

FEDERAL COMMUNICATIONS COMMISSION**47 CFR Part 2**

[ET Docket No. 23–121, FCC 23–26; FR ID 151241]

Implementation of the Final Acts of the 2019 World Radiocommunication Conference**AGENCY:** Federal Communications Commission**ACTION:** Final rule.

SUMMARY: In this document, the Federal Communications Commission (Commission) makes non-substantive, editorial revisions to the Commission's Table of Frequency Allocations (Allocation Table), primarily to reflect decisions from the Final Acts of the World Radiocommunication Conference 2019 (*WRC-19 Final Acts*). The purpose of this administrative action is to revise the Allocation Table by updating the International Table of Frequency Allocations (International Table) portion of the Allocation Table to reflect the International Telecommunication Union's (ITU's) Table of Frequency Allocations in its Radio Regulations (Edition of 2020) (Radio Regulations), and by making updates and corrections in the United States Table of Frequency Allocations (U.S. Table) portion of the Allocation Table.

DATES: Effective October 30, 2023.

FOR FURTHER INFORMATION CONTACT: Patrick Forster, Office of Engineering and Technology, 202–418–7061, Patrick.Forster@fcc.gov.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Order* in ET Docket No. 23–121, FCC 23–26, adopted April 18, 2023, and released April 21, 2023. The full text of this document is available on the FCC's website at <https://docs.fcc.gov/public/attachments/FCC-23-26A1.pdf>. To request materials in accessible format for people with disabilities, send an email to FCC504@fcc.gov (mail to: FCC504@fcc.gov), or call the Consumer & Governmental Affairs Bureau at 202–418–0530 (voice), 202–418–0432 (TTY).

Synopsis

By this action, the Commission takes the necessary steps to implement certain decisions of the World Radiocommunication Conference held in 2019 (WRC–19). The Commission revises the Allocation Table by updating the International Table of Frequency Allocations (International Table) portion to reflect the International Telecommunication Union's (ITU) Table

of Frequency Allocations in its Radio Regulations (Edition of 2020) (Radio Regulations) and by making updates and corrections in the United States Table of Frequency Allocations (U.S. Table) portion. These ministerial actions do not modify or otherwise change the Commission's rules with respect to any party's underlying rights or responsibilities.

The ITU convenes a World Radiocommunication Conference (WRC) typically every three to four years to address international spectrum use. Specifically, the ITU allocates frequency bands to various radio services generally on either a worldwide or regional basis and enters these radio services in its Table of Frequency Allocations (which is reflected in § 2.106 of the Commission's rules as the International Table) as part of the Radio Regulations.

Discussion

By this administrative action, the Commission makes several non-substantive, editorial changes to the Commission's Allocation Table. None of the rule changes discussed in the *Order* are subject to the notice and comment requirements for rulemaking in the Administrative Procedure Act (APA). Section 553(b)(B) of the APA provides exceptions to the notice and comment requirements for rulemakings when, among other things, the agency finds good cause that the notice and comment requirements are “impracticable, unnecessary, or contrary to the public interest” with respect to the rules at issue. Specifically, the Final Rules consist of conforming changes to and corrects minor errors in the Allocation Table, including removing expired text from domestic footnotes. All of these changes are summarized below. These changes have no substantive effect on industry or the general public. Accordingly, the Commission found that it is “unnecessary,” within the meaning of section 553(b)(B) of the APA, to provide notice and an opportunity for public comment before implementing these rule revisions.

A. Reflecting WRC–19 Revisions in the International Table

The Commission updates the International Table within § 2.106 of the Commission's rules to reflect Article 5, section IV of the Radio Regulations (Edition of 2020), except as revised herein. The International Table is included within the Commission's Allocation Table for informational purposes only. Consistent with past practice, the Commission incorporates the following corrections and updates to the ITU's Table of Frequency

Allocations for display as the International Table in § 2.106 of the Commission's rules: First, the Commission updates eight footnotes (5.328B, 5.341A, 5.341B, 5.341C, 5.351A, 5.384A, 5.388, 5.484B) by cross referencing four resolutions (Resolutions 155, 212, 223, 610) that were revised at WRC–19. Next, the Commission: (1) revises two footnotes (5.169A, 5.169B) to make them consistent with the **Federal Register's** style used in footnote 5.346 and update the cross reference to Resolution 99 in footnote 5.346 to match the version shown in footnotes 5.169A and 5.169B; and (2) corrects footnotes 5.547 and 5.550E by adding the missing notation “Rev.” and by removing a dash that is inconsistent with 72 other instances of “non-geostationary-satellite systems” in Volume 1 of the Radio Regulations, respectively. Finally, the Commission notes that WRC–19 revised footnote 5.79 by permitting the use of the NAVDAT [navigational data] system to expand the potential uses of the band. Because this is not a non-substantive editorial change to the International Table that affects the U.S. Table, the Commission maintains the status quo of the U.S. Table by replacing the existing reference to footnote 5.79 in the 415–472 kHz, 479–495 kHz, and 505–510 kHz bands within the U.S. Table with that of placeholder footnote US79A. Footnote US79A contains the pre-WRC–19 text of footnote 5.79, except that the Commission lists only the bands where footnote 5.79 currently applies (*i.e.*, the Commission excludes the 472–479 kHz band, which is no longer allocated to the maritime mobile service, and the 510–525 kHz band, to which the Commission has never applied the provisions of footnote 5.79). The Commission further notes that revised footnote 5.79 applies to the maritime mobile service in the 415–495 kHz and 505–526.5 kHz bands in all ITU Regions; however, a reference to footnote 5.79 is not shown in the 510–525 kHz band within the Region 2 Table and there is no maritime mobile service entry or reference to footnote 5.79 in the 525–526.5 kHz sub-band within the Region 2 Table of the Radio Regulations. Therefore, the Commission adds this footnote 5.79 issue to note 1 of the Commission's Online Table at <https://www.fcc.gov/engineering-technology/policy-and-rules-division/general/radio-spectrum-allocation>. Title 47 of the Code of Federal Regulations (CFR) at <https://www.ecfr.gov/current/title-47> contains the official version of the Table of Frequency Allocations and the FCC

Online Table of Frequency is provided for convenience only.

B. Reflecting WRC-19 Revisions in the U.S. Table

WRC-19 deleted one international footnote (5.396) that is referenced in the U.S. Table and revised a resolution that is referenced in two domestic footnotes (US444B, G132). The Commission reviewed the relevant footnotes (5.396, US444B, G132) and found that implementing these changes in the Commission's rules will have no substantive effect on non-Federal operations.

