrea, Guinea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, Libya, Mali, Morocco, Mauritania, Niger, New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, Singapore, Sudan, South Sudan, Tunisia, Viet Nam and Yemen, the frequency band 7100–7200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis. (WRC–15)

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5.145B *Alternative allocation:* In Armenia, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency bands 9305–9355 kHz and 16100–16200 kHz are allocated to the fixed service on a primary basis. (WRC–15)

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5.149A *Alternative allocation:* In Armenia, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 13450–13550 kHz is allocated to the fixed service on a primary basis and to the mobile, except aeronautical mobile (R), service on a secondary basis. (WRC–15)

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5.158 *Alternative allocation:* In Armenia, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 24450–24600 kHz is allocated to the fixed and land mobile services on a primary basis. (WRC–15)

5.159 *Alternative allocation:* In Armenia, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 39–39.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC–15)

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5.161B *Alternative allocation:* In Albania, Germany, Armenia, Austria, Belarus, Belgium, Bosnia and Herzegovina, Cyprus, Vatican, Croatia, Denmark, Spain, Estonia, Finland, France, Greece, Hungary, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Rep. of Macedonia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Montenegro, Norway, Uzbekistan, Netherlands, Portugal, Kyrgyzstan, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Slovenia, Sweden, Switzerland, Turkey and Ukraine, the frequency band 42–42.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC–15)

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5.164 *Additional allocation:* In Albania, Algeria, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Croatia, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Slovakia, Czech Rep., Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the frequency band 47–68 MHz, in South Africa the frequency band 47–50 MHz, and in Latvia the frequency band 48.5–56.5 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each frequency band referred to in this footnote shall not cause

harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the frequency band. (WRC–15)

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5.167 *Alternative allocation:* In Bangladesh, Brunei Darussalam, India, Iran (Islamic Republic of), Pakistan and Singapore, the frequency band 50–54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC–15)

5.167A *Additional allocation:* In Indonesia and Thailand, the frequency band 50–54 MHz is also allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC–15)

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5.170 *Additional allocation:* In New Zealand, the frequency band 51–54 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC–15)

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5.172 *Different category of service:* In the French overseas departments and communities in Region 2 and Guyana, the allocation of the frequency band 54–68 MHz to the fixed and mobile services is on a primary basis (see No. 5.33). (WRC–15)

5.173 *Different category of service:* In the French overseas departments and communities in Region 2 and Guyana, the allocation of the frequency band 68–72 MHz to the fixed and mobile services is on a primary basis (see No. 5.33). (WRC–15)

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5.185 *Different category of service:* In the United States, the French overseas departments and communities in Region 2, Guyana and Paraguay, the allocation of the frequency band 76–88 MHz to the fixed and mobile services is on a primary basis (see No. 5.33). (WRC–15)

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5.201 *Additional allocation:* In Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq (Republic of), Japan, Kazakhstan, Moldova, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the frequency band 132–136 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC–15)

5.202 *Additional allocation:* In Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the frequency band 136–137 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC–15)

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5.208B In the frequency bands:

137–138 MHz,
387–390 MHz,
400.15–401 MHz,
1452–1492 MHz,
1525–1610 MHz,
1613.8–1626.5 MHz,
2655–2690 MHz,
21.4–22 GHz,

Resolution 739 (Rev.WRC–15) applies. (WRC–15)

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5.211 *Additional allocation:* In Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Guinea, Ireland, Israel, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Liechtenstein, Luxembourg, Mali, Malta, Montenegro, Norway, the Netherlands, Qatar, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia and Turkey, the frequency band 138–144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis. (WRC–15)

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5.220 The use of the frequency bands 149.9–150.05 MHz and 399.9–400.05 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. (WRC–15)

5.221 Stations of the mobile-satellite service in the frequency band 148–149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Djibouti, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Georgia, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC–15)

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5.228AA The use of the frequency bands 161.9375–161.9625 MHz and 161.9875–162.0125 MHz by the maritime mobile-satellite (Earth-to-space) service is limited to the systems which operate in accordance with Appendix 18. (WRC–15)

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5.256A *Additional allocation:* In China, the Russian Federation and Kazakhstan, the frequency band 258–261 MHz is also allocated to the space research service (Earth-to-space) and space operation service (Earth-to-space) on a primary basis. Stations in the space research service (Earth-to-space) and space operation service (Earth-to-space) shall not cause harmful interference to, or claim protection from, or constrain the use and development of, the mobile service systems and mobile-satellite service systems operating in the frequency band. Stations in space research service (Earth-to-space) and space operation service (Earth-to-space) shall not constrain the future development of fixed service systems of other countries. (WRC–15)

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5.265 In the frequency band 403–410 MHz, Resolution 205 (Rev.WRC–15) applies. (WRC–15)

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5.268 Use of the frequency band 410–420 MHz by the space research service is limited to space-to-space communication links with an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from transmitting stations of the space research service (space-to-space) in the frequency band 410–420 MHz shall not exceed -153 dB(W/m^2) for $0° \leq \delta \leq 5°$, $-153 + 0.077\ (\delta - 5)$ dB(W/m^2) for $5° \leq \delta \leq 70°$ and -148 dB(W/m^2) for $70° \leq \delta \leq 90°$, where δ is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. In this frequency band, stations of the space research service (space-to-space) shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. No. 4.10 does not apply. (WRC–15)

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5.275 *Additional allocation:* In Croatia, Estonia, Finland, Libya, The Former Yugoslav Republic of Macedonia, Montenegro and Serbia, the frequency bands 430–432 MHz and 438–440 MHz are also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC–15)

5.276 *Additional allocation:* In Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Djibouti, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Jordan, Kenya, Kuwait, Libya, Malaysia, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Switzerland, Thailand, Togo, Turkey and Yemen, the frequency band 430–440 MHz is also allocated to the fixed service on a primary basis and the frequency bands 430–435 MHz and 438–440 MHz are also allocated, except in Ecuador, to the mobile, except aeronautical mobile, service on a primary basis. (WRC–15)

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5.279A The use of the frequency band 432–438 MHz by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU–R RS.1260–1. Additionally, the Earth exploration-satellite service (active) in the frequency band 432–438 MHz shall not cause harmful interference to the aeronautical radionavigation service in China. The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. 5.29 and 5.30. (WRC–15)

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5.286AA The frequency band 450–470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolution 224 (Rev.WRC–15). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC–15)

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5.287 Use of the frequency bands 457.5125–457.5875 MHz and 467.5125–467.5875 MHz by the maritime mobile service is limited to on-board communication stations. The characteristics of the equipment and the channelling arrangement shall be in accordance with Recommendation ITU–R M.1174–3. The use of these frequency bands in territorial waters is subject to the national regulations of the administration concerned. (WRC–15)

5.288 In the territorial waters of the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of the equipment used shall conform to those specified in Recommendation ITU–R M.1174–3. (WRC–15)

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5.291A *Additional allocation:* In Germany, Austria, Denmark, Estonia, Liechtenstein, the Czech Rep., Serbia and Switzerland, the frequency band 470–494 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution 217 (WRC–97). (WRC–15)

5.292 *Different category of service:* In Argentina, Uruguay and Venezuela, the allocation of the frequency band 470–512 MHz to the mobile service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. (WRC–15)