Footnote 5.396 requires space stations in the broadcasting-satellite service (BSS) in the band 2310–2360 MHz operating in accordance with footnote 5.393 that may affect the services to which this band is allocated in other countries to be coordinated and notified in accordance with Resolution 33 (Rev.WRC-15), and further provides that complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighboring countries prior to their bringing into use. WRC-19 deleted Resolution 33 because the processing of filings under this Resolution was completed prior to WRC-07, and consequently deleted footnote 5.396 after moving its still-relevant text to footnote 5.393. The Commission is updating footnote 5.393 in the International Footnotes to reflect the WRC-19 revisions. See Final Rules. In the United States, BSS operators provide satellite radio service to customers using the 2320–2345 MHz band and footnote 5.393 is not included in the 2310–2360 MHz band of the U.S. Table. The Commission therefore found that removal of footnote 5.396 will have no substantive effect on non-Federal operations. The Commission found that the reference to footnote 5.396 should be removed from the non-Federal Table, consistent with the WRC-19 implementation.

Footnote US444B contains a cross reference to Resolution 418 (Rev.WRC-12). WRC-19 revised Resolution 418 by updating the guidance on the aeronautical mobile service use of the 5091–5150 MHz band by citing to Resolution 748 (Rev.WRC-19), by deleting the invitation that the ITU continue to study the conditions and arrangements for flight testing in this band, and by simplifying its text. Therefore, the Commission found that changing the reference to WRC-19's revision of Resolution 418 will not have any substantive effect on non-Federal operations.

The Commission updates footnote G132, which applies to the 1215–1240

MHz band, to cross reference revised Resolution 608, replacing “(Rev.WRC-15)” with “(Rev.WRC-19).” Resolution 608 pertains to the protection of the radionavigation service in certain countries in Regions 1 and 3; because the United States is located in Region 2, the revision of this resolution will not have any substantive effect on non-Federal operations.

C. Other Revisions to the Allocation Table

The Commission makes the following additional editorial changes to section 2.106 of the Commission's rules:

- Correct the Federal and non-Federal Tables by removing the reference to footnote 5.79A from the 435–472 kHz band because the footnote does not apply to that band.

- Revise footnotes US1, US82, US247, US281, US283, US296, US342, and G115 by changing the references to frequency units from “kHz” to “MHz” and revise footnote G32 from “MHz” to “GHz” in order to make the text of the footnotes consistent with the frequency units shown in the Allocation Table. In each of these footnotes, the Commission also moves the decimal point three spaces to the left and deletes unneeded zeros. In footnote US342, the Commission also corrects a typographical error by changing from “23.07–23.12 GHz” to “23.07–23.12 GHz.”

- Add a space between the third and fourth digits of frequency bands that contain five digits in 28 international footnotes. Specifically, the Commission makes this display change by revising footnotes 5.109, 5.110, 5.111, 5.132, 5.133A, 5.134, 5.145, 5.145B, 5.146, 5.147, 5.149, 5.149A, 5.150, 5.151, 5.152, 5.153, 5.154, 5.155, 5.155A, 5.155B, 5.156, 5.156A, 5.157, 5.158, 5.474D, 5.477, 5.478, and 5.479. This display change is based on the format used in the Radio Regulations. ITU Radio Regulations, Vol. 1, Article 5, at 35–186.

- Simplify the display of facing pages in the Allocation Table. The heading on the top page of the Allocation Table also applies to the bottom page, *i.e.*, every two pages in the Allocation Table are facing pages. The Commission simplifies the display of facing pages in the Allocation Table by ending page 19 on the frequency 52 MHz in the Region 1 Table and on the frequency 54 MHz in all other tables (instead of permitting the entries for the 50–54 MHz band in the combined table for Regions 2 and 3 and the non-Federal Table, and the 50–73 MHz band in the Federal Table, to span pages 19 and 20).

- Remove the references to footnote US108 from the 3300–3500 and 3500–3550 MHz bands in the Federal Table and from the 3300–3450 and 3450–3600 MHz bands in the non-Federal Table and revise footnote G2 by deleting “(except as provided for in US108)” because footnote US108 no longer applies to the 3300–3550 MHz band. Footnote US108 was recently revised to remove the text that applied to the 3300–3550 MHz band. The Commission also moves the reference to footnote US431B from the bottom of the cell to the right of RADILOCATION in the 3300–3500 MHz band within the Federal Table because the footnote applies to only the radiolocation service.

- Place footnotes US431B and US433 in ascending numerical order in the 3450–3600 MHz band within the non-Federal Table. On page 39 of the Allocation Table, change the frequency range of the facing pages from “2483.5–3500” to “2483.5–3600” because 3450–3600 MHz is the last frequency band in the non-Federal Table in this set of facing pages.

- Simplify the non-Federal Table by combining the common radiocommunication service entries in the 3600–3650 MHz and 3650–3700 MHz bands to form the 3600–3700 MHz band, move the text of footnote NG185 to footnote NG169, and remove footnote NG185 from the list of non-Federal government (non-Federal) footnotes.

- Simplify the Federal Table by combining the common radiocommunication service entries in the 17.8–18.3 GHz and 18.3–18.6 GHz bands to form the 17.8–18.6 GHz band.

- Correct the placement of footnote NG65 in the non-Federal Table in the 24.75–25.25 GHz and 47.2–48.2 GHz bands by moving the footnote reference from the right of the fixed-satellite service (Earth-to-space) entry to the bottom of the cell because this footnote refers to three allocated services. For consistency in the Allocation Table, the Commission employs the following rules for footnote placement in both the International and U.S. Tables: The footnote references that appear below the allocated service or services apply to more than one of the allocated services, or to the whole of the allocation concerned. The footnote references that appear to the right of the name of a service are applicable only to that particular service. 47 CFR 2.104(h)(5)–(6).

- Correct footnotes 5.430A, 5.458, 5.509D, and 5.547 to reflect their text as shown in the Radio Regulations (ITU Radio Regulations, Vol. 1, Article 5, at 122, 132, 150, and 164). Specifically, the

Commission corrects footnotes: (1) 5.430A by deleting the last sentence (*i.e.*, “This allocation is effective from 17 November 2010.”); (2) 5.458 by changing from “6425–7025 MHz” to “6425–7075 MHz” in the last sentence; (3) 5.509D by changing from “19000” to “19 000” in the last sentence; and (4) 5.547 by changing from “Resolution 75 (WRC–12)” to “Resolution 75 (Rev.WRC–12).”