5.293 *Different category of service:* In Canada, Chile, Cuba, the United States, Guyana, Jamaica and Panama, the allocation of the frequency bands 470–512 MHz and 614–806 MHz to the fixed service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. In the Bahamas, Barbados, Canada, Chile, Cuba, the United States, Guyana, Jamaica, Mexico and Panama, the allocation of the frequency bands 470–512 MHz and 614–698 MHz to the mobile service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. In Argentina and Ecuador, the allocation of the frequency band 470–512 MHz to the fixed and mobile services is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. (WRC–15)

5.294 *Additional allocation:* In Saudi Arabia, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Israel, Libya, the Syrian Arab Republic, Chad and Yemen, the frequency band 470–582 MHz is also allocated to the fixed service on a secondary basis. (WRC–15)

5.295 In the Bahamas, Barbados, Canada, the United States and Mexico, the frequency band 470–608 MHz, or portions thereof, is identified for International Mobile Telecommunications (IMT)—see Resolution 224 (Rev.WRC–15). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Mobile service stations of the IMT system within the frequency band are subject to agreement obtained under No. 9.21 and shall not cause harmful interference to, or claim protection from, the broadcasting service of neighbouring countries. Nos. 5.43 and 5.43A apply. In Mexico, the use of IMT in this frequency band will not start before 31 December 2018 and may be extended if agreed by the neighbouring countries. (WRC–15)

5.296 *Additional allocation:* In Albania, Germany, Angola, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Vatican, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Djibouti, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Gabon, Georgia, Ghana, Hungary, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kenya, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malawi, Mali, Malta, Morocco, Mauritius, Mauritania, Moldova, Monaco, Mozambique, Namibia, Niger, Nigeria, Norway, Oman, Uganda, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, the Czech Republic, the United Kingdom, Rwanda, San Marino, Serbia, Sudan, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe, the frequency band 470–694 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting and programme-making. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote. (WRC–15)

5.296A In Micronesia, the Solomon Islands, Tuvalu and Vanuatu, the frequency band 470–698 MHz, or portions thereof, and in Bangladesh, Maldives and New Zealand, the frequency band 610–698 MHz, or portions thereof, are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT)—see Resolution 224 (Rev.WRC–15). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. The mobile allocation in this frequency band shall not be used for IMT systems unless subject to agreement obtained under No. 9.21 and shall not cause harmful interference to, or claim protection from, the broadcasting service of neighbouring countries. Nos. 5.43 and 5.43A apply. (WRC–15)

5.297 *Additional allocation:* In Canada, Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana and Jamaica, the frequency band 512–608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under No. 9.21. In the Bahamas, Barbados and Mexico, the frequency band 512–608 MHz is also allocated to the mobile service on a primary basis, subject to agreement obtained under No. 9.21. (WRC–15)

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5.300 *Additional allocation:* In Saudi Arabia, Cameroon, Egypt, United Arab Emirates, Israel, Jordan, Libya, Oman, Qatar, the Syrian Arab Republic and Sudan, the frequency band 582–790 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC–15)

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5.308 *Additional allocation:* In Belize and Colombia, the frequency band 614–698 MHz is also allocated to the mobile service on a primary basis. Stations of the mobile service within the frequency band are subject to agreement obtained under No. 9.21. (WRC–15)

5.308A In the Bahamas, Barbados, Belize, Canada, Colombia, the United States and Mexico, the frequency band 614–698 MHz, or portions thereof, is identified for International Mobile Telecommunications (IMT)—see Resolution 224 (Rev.WRC–15). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Mobile service stations of the IMT system within the frequency band are subject to agreement obtained under No. 9.21 and shall not cause harmful interference to or claim protection from the broadcasting service of neighbouring countries. Nos. 5.43 and 5.43A apply. In Belize and Mexico, the use of IMT in this frequency band will not start before 31 December 2018 and may be extended if agreed by the neighbouring countries. (WRC–15)

5.309 *Different category of service:* In El Salvador, the allocation of the frequency band 614–806 MHz to the fixed service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. (WRC–15)

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5.312 *Additional allocation:* In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 645–862 MHz, in Bulgaria the frequency bands 646–686 MHz, 726–758

MHz, 766–814 MHz and 822–862 MHz, and in Poland the frequency band 860–862 MHz until 31 December 2017, are also allocated to the aeronautical radionavigation service on a primary basis. (WRC–15)

5.312A In Region 1, the use of the frequency band 694–790 MHz by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution 760 (WRC–15). See also Resolution 224 (Rev.WRC–15). (WRC–15)

5.313A The frequency band, or portions of the frequency band 698–790 MHz, in Australia, Bangladesh, Brunei Darussalam, Cambodia, China, Korea (Rep. of), Fiji, India, Indonesia, Japan, Kiribati, Lao P.D.R., Malaysia, Myanmar (Union of), New Zealand, Pakistan, Papua New Guinea, the Philippines, Solomon Islands, Samoa, Singapore, Thailand, Tonga, Tuvalu, Vanuatu and Viet Nam, are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. In China, the use of IMT in this frequency band will not start until 2015. (WRC–15)

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5.316B In Region 1, the allocation to the mobile, except aeronautical mobile, service in the frequency band 790–862 MHz is subject to agreement obtained under No. 9.21 with respect to the aeronautical radionavigation service in countries mentioned in No. 5.312. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolutions 224 (Rev.WRC–15) and 749 (Rev.WRC–15) shall apply, as appropriate. (WRC–15)

5.317 *Additional allocation:* In Region 2 (except Brazil, the United States and Mexico), the frequency band 806–890 MHz is also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. 9.21. The use of this service is intended for operation within national boundaries. (WRC–15)

5.317A The parts of the frequency band 698–960 MHz in Region 2 and the frequency bands 694–790 MHz in Region 1 and 790–960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT)—see Resolutions 224 (Rev.WRC–15), 760 (WRC–15) and 749 (Rev.WRC–15), where applicable. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC – 15)

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5.325A *Different category of service:* In Argentina, Brazil, Costa Rica, Cuba, Dominican Republic, El Salvador, Ecuador, the French overseas departments and communities in Region 2, Guatemala, Mexico, Paraguay, Uruguay and Venezuela, the frequency band 902–928 MHz is allocated to the land mobile service on a primary basis. In Colombia, the frequency band 902–905 MHz is allocated to the land mobile service on a primary basis. (WRC–15)

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5.327A The use of the frequency band 960–1164 MHz by the aeronautical mobile (R) service is limited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution 417 (Rev.WRC–15). (WRC–15)

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5.328AA The frequency band 1087.7–1092.3 MHz is also allocated to the aeronautical mobile-satellite (R) service (Earth-to-space) on a primary basis, limited to the space station reception of Automatic Dependent Surveillance-Broadcast (ADS–B) emissions from aircraft transmitters that operate in accordance with recognized international aeronautical standards. Stations operating in the aeronautical mobile-satellite (R) service shall not claim protection from stations operating in the aeronautical radionavigation service. Resolution 425 (WRC–15) shall apply. (WRC–15)

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5.329 Use of the radionavigation-satellite service in the band 1215–1300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. 5.331. Furthermore, the use of the radionavigation-satellite service in the band 1215–1300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. No. 5.43 shall not apply in respect of the radiolocation service. Resolution 608 (Rev.WRC–15) shall apply. (FCC)

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5.338A In the frequency bands 1350–1400 MHz, 1427–1452 MHz, 22.55–23.55 GHz, 30–31.3 GHz, 49.7–50.2 GHz, 50.4–50.9 GHz, 51.4–52.6 GHz, 81–86 GHz and 92–94 GHz, Resolution 750 (Rev.WRC–15) applies. (WRC–15)