- Revise footnote US52 to account for now-expired text. Footnote US52 states that use of the frequencies 156.775 MHz and 156.825 MHz by the mobile-satellite service (Earth-to-space) is restricted to the reception of long-range Automatic Identification System (AIS) broadcast messages from ships. It also provided, in the text of the footnote, for port operations and ship navigation communications on these two frequencies (AIS 3 and AIS 4) until August 26, 2019. The Commission revises footnote US52 paragraph (b) to remove the reference to August 26, 2019. Previous port operations and ship navigation communications on these two frequencies (AIS 3 and AIS 4) expired on August 26, 2019 and are no longer permitted.

- Revise footnotes US100, US312, and NG33 to remove footnote text that pertains to dates that have passed (*i.e.*, expired text). Specifically, the Commission updates footnote US100 by removing the expired text in paragraph (b) providing that the 2345–2360 MHz band would be available for non-Federal aeronautical telemetering and associated telecommand operations for flight testing of aircraft and missiles until January 1, 2020; updates footnote US312 by limiting the use of the frequency 173.075 MHz by all stolen vehicle recovery systems to an authorized bandwidth not to exceed 12.5 kilohertz and striking language regarding operations on 20 kilohertz that expired on May 27, 2019; updates footnote NG33 by removing the expired text in paragraph (a), *i.e.*, the transition period for full-power and Class A television (TV) station and fixed TV broadcast auxiliary station operations in the 614–698 MHz band has concluded and the band is now used predominately for mobile broadband services. The Commission also corrects a typographical error, *i.e.*, white space devices may operate in the 657–663 MHz band in accordance with § 15.707(a)(2), instead of paragraph (a)(4), and simplifies the text of the footnote.

Paperwork Reduction Act Analysis

This document does not contain new or modified information collections

subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104–13 (44 U.S.C. 3501–3520). In addition, 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

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

None of the rule changes discussed in this Final Rule are subject to the notice and comment requirements for rulemaking in the Administrative Procedure Act (APA). Section 553(b)(B) of the APA provides exceptions to the notice and comment requirements for rulemakings when, among other things, the agency finds good cause that the notice and comment requirements are “impracticable, unnecessary, or contrary to the public interest” with respect to the rules at issue. The changes discussed in this Final Rule have no substantive effect on industry or the general public. Accordingly, the Commission finds that it is “unnecessary,” within the meaning of section 553(b)(B) of the APA, to provide notice and an opportunity for public comment before implementing these rule revisions. Because the rule changes are being implemented without notice and comment, the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*, does not apply.

Ordering Clause

It is ordered that, pursuant to sections 1, 4(i), 4(j), 7, 301, 303(c), 303(f), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i), 154(j), 157, 301, 303(c), 303(f), and 303(r), this Order is adopted.

It is further ordered that the amendments of part 2 of the Commission’s rules, as set forth in Appendix A of the Order, are adopted, effective thirty (30) days after publication in the **Federal Register**.

List of Subjects in 47 CFR Part 2

Radio.

Federal Communications Commission.

Marlene Dortch,
Secretary.

Final Rules

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR part 2 as follows:

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

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

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

■ 2. Amend § 2.106 as follows:

- a. Revise pages 3, 4, 19 through 28, 30, 33, 34, 38 through 42, 50, 52 through 56, 58 through 60, 62, 66, and 68 in paragraph (a);
- b. Revise paragraphs (b)(67) introductory text, (b)(67)(ii), and (b)(70);
- c. Remove and reserve paragraph (b)(71);
- d. Revise paragraphs (b)(77) and (79);
- e. Add paragraph (b)(82)(i) and reserved paragraph (b)(82)(ii);
- f. Revise paragraphs (b)(87), (107), (109) through (112), (114), (117), (118), (123), and (128), (b)(132) introductory text, (b)(132)(ii), (b)(133)(i) and (ii), (b)(134), (b)(141)(ii), (b)(145) introductory text, (b)(145)(ii), (b)(146) and (147), (b)(149) through (155), (b)(156) introductory text, (b)(156)(i), (b)(157) through (159), (b)(161)(i) and (ii), (b)(162)(i), and (b)(163) through (165);
- g. Add paragraph (b)(166);
- h. Revise paragraphs (b)(169), (171), (194), (201), and (202);
- i. Add paragraph (b)(203);
- j. Revise paragraphs (b)(204) and (b)(208)(i) and (ii);
- k. Add paragraph (b)(209)(i) and reserved (b)(209)(ii);
- l. Revise paragraphs (b)(211), (212), and (214);
- m. Add paragraph (b)(218)(i) and reserved (b)(218)(ii);
- n. Revise paragraphs (219) and (221);
- o. Redesignate paragraphs (b)(228)(i) through (vii) as paragraphs (b)(228)(iii) through (ix) and add new paragraphs (b)(228)(i) and (ii);
- p. Revise paragraphs (b)(242) and (252);
- r. Add paragraphs (b)(260) and (b)(264)(i) and (ii);
- s. Revise paragraphs (b)(265), (275), (277), and (278), (b)(279) introductory text, (b)(279)(i), (b)(280), (b)(286)(ii), (b)(287), (288), and (295), (b)(296) introductory text, (b)(296)(i), (b)(297), (b)(308) introductory text, and (b)(308)(i);

- t. Remove and reserve paragraph (b)(311);
 - u. Revise paragraphs (b)(312) introductory text, (b)(312)(i), (b)(313) and (316), (b)(317)(i), (b)(323), (b)(325)(i), (b)(328)(ii) and (iii), (b)(329) and (331), (b)(338)(i), (b)(341)(i) through (iii), (b)(345), (346), (349), and (350), (b)(351)(i), (b)(352), (359), (368), and (372);
 - t. Add paragraph (b)(373);
 - u. Revise paragraphs (b)(382), (b)(384)(i), (b)(388) introductory text, (b)(388)(ii), (b)(389)(i) and (iv), and (b)(393);
 - v. Remove and reserve paragraph (b)(396);
 - w. Revise paragraphs (b)(401), (418), and (428), (b)(429) introductory text, (b)(429)(i) through (iv) and (vi), (b)(430) introductory text, (b)(430)(i), (b)(431) introductory text, (b)(432), (b)(433)(i), (b)(434), (b)(441)(i) and (ii), (b)(444)(ii), and (b)(446)(i) and (iii);
 - x. Add paragraph (b)(446)(iv);
 - y. Revise paragraphs (b)(447) introductory text, (b)(447)(vi), (b)(448), (b)(450)(i), (b)(453), (455), (458), and (468), (b)(473) introductory text, (b)(474)(iv), (b)(477), (b)(478) introductory text, (b)(479) through (481) and (483), (b)(484)(ii), (b)(495) and (505), (b)(508) introductory text, (b)(509)(iii), and (b)(516)(ii);
 - z. Add paragraph (b)(517)(i) and reserved paragraph (b)(517)(ii);
 - aa. Revise paragraph (b)(530)(ii);
 - bb. Redesignate paragraph (b)(532)(ii) as paragraph (b)(532)(iv) and add new paragraph (b)(532)(ii) and paragraph (b)(532)(iii);
 - cc. Add paragraph (b)(534);
 - dd. Revise paragraphs (b)(536)(i) and (ii), (b)(537)(i), (b)(543)(i), and (b)(546) and (547);
 - ee. Add paragraphs (b)(550)(ii) through (v);
 - ff. Revise paragraph (b)(552)(i).
 - gg. Add paragraphs (b)(553)(i) and (ii), and (b)(555)(ii);
 - hh. Revise paragraph (b)(559)(i);
 - ii. Add paragraph (b)(559)(ii);
 - jj. Revise paragraph (b)(562)(ii);
 - kk. Remove and reserve paragraphs (b)(562)(vi) and (vii);
 - ll. Add paragraph (b)(564);
 - mm. Revise paragraph (c)(1)
 - nn. Redesignate Note 2 to paragraph (c)(22)(ii)(B) as Note 4 to § 2.106(c)(22)(ii)(B);
 - oo. Revise paragraph (c)(52);
 - pp. Add paragraph (c)(79)(iii);
 - qq. Revise paragraph (c)(82);
 - rr. Redesignate Note 3 to table 4 to paragraph (c)(83) as Note 5 to table 4 to § 2.106(c)(83);
 - ss. Redesignate Note 4 to paragraph (c)(88)(ii) as Note 6 to § 2.106(c)(88)(ii);
 - tt. Redesignate Note 5 to paragraph (c)(91)(ii)(B) as Note 7 to § 2.106(c)(91)(ii)(B);
 - uu. Redesignate Note 6 to paragraph (c)(91)(ii)(C) as Note 8 to § 2.106(c)(91)(ii)(C);
 - vv. Redesignate Note 7 to paragraph (c)(97) as Note 9 to § 2.106(c)(97);
 - ww. Revise paragraph (c)(100);
 - xx. Redesignate Note 8 to paragraph (c)(136)(ii) as Note 10 to § 2.106(c)(136)(ii);
 - yy. Redesignate Note 9 to paragraph (c)(161)(ii) as Note 11 to § 2.106(c)(161)(ii);
 - zz. Revise paragraphs (c)(247), (281), (283), (296), (312), and (342), and (c)(444)(ii);
 - aaa. Redesignate Note 10 to paragraph (c)(565) as Note 12 to § 2.106(c)(565);
 - bbb. Revise paragraph (d)(33);
 - ccc. Redesignate Note 11 to paragraph (d)(53) as Note 13 to paragraph (d)(53);
 - ddd. Revise paragraph (d)(169);
 - eee. Remove and reserve paragraph (d)(185); and
 - fff. Revise paragraphs (e)(2), (32), (115), and (132).
- The revisions and additions read as follows:

§ 2.106 Table of Frequency Allocations.

(a) * * *

Table of Frequency Allocations		137.8-1800 kHz (LF/MF)		Page 3	
		International Table		United States Table	
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	FCC Rule Part(s)
137.8-148.5 FIXED MARITIME MOBILE	137.8-160 FIXED MARITIME MOBILE	137.8-160 FIXED MARITIME MOBILE RADIO NAVIGATION	137.8-160 FIXED MARITIME MOBILE	137.8-160 FIXED MARITIME MOBILE	Maritime (80)
5.64 5.67 148.5-255 BROADCASTING	5.64 160-190 FIXED	5.64 160-190 FIXED Aeronautical radionavigation	5.64 160-190 FIXED	5.64 US2 160-190 FIXED	
5.68 5.69 5.70 255-283.5 BROADCASTING AERONAUTICAL RADIONAVIGATION	190-200 AERONAUTICAL RADIONAVIGATION	190-200 AERONAUTICAL RADIONAVIGATION	190-200 AERONAUTICAL RADIONAVIGATION	190-200 AERONAUTICAL RADIONAVIGATION US18	Aviation (87)
5.70 283.5-315 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	200-275 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	200-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	200-275 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	US2 AERONAUTICAL RADIONAVIGATION US18 Aeronautical mobile	
5.74 315-325 AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73 5.75 325-405 AERONAUTICAL RADIONAVIGATION	275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)	275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)	275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)	US2 275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)	
5.74 315-325 AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73 5.75 325-405 AERONAUTICAL RADIONAVIGATION	285-315 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	285-315 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	285-315 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	285-325 MARITIME RADIONAVIGATION (radiobeacons) 5.73 Aeronautical radionavigation (radiobeacons)	
5.74 315-325 AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73 5.75 325-405 AERONAUTICAL RADIONAVIGATION	315-325 MARITIME RADIONAVIGATION (radiobeacons) 5.73	315-325 MARITIME RADIONAVIGATION (radiobeacons) 5.73	315-325 MARITIME RADIONAVIGATION (radiobeacons) 5.73	US2 US18 US364 325-335 AERONAUTICAL RADIONAVIGATION (radiobeacons) Aeronautical mobile Maritime radionavigation (radiobeacons)	Aviation (87)
5.74 315-325 AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73 5.75 325-405 AERONAUTICAL RADIONAVIGATION	325-405 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)	325-405 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	325-405 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	US2 US18 335-405 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18 Aeronautical mobile	
405-415 RADIO NAVIGATION 5.76	405-415 RADIO NAVIGATION 5.76 Aeronautical mobile	405-415 RADIO NAVIGATION 5.76 Aeronautical mobile	405-415 RADIO NAVIGATION 5.76 Aeronautical mobile	405-415 RADIO NAVIGATION 5.76 US18 Aeronautical mobile	Maritime (80) Aviation (87)
415-435 MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION	415-472 MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 5.80	415-472 MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 5.80	415-435 MARITIME MOBILE US79A AERONAUTICAL RADIONAVIGATION	415-435 MARITIME MOBILE US79A AERONAUTICAL RADIONAVIGATION US2	