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5.341A In Region 1, the frequency bands 1427–1452 MHz and 1492–1518 MHz are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC–15). This identification does not preclude the use of these frequency bands by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of IMT stations is subject to agreement obtained under No. 9.21 with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. 5.342. (WRC–15)

5.341B In Region 2, the frequency band 1427–1518 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC–15). This identification does not preclude the use of this frequency band by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC–15)

5.341C The frequency bands 1427–1452 MHz and 1492–1518 MHz are identified for use by administrations in Region 3 wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC–15). The use of these frequency bands by the above administrations for the implementation of IMT in the frequency bands 1429–1452 MHz and 1492–1518 MHz is subject to agreement obtained under No. 9.21 from countries using stations of the aeronautical mobile service. This identification does not preclude the use of these frequency bands by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC–15)

5.342 *Additional allocation:* In Armenia, Azerbaijan, Belarus, the Russian Federation, Uzbekistan, Kyrgyzstan and Ukraine, the frequency band 1429–1535 MHz is also allocated to the aeronautical mobile service on a primary basis, exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the frequency band 1452–1492 MHz is subject to agreement between the administrations concerned. (WRC–15)

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5.345 Use of the band 1452–1492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (Rev.WRC–15). (FCC)

5.346 In Algeria, Angola, Saudi Arabia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Kenya, Kuwait, Lesotho, Lebanon, Liberia, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Palestine, Qatar, Dem. Rep. of the Congo, Rwanda, Senegal, Seychelles, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Tunisia, Zambia, and Zimbabwe, the frequency band 1452–1492 MHz is identified for use by administrations listed above wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC–15). This identification does not preclude the use of this frequency band by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained under No. 9.21 with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. 5.342. See also Resolution 761 (WRC–15). (WRC–15)

Note: The use by Palestine of the allocation to the mobile service in the frequency band 1452–1492 MHz identified for IMT is noted, pursuant to Resolution 99 (Rev. Busan, 2014) and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

5.346A The frequency band 1452–1492 MHz is identified for use by administrations in Region 3 wishing to implement

International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC–15) and Resolution 761 (WRC–15). The use of this frequency band by the above administrations for the implementation of IMT is subject to agreement obtained under No. 9.21 from countries using stations of the aeronautical mobile service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC–15)

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5.351A For the use of the bands 1518–1544 MHz, 1545–1559 MHz, 1610–1645.5 MHz, 1646.5–1660.5 MHz, 1668–1675 MHz, 1980–2010 MHz, 2170–2200 MHz, 2483.5–2520 MHz and 2670–2690 MHz by the mobile-satellite service, see Resolutions 212 (Rev.WRC–15) and 225 (Rev.WRC–12). (FCC)

5.352A In the frequency band 1525–1530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in Algeria, Saudi Arabia, Egypt, France and French overseas communities of Region 3, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Viet Nam and Yemen notified prior to 1 April 1998. (WRC–15)

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5.359 *Additional allocation:* In Germany, Saudi Arabia, Armenia, Azerbaijan, Belarus, Benin, Cameroon, the Russian Federation, France, Georgia, Guinea, Guinea-Bissau, Jordan, Kazakhstan, Kuwait, Lithuania, Mauritania, Uganda, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Tajikistan, Tunisia, Turkmenistan and Ukraine, the frequency bands 1550–1559 MHz, 1610–1645.5 MHz and 1646.5–1660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in these frequency bands. (WRC–15)

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5.382 *Different category of service:* In Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Iraq, Israel, Jordan, Kazakhstan, Kuwait, the Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Turkmenistan, Ukraine and Yemen, the allocation of the frequency band 1690–1700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33), and in the Dem. People's Rep. of Korea, the allocation of the frequency band 1690–1700 MHz to the fixed service is on a primary basis (see No. 5.33) and to the mobile, except aeronautical mobile, service on a secondary basis. (WRC–15)

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5.384A The frequency bands, 1710–1885 MHz, 2300–2400 MHz and 2500–2690 MHz, or portions thereof, are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC–15). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC–15)

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5.386 *Additional allocation:* The frequency band 1750–1850 MHz is also allocated to the space operation (Earth-to-space) and space research (Earth-to-space) services in Region 2 (except in Mexico), in Australia, Guam, India, Indonesia and Japan on a primary basis, subject to agreement obtained under No. 9.21, having particular regard to troposcatter systems. (WRC–15)

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5.388 The frequency bands 1885–2025 MHz and 2110–2200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications (IMT). Such use does not preclude the use of these frequency bands by other services to which they are allocated. The frequency bands should be made available for IMT in accordance with Resolution 212 (Rev.WRC–15) (see also Resolution 223 (Rev.WRC–15)). (WRC–15)

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5.391 In making assignments to the mobile service in the frequency bands 2025–2110 MHz and 2200–2290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU–R SA.1154–0, and shall take that Recommendation into account for the introduction of any other type of mobile system. (WRC–15)

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5.393 *Additional allocation:* In Canada, the United States and India, the frequency band 2310–2360 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (Rev.WRC–15), with the exception of *resolves* 3 in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz. (WRC–15)

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5.396 Space stations of the broadcasting-satellite service in the band 2310–2360 MHz operating in accordance with No. 5.393 that may affect the services to which this band is allocated in other countries shall be coordinated and notified in accordance with Resolution 33 (Rev.WRC–15). Complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use. (FCC)

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5.401 In Angola, Australia, Bangladesh, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, Dem. Rep. of the Congo, Sudan, Swaziland, Togo and Zambia, the frequency band 2483.5–2500 MHz was already allocated on a primary basis to the radiodetermination-satellite service before WRC–12, subject to agreement obtained under No. 9.21 from countries not listed in this provision. Systems in the radiodetermination-satellite service for which complete coordination information has been received by the Radiocommunication Bureau before 18 February 2012 will retain their regulatory status, as of the date of receipt of the coordination request information. (WRC–15)

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5.418 *Additional allocation:* In India, the frequency band 2535–2655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (Rev.WRC–15). The provisions of No. 5.416 and Table 21–4 of Article 21, do not apply to this additional allocation. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) is subject to Resolution 539 (Rev.WRC–15). Geostationary broadcasting-satellite service (sound) systems for which complete Appendix 4 coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the frequency band 2630–2655 MHz, and for which complete Appendix 4 coordination information has been received after 1 June 2005, shall not exceed the following limits, for all conditions and for all methods of modulation:

—130 dB(W/(m^2 · MHz)) for $0° \le \theta \le 5°$

—130 + 0.4 $(\theta - 5)$ dB(W/(m^2 · MHz)) for $5° < \theta \le 25°$

—122 dB(W/(m^2 · MHz)) for $25° < \theta \le 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. As an exception to the limits above, the pfd value of −122 dB(W/(m^2 · MHz)) shall be used as a threshold for coordination under No. 9.11 in an area of 1500 km around the territory of the administration notifying the broadcasting-satellite service (sound) system.