435-472 MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77		435-472 MARITIME MOBILE US79A Aeronautical radionavigation	435-472 MARITIME MOBILE US79A	
5.82	5.78 5.82	5.82 US2 US231	5.82 US2 US231	
472-479 MARITIME MOBILE 5.79 Amateur 5.80A Aeronautical radionavigation 5.77 5.80		472-479	472-479 Amateur 5.80A	Amateur Radio (97)
5.80B 5.82		US2	5.82 US2 NG8	
479-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77	479-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77 5.80	479-495 MARITIME MOBILE US79A 5.79A Aeronautical radionavigation	479-495 MARITIME MOBILE US79A 5.79A	Maritime (80)
5.82	5.82	5.82 US2 US231	5.82 US2 US231	
495-505 MARITIME MOBILE 5.82C		495-505 MARITIME MOBILE		Maritime (80) Aviation (87)
505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	505-510 MARITIME MOBILE 5.79	505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Land mobile	505-510 MARITIME MOBILE US79A	Maritime (80)
	510-525 MARITIME MOBILE 5.79A 5.84 AERONAUTICAL RADIONAVIGATION		510-525 MARITIME MOBILE (ships only) 5.79A 5.84 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18 US14 US225	Maritime (80) Aviation (87)
526.5-1606.5 BROADCASTING	525-535 BROADCASTING 5.86 AERONAUTICAL RADIONAVIGATION	526.5-535 BROADCASTING Mobile 5.86	525-535 MOBILE US221 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18	Aviation (87) Private Land Mobile (90)
	535-1605 BROADCASTING	535-1606.5 BROADCASTING	US239	
5.87 5.87A	1605-1625 BROADCASTING 5.89	1606.5-1800 FIXED MOBILE RADIOLOCATION RADIONAVIGATION	535-1605	Radio Broadcast (AM)(73) Private Land Mobile (90)
1606.5-1625 FIXED MARITIME MOBILE 5.90 LAND MOBILE			1605-1615 MOBILE US221 G127	
5.92	5.90		1615-1705	Radio Broadcast (AM)(73) Alaska Fixed (80) Private Land Mobile (90)
1625-1635 RADIOLOCATION	1625-1705 FIXED MOBILE BROADCASTING 5.89 Radiolocation		US299	
5.93	5.90		1705-1800 FIXED MOBILE RADIOLOCATION	Alaska Fixed (80) Private Land Mobile (90)
1635-1800 FIXED MARITIME MOBILE 5.90 LAND MOBILE	1705-1800 FIXED MOBILE RADIOLOCATION AERONAUTICAL RADIONAVIGATION	5.91	US299 NG1 NG5	
5.92 5.96			US240	

Table of Frequency Allocations			41.015-117.975 MHz (VHF)		Page 19
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			40-41.015 MHz: see previous page		
41.015-42 FIXED MOBILE			41.015-41.665 FIXED MOBILE RADIOLOCATION US132A US220	41.015-41.665 RADIOLOCATION US132A US220	Private Land Mobile (90)
5.160 5.161 5.161A			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		42-43.35	42-43.35 FIXED LAND MOBILE	Public Mobile (22) Private Land Mobile (90)
42.5-44 FIXED MOBILE	5.161			NG124 NG141	
5.160 5.161 5.161A			43.35-44 RADIOLOCATION US132A	43.35-43.69 FIXED LAND MOBILE RADIOLOCATION US132A NG124	
44-47 FIXED MOBILE				43.69-44 LAND MOBILE RADIOLOCATION US132A NG124	Private Land Mobile (90)
5.162 5.162A			44-46.6	44-46.6 LAND MOBILE NG124 NG141	
47-50 BROADCASTING	47-50 FIXED MOBILE	47-50 FIXED MOBILE BROADCASTING	46.6-47 FIXED MOBILE	46.6-47	
5.162A 5.163 5.164 5.165		5.162A	47-49.6	47-49.6 LAND MOBILE NG124	Private Land Mobile (90)
50-52 BROADCASTING Amateur 5.166A 5.166B 5.166C 5.166D 5.166E 5.169 5.169A 5.169B	50-54 AMATEUR		49.6-50 FIXED MOBILE	49.6-50	
5.162A 5.164 5.165			50-54	50-54 AMATEUR	Amateur Radio (97)
	5.162A 5.167 5.167A 5.168 5.170				

52-68 BROADCASTING	54-68 BROADCASTING Fixed Mobile	54-68 FIXED MOBILE BROADCASTING 5.162A	54-73	54-72 BROADCASTING	Broadcast Radio (TV)(73) LPTV, TV Translator/ Booster (74G) Low Power Auxiliary (74H)
5.162A 5.163 5.164 5.165 5.169 5.169A 5.169B 5.171	68-72 BROADCASTING Fixed Mobile	68-74.8 FIXED MOBILE	73-74.6 RADIO ASTRONOMY US246	NG5 NG14 NG115 NG149 72-73 FIXED MOBILE NG3 NG16 NG56	Public Mobile (22) Maritime (80) Aviation (87) Private Land Mobile (90) Personal Radio (95)
68-74.8 FIXED MOBILE except aeronautical mobile	5.173	5.149 5.176 5.179	74.6-74.8 FIXED MOBILE	74.6-74.8 FIXED MOBILE	Private Land Mobile (90)
5.149 5.175 5.177 5.179 74.8-75.2	73-74.6 RADIO ASTRONOMY 5.178	5.180 5.181	74.8-75.2 AERONAUTICAL RADIONAVIGATION	74.8-75.2 AERONAUTICAL RADIONAVIGATION	Aviation (87)
AERONAUTICAL RADIONAVIGATION	75.2-75.4 FIXED MOBILE	75.2-75.4 FIXED MOBILE	75.2-75.4 FIXED MOBILE	75.4-76 FIXED MOBILE	Private Land Mobile (90)
5.180 5.181 75.2-87.5 FIXED MOBILE except aeronautical mobile	75.4-76 FIXED MOBILE	75.4-88	75.4-88	75.4-76 FIXED MOBILE NG3 NG16 NG56 76-88 BROADCASTING	Public Mobile (22) Maritime (80) Aviation (87) Private Land Mobile (90) Personal Radio (95)
5.175 5.179 5.187 87.5-100	76-88 BROADCASTING Fixed Mobile	5.182 5.183 5.188	88-108	NG5 NG14 NG115 NG149 88-108 BROADCASTING NG2	Broadcast Radio (TV)(73) LPTV, TV Translator/ Booster (74G) Low Power Auxiliary (74H)
BROADCASTING	5.185	88-100 BROADCASTING	88-108	88-108 BROADCASTING NG2	Broadcast Radio (FM)(73) FM Translator/Booster (74L)
5.190 100-108 BROADCASTING	88-100 BROADCASTING	US93	US93	US93 NG5	Aviation (87)
5.192 5.194 108-117.975 AERONAUTICAL RADIONAVIGATION	108-117.975 AERONAUTICAL RADIONAVIGATION	5.197A 5.197B 5.197C 5.197D 5.197E 5.197F 5.197G 5.197H 5.197I 5.197J 5.197K 5.197L 5.197M 5.197N 5.197O 5.197P 5.197Q 5.197R 5.197S 5.197T 5.197U 5.197V 5.197W 5.197X 5.197Y 5.197Z	108-117.975 AERONAUTICAL RADIONAVIGATION	US93 NG5	Page 20