In addition, an administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. 5.416 for systems for which complete Appendix 4 coordination information has been received after 1 June 2005. (WRC–15)

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5.428 *Additional allocation:* In Azerbaijan, Kyrgyzstan and Turkmenistan, the frequency band 3100–3300 MHz is also allocated to the radionavigation service on a primary basis. (WRC–15)

5.429 *Additional allocation:* In Saudi Arabia, Bahrain, Bangladesh, Benin, Brunei Darussalam, Cambodia, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Egypt, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of),

Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Sudan and Yemen, the frequency band 3300–3400 MHz is also allocated to the fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC–15)

5.429A *Additional allocation:* In Angola, Benin, Botswana, Burkina Faso, Burundi, Ghana, Guinea, Guinea-Bissau, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3300–3400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. Stations in the mobile service operating in the frequency band 3300–3400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC–15)

5.429B In the following countries of Region 1 south of 30° parallel north: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Congo (Rep. of the), Côte d'Ivoire, Egypt, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Uganda, the Dem. Rep. of the Congo, Rwanda, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3300–3400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). The use of this frequency band shall be in accordance with Resolution 223 (Rev.WRC–15). The use of the frequency band 3300–3400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to protect operations within the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC–15)

5.429C *Different category of service:* In Argentina, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Paraguay and Uruguay, the frequency band 3300–3400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. In Argentina, Brazil, Guatemala, Mexico and Paraguay, the frequency band 3300–3400 MHz is also allocated to the fixed service on a primary basis. Stations in the fixed and mobile services operating in the frequency band 3300–3400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC–15)

5.429D In the following countries in Region 2: Argentina, Colombia, Costa Rica, Ecuador, Mexico and Uruguay, the use of the frequency band 3300–3400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). Such use shall be in accordance with Resolution 223 (Rev.WRC–15). This use in Argentina and Uruguay is subject to the application of No. 9.21. The use of the frequency band 3300–3400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to protect operations within the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC–15)

5.429E *Additional allocation:* In Papua New Guinea, the frequency band 3300–3400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. Stations in the mobile service operating in the frequency band 3300–3400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC–15)

5.429F In the following countries in Region 3: Cambodia, India, Lao P.D.R., Pakistan, the Philippines and Viet Nam, the use of the frequency band 3300–3400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). Such use shall be in accordance with Resolution 223 (Rev.WRC–15). The use of the frequency band 3300–3400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service. Before an administration brings into use a base or mobile station of an IMT system in this frequency band, it shall seek agreement under No. 9.21 with neighbouring countries to protect the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC–15)

5.430 *Additional allocation:* In Azerbaijan, Kyrgyzstan and Turkmenistan, the frequency band 3300–3400 MHz is also allocated to the radionavigation service on a primary basis. (WRC–15)

5.430A The allocation of the frequency band 3400–3600 MHz to the mobile, except aeronautical mobile, service is subject to agreement obtained under No. 9.21. This frequency band is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The provisions of Nos. 9.17 and 9.18 shall also apply in the coordination phase. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed -154.5 dB(W/($m^2 \cdot 4$ kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) and with the assistance of the Bureau if so requested. In case of disagreement, calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3400–3600 MHz shall not claim more protection from space stations than that provided in Table 21–4 of the Radio Regulations (Edition of 2004). This allocation is effective from 17 November 2010. (WRC–15)

5.431 *Additional allocation:* In Germany and Israel, the frequency band 3400–3475 MHz is also allocated to the amateur service on a secondary basis. (WRC–15)

5.431A In Region 2, the allocation of the frequency band 3400–3500 MHz to the mobile, except aeronautical mobile, service on a primary basis is subject to agreement obtained under No. 9.21. (WRC–15)

5.431B In Region 2, the frequency band 3400–3600 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a base or mobile station of an IMT system, it shall seek agreement under No. 9.21 with other administrations and ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed -154.5 dB(W/($m^2 \cdot 4$ kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service, including IMT systems, in the frequency band 3400–3600 MHz shall not claim more protection from space stations than that provided in Table 21–4 of the Radio Regulations (Edition of 2004). (WRC–15)

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5.432B *Different category of service:* In Australia, Bangladesh, China, French overseas communities of Region 3, India, Iran (Islamic Republic of), New Zealand, the Philippines and Singapore, the frequency band 3400–3500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. 9.21 with other

administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −also apply. Be· 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3400–3500 MHz shall not claim more protection from space stations than that provided in Table 21–4 of the Radio Regulations (Edition of 2004). (WRC–15)

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5.433A In Australia, Bangladesh, China, French overseas communities of Region 3, Korea (Rep. of), India, Iran (Islamic Republic of), Japan, New Zealand, Pakistan and the Philippines, the frequency band 3500–3600 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m² · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3500–3600 MHz shall not claim more protection from space stations than that provided in Table 21–4 of the Radio Regulations (Edition of 2004). (WRC–15)

5.434 In Canada, Colombia, Costa Rica and the United States, the frequency band 3600–3700 MHz, or portions thereof, is identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a base or mobile station of an IMT system, it shall seek agreement under No. 9.21 with other administrations and ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m² · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service, including IMT systems, in the frequency band 3600–3700 MHz shall not claim more protection from space stations than that provided in Table 21–4 of the Radio Regulations (Edition of 2004). (WRC–15)

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5.436 Use of the frequency band 4200–4400 MHz by stations in the aeronautical mobile (R) service is reserved exclusively for wireless avionics intra-communication systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution 424 (WRC–15). (WRC–15)

5.437 Passive sensing in the Earth exploration-satellite and space research services may be authorized in the frequency band 4200–4400 MHz on a secondary basis. (WRC–15)

5.438 Use of the frequency band 4200–4400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. (WRC–15)

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5.441A In Uruguay, the frequency band 4800–4900 MHz, or portions thereof, is identified for the implementation of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained with neighbouring countries, and IMT stations shall not claim protection from stations of other applications of the mobile service. Such use shall be in accordance with Resolution 223 (Rev.WRC–15). (WRC–15)

5.441B In Cambodia, Lao P.D.R. and Viet Nam, the frequency band 4800–4990 MHz, or portions thereof, is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained under No. 9.21 with concerned administrations, and IMT stations shall not claim protection from stations of other applications of the mobile service. In addition, before an administration brings into use an IMT station in the mobile service, it shall ensure that the power flux-density produced by this station does not exceed −155 dB(W/(m² · 1 MHz)) produced up to 19 km above sea level at 20 km from the coast, defined as the low-water mark, as officially recognized by the coastal State. This criterion is subject to review at WRC–19. See Resolution 223 (Rev.WRC–15). This identification shall be effective after WRC–19. (WRC–15)

5.442 In the frequency bands 4825–4835 MHz and 4950–4990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service. In Region 2 (except Brazil, Cuba, Guatemala, Mexico, Paraguay, Uruguay and Venezuela), and in Australia, the frequency band 4825–4835 MHz is also allocated to the aeronautical mobile service, limited to aeronautical mobile telemetry for flight testing by aircraft stations. Such use shall be in accordance with Resolution 416 (WRC–07) and shall not cause harmful interference to the fixed service. (WRC–15)

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5.443B In order not to cause harmful interference to the microwave landing system operating above 5030 MHz, the aggregate power flux-density produced at the Earth's surface in the frequency band 5030–5150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the frequency band 5010–5030 MHz shall not exceed −124.5 dB(W/m²) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the frequency band 4990–5000 MHz, radionavigation-satellite service systems operating in the frequency band 5010–5030 MHz shall comply with the limits in the frequency band 4990–5000 MHz defined in Resolution 741 (Rev.WRC–15). (WRC–15)

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5.444 The frequency band 5030–5150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. In the frequency band 5030–5091 MHz, the requirements of this system shall have priority over other uses of this frequency band. For the use of the frequency band 5091–5150 MHz, No. 5.444A and Resolution 114 (Rev.WRC–15) apply. (WRC–15)