Table of Frequency Allocations			117.975-150.8 MHz (VHF)		Page 21
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
117.975-137			117.975-121.9375 AERONAUTICAL MOBILE (R)		Aviation (87)
AERONAUTICAL MOBILE (R)			5.111 5.200 US26 US28 US36		
			121.9375-123.0875	121.9375-123.0875 AERONAUTICAL MOBILE	
			US30 US31 US33 US80 US102 US213	US30 US31 US33 US80 US102 US213	
			123.0875-123.5875 AERONAUTICAL MOBILE		
			5.200 US32 US33 US112		
			123.5875-128.8125 AERONAUTICAL MOBILE (R)		
			US26 US36		
			128.8125-132.0125	128.8125-132.0125 AERONAUTICAL MOBILE (R)	
			132.0125-136 AERONAUTICAL MOBILE (R)		
			US26		
			136-137	136-137 AERONAUTICAL MOBILE (R)	
			US244	US244	
5.111 5.200 5.201 5.202					Satellite Communications (25)
137-137.025			137-137.025		
SPACE OPERATION (space-to-Earth) 5.203C METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R)			SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 SPACE RESEARCH (space-to-Earth)		
5.204 5.205 5.206 5.207 5.208			5.208		
137.025-137.175			137.025-137.175		Satellite Communications (25)
SPACE OPERATION (space-to-Earth) 5.203C METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209			SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) US319 US320		
5.204 5.205 5.206 5.207 5.208			5.208		
137.175-137.825			137.175-137.825		
SPACE OPERATION (space-to-Earth) 5.203C 5.209A METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R)			SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 SPACE RESEARCH (space-to-Earth)		
5.204 5.205 5.206 5.207 5.208			5.208		

137.825-138 SPACE OPERATION (space-to-Earth) 5.203C METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) 5.208A 5.2088 5.209 5.204 5.205 5.206 5.207 5.208 138-143.6 AERONAUTICAL MOBILE (OR)	138-143.6 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	138-143.6 FIXED MOBILE Space research (space-to-Earth)	138-144 FIXED MOBILE	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
5.210 5.211 5.212 5.214 143.6-143.65 AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth)	143.6-143.65 FIXED MOBILE RADIOLOCATION SPACE RESEARCH (space-to-Earth)	143.6-143.65 FIXED MOBILE SPACE RESEARCH (space-to-Earth)		
5.211 5.212 5.214 143.65-144 AERONAUTICAL MOBILE (OR)	143.65-144 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	143.65-144 FIXED MOBILE Space research (space-to-Earth)		
5.210 5.211 5.212 5.214 144-146 AMATEUR AMATEUR-SATELLITE	144-146 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	144-146 FIXED MOBILE Space research (space-to-Earth)	G30 144-148	G30 144-146 AMATEUR AMATEUR-SATELLITE
5.216 146-148 FIXED MOBILE except aeronautical mobile (R)	146-148 AMATEUR	146-148 AMATEUR FIXED MOBILE 5.217		146-148 AMATEUR
148-149.9 FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209	148-149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209	148-149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209	148-149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) US319 US320 US323 US325	148-149.9 MOBILE-SATELLITE (Earth-to-space) US320 US323 US325
5.218 5.218A 5.219 5.221 149.9-150.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.220	5.218 5.218A 5.219 5.221	5.218 5.218A 5.219 5.221	5.218 5.219 G30 149.9-150.05	5.218 5.219 US319
150.05-153 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	150.05-154 FIXED MOBILE	150.05-154 FIXED MOBILE	150.05-150.8 FIXED MOBILE US73 G30	150.05-150.8 MOBILE-SATELLITE (Earth-to-space) US319 US320 RADIO NAVIGATION-SATELLITE 150.05-150.8

Table of Frequency Allocations				150.8-162.0375 MHz (VHF)		Page 23	
International Table				United States Table		FCC Rule Part(s)	
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table			
150.05-153 MHz: see previous page	150.05-154 MHz: see previous page		150.8-152.855	150.8-152.855	Public Mobile (22) Private Land Mobile (90)		
153-154 FIXED MOBILE except aeronautical mobile (R) Meteorological aids			US73 152.855-156.2475	LAND MOBILE NG4 NG51 NG112 US73 NG124 152.855-154 LAND MOBILE NG4	Personal Radio (95) Remote Pickup (74D) Private Land Mobile (90)		
154-156.4875 FIXED MOBILE except aeronautical mobile (R)	154-156.4875 FIXED MOBILE			NG124 154-156.2475 FIXED LAND MOBILE NG112 5.226 NG22 NG124 NG148 156.2475-156.5125 MARITIME MOBILE NG22	Maritime (80) Private Land Mobile (90) Personal Radio (95)		
5.225A 5.226 156.4875-156.5625 MARITIME MOBILE (distress and calling via DSC)	5.226	5.225A 5.226	156.2475-156.5125 5.226 US52 US227 US266 156.5125-156.5375 MARITIME MOBILE (distress, urgency, safety and calling via DSC)	5.226 US52 US227 US266 156.5125-156.5375 MARITIME MOBILE NG22 5.226 US52 US227 US266 NG124 156.5125-156.5375 MARITIME MOBILE (distress, urgency, safety and calling via DSC)	Maritime (80) Aviation (87)		
5.111 5.226 5.227 156.5625-156.7625 FIXED MOBILE except aeronautical mobile (R)	156.5625-156.7625 FIXED MOBILE		5.111 5.226 5.228 156.5375-156.7625	156.5375-156.7625 MARITIME MOBILE			
5.226 156.7625-156.7875 MARITIME MOBILE MOBILE-satellite (Earth-to-space)	156.7625-156.7875 MARITIME MOBILE MOBILE-satellite (Earth-to-space)	156.7625-156.7875 MARITIME MOBILE MOBILE-satellite (Earth-to-space)	5.226 US52 US227 US266 156.7625-156.7875	5.226 US52 US227 US266 156.7625-156.7875			
5.111 5.226 5.228 156.7875-156.8125 MARITIME MOBILE (distress and calling)	5.111 5.226 5.228	5.111 5.226 5.228	MOBILE-SATELLITE (Earth-to-space) (AIS 3) 5.226 US52 US266 156.7875-156.8125 MARITIME MOBILE (distress, urgency, safety and calling)	MOBILE-SATELLITE (Earth-to-space) (AIS 3) 5.226 US52 US266 156.7875-156.8125 MARITIME MOBILE (distress, urgency, safety and calling)	Satellite Communications (25) Maritime (80)		
5.111 5.226 156.8125-156.8375 MARITIME MOBILE MOBILE-satellite (Earth-to-space)	156.8125-156.8375 MARITIME MOBILE MOBILE-satellite (Earth-to-space)	156.8125-156.8375 MARITIME MOBILE MOBILE-satellite (Earth-to-space)	5.111 5.226 5.228 156.8125-156.8375	5.111 5.226 5.228 156.8125-156.8375	Maritime (80) Aviation (87)		
5.111 5.226 5.228 156.8375-157.1875 FIXED MOBILE except aeronautical mobile	5.111 5.226 5.228 156.8375-157.1875 FIXED MOBILE	5.111 5.226 5.228	MOBILE-SATELLITE (Earth-to-space) (AIS 4) 5.226 US52 US266 156.8375-157.0375	MOBILE-SATELLITE (Earth-to-space) (AIS 4) 5.226 US52 US266 156.8375-157.0375	Satellite Communications (25) Maritime (80)		
5.226 157.1875-157.3375 FIXED MOBILE except aeronautical mobile Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC	5.226 157.1875-157.3375 FIXED MOBILE Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC	5.226 157.1875-157.3375 FIXED MOBILE Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC	157.0375-157.1875 MARITIME MOBILE US214 5.226 US266 G109 157.1875-161.575	156.8375-157.0375 MARITIME MOBILE 5.226 US52 US266 157.0375-157.1875 157.0375-157.1875	Maritime (80) Aviation (87) Maritime (80)		
5.226 157.1875-157.3375 FIXED MOBILE except aeronautical mobile Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC	5.226 157.1875-157.3375 FIXED MOBILE Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC	5.226 157.1875-157.3375 FIXED MOBILE Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC	157.1875-161.575	5.226 US214 US266 157.1875-157.45 MOBILE except aeronautical mobile US266	Maritime (80) Aviation (87) Private Land Mobile (90)		

157.3375-161.7875 FIXED MOBILE	157.3375-161.7875 FIXED MOBILE	5.226 NG111 157.45-161.575 FIXED LAND MOBILE NG28 NG111 NG112 Maritime (80) Private Land Mobile (90)	Public Mobile (22) Remote Pickup (74D) Maritime (80) Private Land Mobile (90)
5.226 161.7875-161.9375 FIXED MOBILE Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC	5.226 161.7875-161.9375 FIXED MOBILE Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC	161.575-161.625 MARITIME MOBILE 5.226 US52 161.625-161.9625	Public Mobile (22) Maritime (80) Public Mobile (22) Remote Pickup (74D) Low Power Auxiliary (74H)
5.226 161.9375-161.9625 FIXED 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	5.226 161.775-161.9625 MOBILE except aeronautical mobile US266 NG6	Maritime (80) Private Land Mobile (90)
5.226 161.9625-161.9875 FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F	5.226 161.9625-161.9875 AERONAUTICAL MOBILE (OR) MARITIME MOBILE MOBILE-SATELLITE (Earth-to-space)	US266 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)
5.226 5.228A 5.228B 161.9875-162.0125 FIXED MOBILE Maritime mobile-satellite (Earth-to-space) 5.228AA	5.228C 5.228D 161.9875-162.0125 FIXED MOBILE Maritime mobile-satellite (Earth-to-space) 5.228AA	5.228C US52 161.9875-162.0125 MOBILE except aeronautical mobile	Maritime (80)
5.226 5.228A 5.228B 5.229 162.0125-162.0375 FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F	162.0125-162.0375 AERONAUTICAL MOBILE (OR) MARITIME MOBILE MOBILE-SATELLITE (Earth-to-space)	162.0125-162.0375 AERONAUTICAL MOBILE (OR) (AIS 2) MARITIME MOBILE (AIS 2) MOBILE-SATELLITE (Earth-to-space) (AIS 2)	Satellite Communications (25) Maritime (80)
5.226 5.228A 5.228B 5.229	5.228C 5.228D	5.228C US52	Page 24

235-267 FIXED MOBILE	235-267		
5.111 5.252 5.254 5.256 5.256A 267-322	5.111 5.256 G27 G100 267-322		
FIXED MOBILE	FIXED MOBILE		
Space operation (space-to-Earth) 5.254 5.257			
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			
322-328.6	G27 G100 322-328.6		
FIXED MOBILE	FIXED MOBILE		
RADIO ASTRONOMY			
5.149	US342 G27		
328.6-335.4	328.6-335.4		
AERONAUTICAL RADIONAVIGATION 5.258	AERONAUTICAL RADIONAVIGATION 5.258		Aviation (87)
5.259			
335.4-399.9	335.4-399.9		
FIXED MOBILE	FIXED MOBILE		
5.254			
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	399.9-400.05		
MOBILE-SATELLITE (Earth-to-space) 5.209 5.220 5.260A 5.260B	MOBILE-SATELLITE (Earth-to-space) US319 US320 RADIONAVIGATION-SATELLITE		Satellite Communications (25)

Table of Frequency Allocations			400.05-456 MHz (UHF)		Page 27	
International Table		United States Table		FCC Rule Part(s)		
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table		
400.05-400.15			400.05-400.15			
STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz)						
5.261 5.262			5.261			
400.15-401			400.15-401			
METEOROLOGICAL AIDS			METEOROLOGICAL AIDS (radiosonde) US70			
MOBILE-SATELLITE (space-to-Earth)			MOBILE-SATELLITE (space-to-Earth) US319 US320 US324			
SPACE RESEARCH (space-to-Earth) 5.263			SPACE RESEARCH (space-to-Earth) 5.263			
Space operation (space-to-Earth)			Space operation (space-to-Earth)			
5.264 5.264B			5.264			
401-402			401-402			
METEOROLOGICAL AIDS			METEOROLOGICAL AIDS (radiosonde) US70			
SPACE OPERATION (space-to-Earth)			SPACE OPERATION (space-to-Earth)			
EARTH EXPLORATION-SATELLITE (Earth-to-space)			EARTH EXPLORATION-SATELLITE (Earth-to-space)			
METEOROLOGICAL-SATELLITE (Earth-to-space)			METEOROLOGICAL-SATELLITE (Earth-to-space)			
Fixed			Fixed			
Mobile except aeronautical mobile			Mobile except aeronautical mobile			
5.264A 5.264B			5.264A US384			
402-403			402-403			
METEOROLOGICAL AIDS			METEOROLOGICAL AIDS (radiosonde) US70			
EARTH EXPLORATION-SATELLITE (Earth-to-space)			EARTH EXPLORATION-SATELLITE (Earth-to-space)			
METEOROLOGICAL-SATELLITE (Earth-to-space)			METEOROLOGICAL-SATELLITE (Earth-to-space)			
Fixed			Fixed			
Mobile except aeronautical mobile			Mobile except aeronautical mobile			
5.264A 5.264B			5.264A US384			
403-406			403-406			
METEOROLOGICAL AIDS			METEOROLOGICAL AIDS (radiosonde) US70			
Fixed			Fixed			
Mobile except aeronautical mobile			Mobile except aeronautical mobile			
5.265			5.265			
406-406.1			406-406.1			
MOBILE-SATELLITE (Earth-to-space)			MOBILE-SATELLITE (Earth-to-space)			
5.265 5.266 5.267			5.265 5.266 5.267			
406.1-410			406.1-410			
FIXED			FIXED			
MOBILE except aeronautical mobile			MOBILE			
RADIO ASTRONOMY			RADIO ASTRONOMY US74			
5.149 5.265			US13 US55 US117 G5 G6			
			US13 US55 US117			