5.444A The use of the allocation to the fixed-satellite service (Earth-to-space) in the

frequency band 5091–5150 MHz is limited to feeder links of non-geostationary satellite systems in the mobile-satellite service and is subject to coordination under No. 9.11A. The use of the frequency band 5091–5150 MHz by feeder links of non-geostationary satellite systems in the mobile-satellite service shall be subject to application of Resolution 114 (Rev.WRC–15). Moreover, to ensure that the aeronautical radionavigation service is protected from harmful interference, coordination is required for feeder-link earth stations of the non-geostationary satellite systems in the mobile-satellite service which are separated by less than 450 km from the territory of an administration operating ground stations in the aeronautical radionavigation service. (WRC–15)

5.444B The use of the frequency band 5091–5150 MHz by the aeronautical mobile service is limited to:

—systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution 748 (Rev.WRC–15);

—aeronautical telemetry transmissions from aircraft stations (see No. 1.83) in accordance with Resolution 418 (Rev.WRC–15). (WRC–15)

5.446 *Additional allocation:* In the countries listed in No. 5.369, the frequency band 5150–5216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. 9.21. In Region 2 (except in Mexico), the frequency band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in No. 5.369 and Bangladesh, the frequency band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the frequency bands 1610–1626.5 MHz and/or 2483.5–2500 MHz. The total power flux-density at the Earth's surface shall in no case exceed −159 dB (W/m^2) in any 4 kHz band for all angles of arrival. (WRC–15)

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5.446C *Additional allocation:* In Region 1 (except in Algeria, Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan, South Sudan and Tunisia) and in Brazil, the band 5150–5250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations (see No. 1.83), in accordance with Resolution 418 (Rev.WRC–15). These stations shall not claim protection from other stations operating in accordance with Article 5. No. 5.43A does not apply. (FCC)

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5.447E *Additional allocation:* The frequency band 5250–5350 MHz is also allocated to the fixed service on a primary basis in the following countries in Region 3: Australia, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Papua New Guinea, the Philippines, Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam. The use of this frequency band by the fixed service is intended for the implementation of fixed wireless access systems and shall comply with Recommendation ITU–R F.1613–0. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. 5.43A do not apply to the fixed service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of fixed wireless access systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radiodetermination implementations. (WRC–15)

5.447F In the frequency band 5250–5350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU–R M.1638–0 and ITU–R RS.1632–0. (WRC–15)

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5.450A In the frequency band 5470–5725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU–R M.1638–0. (WRC–15)

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5.457A In the frequency bands 5925–6425 MHz and 14–14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution 902 (WRC–03). In the frequency band 5925–6425 MHz, earth stations located on board vessels and communicating with space stations of the fixed-satellite service may employ transmit antennas with minimum diameter of 1.2 m and operate without prior agreement of any administration if located at least 330 km away from the low-water mark as officially recognized by the coastal State. All other provisions of Resolution 902 (WRC–03) shall apply. (WRC–15)

5.457B In the frequency 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, Libya, Morocco, Mauritania, Oman, Qatar, the 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). (WRC–15)

5.457C In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Mexico, Paraguay, Uruguay and Venezuela), the frequency band 5925–6700 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. 1.83). Such use shall be in accordance with Resolution 416 (WRC–07) and shall not cause harmful interference to, or claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of this frequency band by other mobile service applications or by other services to which this frequency band is allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC–15)

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5.459 *Additional allocation:* In the Russian Federation, the frequency bands 7100–7155 MHz and 7190–7235 MHz are also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. 9.21. In the frequency band 7190–7235 MHz, with respect to the Earth exploration-satellite service (Earth-to-space), No. 9.21 does not apply. (WRC–15)

5.460 No emissions from space research service (Earth-to-space) systems intended for deep space shall be effected in the frequency band 7190–7235 MHz. Geostationary satellites in the space research service operating in the frequency band 7190–7235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. 5.43A does not apply. (WRC–15)

5.460A The use of the frequency band 7190–7250 MHz (Earth-to-space) by the Earth exploration-satellite service shall be limited to tracking, telemetry and command for the operation of spacecraft. Space stations operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7190–7250 MHz shall not claim protection from existing and future stations in the fixed and mobile services, and No. 5.43A does not apply. No. 9.17 applies. Additionally, to ensure protection of the existing and future deployment of fixed and mobile services, the location of earth stations supporting spacecraft in the Earth exploration-satellite service in non-geostationary orbits or geostationary orbit shall maintain a separation distance of at least 10 km and 50 km, respectively, from the respective border(s) of neighbouring countries, unless a shorter distance is otherwise agreed between the corresponding administrations. (WRC–15)

5.460B Space stations on the geostationary orbit operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7190–7235 MHz shall not claim protection from existing and future stations of the space research service, and No. 5.43A does not apply. (WRC–15)

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5.461AA The use of the frequency band 7375–7750 MHz by the maritime mobile-satellite service is limited to geostationary-satellite networks. (WRC–15)

5.461AB In the frequency band 7375–7750 MHz, earth stations in the maritime mobile-satellite service shall not claim protection from, nor constrain the use and development of, stations in the fixed and

mobile, except aeronautical mobile, services. No. 5.43A does not apply. (WRC–15)

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5.462A In Regions 1 and 3 (except for Japan), in the band 8025–8400 MHz, the Earth exploration-satellite service using geostationary satellites shall not produce a power flux-density in excess of the following values for angles of arrival (θ), without the consent of the affected administration:

− 135 dB(W/m²) in a 1 MHz band for $0 \leq \theta < 5°$

− 135 + 0.5 (θ − 5) dB(W/m²) in a 1 MHz band for $5 \leq \theta < 25°$

− 125 dB(W/m²) in a 1 MHz band for $25 \leq \theta \leq 90°$ (WRC–12)

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5.468 *Additional allocation:* In Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Djibouti, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Sudan, Swaziland, Chad, Togo, Tunisia and Yemen, the frequency band 8500–8750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC–15)

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5.471 *Additional allocation:* In Algeria, Germany, Bahrain, Belgium, China, Egypt, the United Arab Emirates, France, Greece, Indonesia, Iran (Islamic Republic of), Libya, the Netherlands, Qatar and Sudan, the frequency bands 8825–8850 MHz and 9000–9200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only. (WRC–15)

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5.474A The use of the frequency bands 9200–9300 MHz and 9900–10400 MHz by the Earth exploration-satellite service (active) is limited to systems requiring necessary bandwidth greater than 600 MHz that cannot be fully accommodated within the frequency band 9300–9900 MHz. Such use is subject to agreement to be obtained under No. 9.21 from Algeria, Saudi Arabia, Bahrain, Egypt, Indonesia, Iran (Islamic Republic of), Lebanon and Tunisia. An administration that has not replied under No. 9.52 is considered as not having agreed to the coordination request. In this case, the notifying administration of the satellite system operating in the Earth exploration-satellite service (active) may request the assistance of the Bureau under Sub-Section IID of Article 9. (WRC–15)

5.474B Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU–R RS.2066–0. (WRC–15)

5.474C Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU–R RS.2065–0. (WRC–15)

5.474D Stations in the Earth exploration-satellite service (active) shall not cause harmful interference to, or claim protection from, stations of the maritime radionavigation and radiolocation services in the frequency band 9200–9300 MHz, the radionavigation and radiolocation services in the frequency band 9900–10000 MHz and the radiolocation service in the frequency band 10.0–10.4 GHz. (WRC–15)

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5.477 *Different category of service:* In Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Trinidad and Tobago, and Yemen, the allocation of the frequency band 9800–10000 MHz to the fixed service is on a primary basis (see No. 5.33). (WRC–15)

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5.480 *Additional allocation:* In Argentina, Brazil, Chile, Cuba, El Salvador, Ecuador, Guatemala, Honduras, Paraguay, the Netherlands Antilles, Peru and Uruguay, the frequency band 10–10.45 GHz is also allocated to the fixed and mobile services on a primary basis. In Colombia, Costa Rica, Mexico and Venezuela, the frequency band 10–10.45 GHz is also allocated to the fixed service on a primary basis. (WRC–15)

5.481 *Additional allocation:* In Algeria, Germany, Angola, Brazil, China, Côte d'Ivoire, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Pakistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania and Uruguay, the frequency band 10.45–10.5 GHz is also allocated to the fixed and mobile services on a primary basis. In Costa Rica, the frequency band 10.45–10.5 GHz is also allocated to the fixed service on a primary basis. (WRC–15)

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5.486 *Different category of service:* In the United States, the allocation of the frequency band 11.7–12.1 GHz to the fixed service is on a secondary basis (see No. 5.32). (WRC–15)

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5.494 *Additional allocation:* In Algeria, Saudi Arabia, Bahrain, Cameroon, the Central African Rep., Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Madagascar, Mali, Morocco, Mongolia, Nigeria, Oman, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 12.5–12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC–15)

5.495 *Additional allocation:* In France, Greece, Monaco, Montenegro, Uganda, Romania and Tunisia, the frequency band 12.5–12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC–15)

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5.499A The use of the frequency band 13.4–13.65 GHz by the fixed-satellite service (space-to-Earth) is limited to geostationary-satellite systems and is subject to agreement obtained under No. 9.21 with respect to satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015. (WRC–15)

5.499B Administrations shall not preclude the deployment and operation of transmitting earth stations in the standard frequency and time signal-satellite service (Earth-to-space) allocated on a secondary basis in the frequency band 13.4–13.65 GHz due to the primary allocation to FSS (space-to-Earth). (WRC–15)

5.499C The allocation of the frequency band 13.4–13.65 GHz to the space research service on a primary basis is limited to:

—Satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015,

—active spaceborne sensors,

—satellite systems operating in the space research service (space-to-Earth) to relay data from space stations in the geostationary-satellite orbit to associated earth stations.

Other uses of the frequency band by the space research service are on a secondary basis. (WRC–15)

5.499D In the frequency band 13.4–13.65 GHz, satellite systems in the space research service (space-to-Earth) and/or the space research service (space-to-space) shall not cause harmful interference to, nor claim protection from, stations in the fixed, mobile, radiolocation and Earth exploration-satellite (active) services. (WRC–15)

5.499E In the frequency band 13.4–13.65 GHz, geostationary-satellite networks in the fixed-satellite service (space-to-Earth) shall not claim protection from space stations in the Earth exploration-satellite service (active) operating in accordance with these Regulations, and No. 5.43A does not apply. The provisions of No. 22.2 do not apply to the Earth exploration-satellite service (active) with respect to the fixed-satellite service (space-to-Earth) in this frequency band. (WRC–15)

5.500 *Additional allocation:* In Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Morocco, Mauritania, Niger, Nigeria, Oman, Qatar, the Syrian Arab Republic, Singapore, Sudan, South Sudan, Chad and Tunisia, the frequency band 13.4–14 GHz is also allocated to the fixed and mobile services on a primary basis. In Pakistan, the frequency band 13.4–13.75 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC–15)

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5.501A The allocation of the frequency band 13.65–13.75 GHz to the space research service on a primary basis is limited to active

spaceborne sensors. Other uses of the frequency band by the space research service are on a secondary basis. (WRC–15)

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5.504B Aircraft earth stations operating in the aeronautical mobile-satellite service in the frequency band 14–14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU–R M.1643–0, with respect to any radio astronomy station performing observations in the 14.47–14.5 GHz frequency band located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa. (WRC–15)

5.504C In the frequency band 14–14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, Côte d'Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Kuwait, Nigeria, Oman, the 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.1643–0, 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. (WRC–15)

5.505 *Additional allocation:* In Algeria, Saudi Arabia, Bahrain, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Djibouti, Egypt, the United Arab Emirates, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Swaziland, Chad, Viet Nam and Yemen, the frequency band 14–14.3 GHz is also allocated to the fixed service on a primary basis. (WRC–15)

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5.506B Earth stations located on board vessels communicating with space stations in the fixed-satellite service may operate in the frequency band 14–14.5 GHz without the need for prior agreement from Cyprus and Malta, within the minimum distance given in Resolution 902 (WRC–03) from these countries. (WRC–15)

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5.508A In the frequency band 14.25–14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Nigeria, Oman, the 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.1643–0, 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. (WRC–15)

5.509A In the frequency band 14.3–14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Morocco, Nigeria, Oman, the 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.1643–0, 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. (WRC–15)

5.509B The use of the frequency bands 14.5–14.75 GHz in countries listed in Resolution 163 (WRC–15) and 14.5–14.8 GHz in countries listed in Resolution 164 (WRC–15) by the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service is limited to geostationary-satellites. (WRC–15)

5.509C For the use of the frequency bands 14.5–14.75 GHz in countries listed in Resolution 163 (WRC–15) and 14.5–14.8 GHz in countries listed in Resolution 164 (WRC–15) by the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service, the fixed-satellite service earth stations shall have a minimum antenna diameter of 6 m and a maximum power spectral density of −44.5 dBW/Hz at the input of the antenna. The earth stations shall be notified at known locations on land. (WRC–15)

5.509D Before an administration brings into use an earth station in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service in the frequency bands 14.5–14.75 GHz (in countries listed in Resolution 163 (WRC–15)) and 14.5–14.8 GHz (in countries listed in Resolution 164 (WRC–15)), it shall ensure that the power flux-density produced by this earth station does not exceed −151.5 dB(W/(m^2 · 4 kHz)) produced at all altitudes from 0 m to 19000 m above sea level at 22 km seaward from all coasts, defined as the low-water mark, as officially recognized by each coastal State. (WRC–15)

5.509E In the frequency bands 14.50–14.75 GHz in countries listed in Resolution 163 (WRC–15) and 14.50–14.8 GHz in countries listed in Resolution 164 (WRC–15), the location of earth stations in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service shall maintain a separation distance of at least 500 km from the border(s) of other countries unless shorter distances are explicitly agreed by those administrations. No. 9.17 does not apply. When applying this provision, administrations should consider the relevant parts of these Regulations and the latest relevant ITU–R Recommendations. (WRC–15)

5.509F In the frequency bands 14.50–14.75 GHz in countries listed in Resolution 163 (WRC–15) and 14.50–14.8 GHz in countries listed in Resolution 164 (WRC–15), earth stations in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service shall not constrain the future deployment of the fixed and mobile services. (WRC–15)

5.509G The frequency band 14.5–14.8 GHz is also allocated to the space research service on a primary basis. However, such use is limited to the satellite systems operating in the space research service (Earth-to-space) to relay data to space stations in the geostationary-satellite orbit from associated earth stations. Stations in the space research service shall not cause harmful interference to, or claim protection from, stations in the fixed and mobile services and in the fixed-satellite service limited to feeder links for the broadcasting-satellite service and associated space operations functions using the guardbands under Appendix 30A and feeder links for the broadcasting-satellite service in Region 2. Other uses of this frequency band by the space research service are on a secondary basis. (WRC–15)

5.510 Except for use in accordance with Resolution 163 (WRC–15) and Resolution 164 (WRC–15), the use of the frequency band 14.5–14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe. Uses other than feeder links for the broadcasting-satellite service are not authorized in Regions 1 and 2 in the frequency band 14.75–14.8 GHz. (WRC–15)

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5.511A Use of the frequency band 15.43–15.63 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. 9.11A. (WRC–15)

5.511C Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU–R S.1340–0. The minimum coordination distance required to protect the aeronautical radionavigation stations (No. 4.10 applies) from harmful interference from feeder-link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder-link earth station shall be in accordance with Recommendation ITU–R S.1340–0. (WRC–15)

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5.512 *Additional allocation:* In Algeria, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Congo (Rep. of the), Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Montenegro, Nepal, Nicaragua, Niger, Oman, Pakistan, Qatar, Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 15.7–17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC–15)

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5.514 *Additional allocation:* In Algeria, Saudi Arabia, Bahrain, Bangladesh, Cameroon, El Salvador, the United Arab Emirates, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan,

Kuwait, Libya, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Sudan and South Sudan, the frequency band 17.3–17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. 21.3 and 21.5 shall apply. (WRC–15)

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5.521 *Alternative allocation:* In the United Arab Emirates and Greece, the frequency band 18.1–18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis (see No. 5.33). The provisions of No. 5.519 also apply. (WRC–15)

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5.524 *Additional allocation:* In Afghanistan, Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Costa Rica, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Chad, Togo and Tunisia, the frequency band 19.7–21.2 GHz is also allocated to the fixed and mobile services on a primary basis. This additional use shall not impose any limitation on the power flux- density of space stations in the fixed-satellite service in the frequency band 19.7–21.2 GHz and of space stations in the mobile-satellite service in the frequency band 19.7–20.2 GHz where the allocation to the mobile-satellite service is on a primary basis in the latter frequency band. (WRC–15)

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5.530A Unless otherwise agreed between the administrations concerned, any station in the fixed or mobile services of an administration shall not produce a power flux-density in excess of −120.4 dB(W/(m^2 · MHz)) at 3 m above the ground of any point of the territory of any other administration in Regions 1 and 3 for more than 20% of the time. In conducting the calculations, administrations should use the most recent version of Recommendation ITU–R P.452 (see also the most recent version of Recommendation ITU–R BO.1898). (WRC–15)

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5.530D See Resolution 555 (Rev.WRC–15). (FCC)

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5.536B In Saudi Arabia, Austria, Bahrain, Belgium, Brazil, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Estonia, Finland, Hungary, India, Iran (Islamic Republic of), Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Sweden, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the frequency band 25.5–27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC–15)

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5.543A In Bhutan, Cameroon, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sudan, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the frequency band 31–31.3 GHz may also be used by systems using high altitude platform stations (HAPS) in the ground-to-HAPS direction. The use of the frequency band 31–31.3 GHz by systems using HAPS is limited to the territory of the countries listed above and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems, systems in the mobile service and systems operated under No. 5.545. Furthermore, the development of these services shall not be constrained by HAPS. Systems using HAPS in the frequency band 31–31.3 GHz shall not cause harmful interference to the radio astronomy service having a primary allocation in the frequency band 31.3–31.8 GHz, taking into account the protection criterion as given in the most recent version of Recommendation ITU–R RA.769. In order to ensure the protection of satellite passive services, the level of unwanted power density into a HAPS ground station antenna in the frequency band 31.3–31.8 GHz shall be limited to −106 dB(W/MHz) under clear-sky conditions, and may be increased up to −100 dB(W/MHz) under rainy conditions to mitigate fading due to rain, provided the effective impact on the passive satellite does not exceed the impact under clear-sky conditions. See Resolution 145 (Rev.WRC–12). (WRC–15)

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5.551H The equivalent power flux-density (epfd) produced in the frequency band 42.5–43.5 GHz by all space stations in any non-geostationary-satellite system in the fixed-satellite service (space-to-Earth), or in the broadcasting-satellite service operating in the frequency band 42–42.5 GHz, shall not exceed the following values at the site of any radio astronomy station for more than 2% of the time:

- −230 dB(W/m^2) in 1 GHz and −246 dB(W/m^2) in any 500 kHz of the frequency band 42.5–43.5 GHz at the site of any radio astronomy station registered as a single-dish telescope; and
- −209 dB(W/m^2) in any 500 kHz of the frequency band 42.5–43.5 GHz at the site of any radio astronomy station registered as a very long baseline interferometry station.

These epfd values shall be evaluated using the methodology given in Recommendation ITU–R S.1586–1 and the reference antenna pattern and the maximum gain of an antenna in the radio astronomy service given in Recommendation ITU–R RA.1631–0 and shall apply over the whole sky and for elevation angles higher than the minimum operating angle θ_{min} of the radiotelescope (for which a default value of 5° should be adopted in the absence of notified information).

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

- —was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or
- —was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply.

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution 743 (WRC–03) shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC–15)

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5.562D *Additional allocation:* In Korea (Rep. of), the frequency bands 128–130 GHz, 171–171.6 GHz, 172.2–172.8 GHz and 173.3–174 GHz are also allocated to the radio astronomy service on a primary basis. Radio astronomy stations in Korea (Rep. of) operating in the frequency bands referred to in this footnote shall not claim protection from, or constrain the use and development of, services in other countries operating in accordance with the Radio Regulations. (WRC–15)

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United States (US) Footnotes

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US99 In the band 1668.4–1670 MHz, the meteorological aids service (radiosonde) will avoid operations to the maximum extent practicable. Whenever it is necessary to operate radiosondes in the band 1668.4–1670 MHz within the United States, notification of the operations shall be sent as far in advance as possible to the National Science Foundation, Division of Astronomical Sciences, Electromagnetic Spectrum Management Unit, 2415 Eisenhower Avenue, Alexandria, VA 22314; Email: *esm@nsf.gov.*

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US287 In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. Where needed, equipment designed for 12.5 kHz channel spacing using also the additional frequencies 457.5375 MHz, 457.5625 MHz, 467.5375 MHz and 467.5625 MHz may be introduced for on-board communications. The use of these frequencies in territorial waters may be subject to the national regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Recommendation ITU–R M.1174–2.

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US385 Radio astronomy observations may be made in the bands 1350–1400 MHz, 1718.8–1722.2 MHz, and 4950–4990 MHz on an unprotected basis, and in the band 2655–2690 MHz on a secondary basis, at the following radio astronomy observatories:

Allen Telescope Array, Hat Creek, CA	Rectangle between latitudes 40°00′ N and 42°00′ N and between longitudes 120°15′ W and 122°15′ W.	
NASA Goldstone Deep Space Communications Complex, Goldstone, CA	80 kilometers (50 mile) radius centered on 35°20′ N, 116°53′ W.	
National Astronomy and Ionosphere Center, Arecibo, PR	Rectangle between latitudes 17°30′ N and 19°00′ N and between longitudes 65°10′ W and 68°00′ W.	
National Radio Astronomy Observatory, Socorro, NM	Rectangle between latitudes 32°30′ N and 35°30′ N and between longitudes 106°00′ W and 109°00′ W.	
National Radio Astronomy Observatory, Green Bank, WV	Rectangle between latitudes 37°30′ N and 39°15′ N and between longitudes 78°30′ W and 80°30′ W.	
National Radio Astronomy Observatory, Very Long Baseline Array Stations	80 kilometer radius centered on:	
	North latitude	West longitude
Brewster, WA	48°08′	119°41′
Fort Davis, TX	30°38′	103°57′
Hancock, NH	42°56′	71°59′
Kitt Peak, AZ	31°57′	111°37′
Los Alamos, NM	35°47′	106°15′
Mauna Kea, HI	19°48′	155°27′
North Liberty, IA	41°46′	91°34′
Owens Valley, CA	37°14′	118°17′
Pie Town, NM	34°18′	108°07′
Saint Croix, VI	17°45′	64°35′
Owens Valley Radio Observatory, Big Pine, CA	Two contiguous rectangles, one between latitudes 36°00′ N and 37°00′ N and between longitudes 117°40′ W and 118°30′ W and the second between latitudes 37°00′ N and 38°00′ N and between longitudes 118°00′ W and 118°50′ W.	

(a) In the bands 1350–1400 MHz and 4950–4990 MHz, every practicable effort will be made to avoid the assignment of frequencies to stations in the fixed and mobile services that could interfere with radio astronomy observations within the geographic areas given above. In addition, every practicable effort will be made to avoid assignment of frequencies in these bands to stations in the aeronautical mobile service which operate outside of those geographic areas, but which may cause harmful interference to the listed observatories. Should such assignments result in harmful interference to these observatories, the situation will be remedied to the extent practicable.

(b) In the band 2655–2690 MHz, for radio astronomy observations performed at the locations listed above, licensees are urged to coordinate their systems through the National Science Foundation, Division of Astronomical Sciences, Electromagnetic Spectrum Management Unit, 2415 Eisenhower Avenue, Alexandria, VA 22314; Email: *esm@nsf.gov.*

* * * * *

Non-Federal Government (NG) Footnotes

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NG159 In the band 698–806 MHz, stations authorized under 47 CFR part 74, subparts F and G may continue to operate indefinitely on a secondary basis to all other stations operating in that band.

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Federal Government (G) Footnotes

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G132 Use of the radionavigation-satellite service in the band 1215–1240 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under ITU Radio Regulation No. 5.331. Furthermore, the use of the radionavigation-satellite service in the band 1215–1240 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. ITU Radio Regulation No. 5.43 shall not apply in respect of the radiolocation service. ITU Resolution 608 (Rev.WRC–15) shall apply.

* * * * *

■ 10. Section 2.107 is amended by revising paragraph (a) to read as follows:

§ 2.107 Radio astronomy station notification.

(a) Pursuant to No. 11.12 of Article 11 to the Radio Regulations, operators of radio astronomy stations desiring international recognition of their use of specific radio astronomy frequencies for reception, should file the following information with the Commission for inclusion in the Master International Frequency Register:

(1) The characteristics of radio astronomy stations specified in Annex 2 of Appendix 4 to the Radio Regulations.

(2) The name, mailing address, and email of the operator.

* * * * *

■ 11. Section 2.1091 is amended by revising paragraph (c)(2) to read as follows:

§ 2.1091 Radiofrequency radiation exposure evaluation: Mobile devices.

* * * * *

(c) * * *

(2) Unlicensed personal communications service devices, unlicensed millimeter-wave devices, and unlicensed NII devices authorized under §§ 15.255(f), 15.257(g), 15.319(i), and 15.407(f) of this chapter are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if their ERP is 3 watts or more or if they meet the definition of a portable device as specified in § 2.1093(b) requiring evaluation under the provisions of that section.

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■ 12. Section 2.1093 is amended by revising paragraph (c)(1) to read as follows:

§ 2.1093 Radiofrequency radiation exposure evaluation: Portable devices.

* * * * *

(c)(1) Portable devices that operate in the Cellular Radiotelephone Service pursuant to part 22 of this chapter; the Personal Communications Service (PCS) pursuant to part 24 of this chapter; the Satellite Communications Services pursuant to part 25 of this chapter; the Miscellaneous Wireless Communications Services pursuant to part 27 of this chapter; the Upper

Microwave Flexible Use Service pursuant to part 30 of this chapter; the Maritime Services (ship earth station devices only) pursuant to part 80 of this chapter; the Specialized Mobile Radio Service, the 4.9 GHz Band Service, and the 3650 MHz Wireless Broadband Service pursuant to part 90 of this chapter; the Wireless Medical Telemetry Service (WMTS), the Medical Device Radiocommunication Service (MedRadio), and the 76–81 GHz Band Radar Service pursuant to subparts H, I, and M of part 95 of this chapter, respectively; unlicensed personal communication service, unlicensed NII devices and millimeter-wave devices authorized under §§ 15.255(f), 15.257(g), 15.319(i), and 15.407(f) of this chapter; and the Citizens Broadband Radio Service pursuant to part 96 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use.

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PART 15—RADIO FREQUENCY DEVICES

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

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

■ 14. Section 15.510 is amended by revising the section heading to read as follows:

§ 15.510 Technical requirements for through-wall imaging systems.

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PART 18—INDUSTRIAL, SCIENTIFIC, AND MEDICAL EQUIPMENT

■ 15. The authority citation for part 18 is revised to read as follows:

Authority: 47 U.S.C. 154, 301, 302, 303, 304, 307.

■ 16. Section 18.301 is revised to read as follows:

§ 18.301 Operating frequencies.

ISM equipment may be operated on any frequency above 9 kHz except as indicated in § 18.303. The following frequency bands, in accordance with § 2.106 of the rules, are designated for use by ISM equipment:

TABLE 1 TO § 18.301

ISM frequency	Tolerance
6.78 MHz	± 15.0 kHz
13.56 MHz	± 7.0 kHz
27.12 MHz	± 163.0 kHz
40.68 MHz	± 20.0 kHz
915 MHz	± 13.0 MHz
2450 MHz	± 50.0 MHz
5800 MHz	± 75.0 MHz
24.125 GHz	± 125.0 MHz
61.25 GHz	± 250.0 MHz
122.50 GHz	± 500.0 MHz
245.00 GHz	± 1.0 GHz

PART 27—MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

■ 17. The authority citation for part 27 continues to read as follows:

Authority: 47 U.S.C. 154, 301, 302a, 303, 307, 309, 332, 336, 337, 1403, 1404, 1451, and 1452, unless otherwise noted.

■ 18. Section 27.1321 is amended by revising paragraph (b) to read as follows:

§ 27.1321 Requirements for operation of base and fixed stations in the 600 MHz downlink band in close proximity to Radio Astronomy Observatories.

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(b) 600 MHz band base and fixed stations in the 600 MHz downlink band within 25 kilometers of VLBA observatories are subject to coordination with the National Science Foundation (NSF) prior to commencing operations. The appropriate NSF contact point to initiate coordination is: Division of Astronomical Sciences, Electromagnetic Spectrum Management Unit, 2415 Eisenhower Avenue, Alexandria, VA 22314; Email: *esm@nsf.gov.*

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PART 95—PERSONAL RADIO SERVICES

■ 19. The authority citation for part 95 continues to read as follows:

Authority: 47 U.S.C. 154, 303, 307.

■ 20. Section 95.2309 is amended by revising paragraph (f)(3) to read as follows:

§ 95.2309 WMTS frequency coordination.

* * * * *

(f) * * *

(3) The National Science Foundation (NSF) point of contact for coordination is: Division of Astronomical Sciences, Electromagnetic Spectrum Management Unit, 2415 Eisenhower Avenue, Alexandria, VA 22314; Email: *esm@nsf.gov.*

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