Satellite Communications (25)

MedRadio (951)

Maritime (EPIRBs) (80V)
Aviation (ELTs) (87F)
Personal Radio (95)

Private Land Mobile (90)

<p>410-420 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268 US13 US55 US64 G5</p>	<p>410-420 FIXED MOBILE SPACE RESEARCH (space-to-space) 5.268 US13 US55 US64 G5</p>	<p>Private Land Mobile (90) MedRadio (95I)</p>
<p>420-430 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271</p>	<p>420-450 Amateur US270</p>	<p>Private Land Mobile (90) MedRadio (95I) Amateur Radio (97)</p>
<p>430-432 AMATEUR RADIOLOCATION 5.271 5.274 5.275 5.276 5.277 432-438 AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A</p>	<p>430-432 RADIOLOCATION Amateur 5.271 5.276 5.277 5.278 5.279 432-438 RADIOLOCATION Amateur Earth exploration-satellite (active) 5.279A</p>	
<p>5.138 5.271 5.276 5.277 5.280 5.281 5.282 438-440 AMATEUR RADIOLOCATION 5.271 5.274 5.275 5.276 5.277 5.283</p>	<p>5.286 US64 US87 US230 US289 US270 US397 G8 450-454</p>	<p>Remote Pickup (74D) Low Power Auxiliary (74H) Private Land Mobile (90) MedRadio (95I)</p>
<p>440-450 FIXED MOBILE except aeronautical mobile Radiolocation 5.289 5.270 5.271 5.284 5.285 5.286 450-455 FIXED MOBILE 5.286AA</p>	<p>5.286 US64 US87 US230 US289 US270 US397 G8 450-454</p>	<p>Public Mobile (22) Maritime (80) MedRadio (95I)</p>
<p>5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E 455-456 FIXED MOBILE 5.286AA MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209</p>	<p>5.286 US64 US87 454-456</p>	<p>Remote Pickup (74D) Low Power Auxiliary (74H) MedRadio (95I)</p>
<p>5.209 5.271 5.286A 5.286B 5.286C 5.286E</p>	<p>US64</p>	<p>Remote Pickup (74D) Low Power Auxiliary (74H) MedRadio (95I)</p>

5.149 5.291A 5.294 5.296 5.300 5.304 5.306 5.312 694-790 MOBILE except aeronautical mobile 5.312A 5.317A BROADCASTING	614-698 BROADCASTING Fixed Mobile 5.293 5.308 5.308A 5.309		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)
	698-806 MOBILE 5.317A BROADCASTING Fixed			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)
5.300 5.312 790-862 FIXED MOBILE except aeronautical mobile 5.316B 5.317A BROADCASTING	5.293 5.309			775-788 FIXED MOBILE BROADCASTING NG159	Wireless Communications (27) LPTV and TV Translator (74G)
5.312 5.319 862-890 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322	806-890 FIXED MOBILE 5.317A BROADCASTING			788-805 FIXED MOBILE NG34 NG159	Public Safety Land Mobile (90R)
5.319 5.323	5.317 5.318	5.149 5.305 5.306 5.307 5.320		805-806 FIXED MOBILE BROADCASTING NG159	Wireless Communications (27) LPTV and TV Translator (74G)
				806-809 LAND MOBILE 809-849 FIXED LAND MOBILE	Public Safety Land Mobile (90S) Public Mobile (22) Private Land Mobile (90)
				849-851 AERONAUTICAL MOBILE 851-854 LAND MOBILE	Public Mobile (22)
				854-894 FIXED LAND MOBILE	Public Safety Land Mobile (90S) Public Mobile (22) Private Land Mobile (90)
				US116 US268	Page 30

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	1427-1429.5 LAND MOBILE (telemetry and telecommand) Fixed (telemetry)	Private Land Mobile (90) Personal Radio (95)
1429-1452 FIXED MOBILE except aeronautical mobile 5.341A	1429-1452 FIXED MOBILE 5.341B 5.341C 5.343		5.341 US79 1429.5-1432	5.341 US79 US350 NG338A 1429.5-1432 FIXED (telemetry and telecommand) LAND MOBILE (telemetry and telecommand)	
5.338A 5.341 5.342	5.338A 5.341		5.341 US79 US350 1432-1435	5.341 US79 US350 NG338A 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		Aviation (87)
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		
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		Satellite Communications (25) Maritime (80)

<p>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]</p>	<p>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</p>		
<p>1535-1559 MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A</p>		<p>5.341 5.342 5.351 5.354</p>	<p>5.341 5.351</p>
<p>1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.208B 5.328B 5.329A</p>		<p>5.341 5.351 5.353A 5.354 5.355 5.356 5.357 5.357A 5.359 5.362A</p>	<p>1559-1559 MOBILE-SATELLITE (space-to-Earth) US308 US309 US315 US380 5.341 5.351 5.356</p>
<p>1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION</p>		<p>1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space)</p>	<p>1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth)(space-to-space) 5.341 US85 US208 US260</p>
<p>1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION</p>		<p>1610-1610.6 MOBILE-SATELLITE (Earth-to-space) US319 US380 AERONAUTICAL RADIONAVIGATION US260 RADIODETERMINATION-SATELLITE (Earth-to-space)</p>	<p>5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372</p>
<p>1613.8-1621.35 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B</p>		<p>1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space)</p>	<p>5.341 5.364 5.366 5.367 5.368 5.372 US208</p>
<p>1621.35-1626.5 MARITIME MOBILE-SATELLITE (space-to-Earth) 5.373 5.373A MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) except maritime mobile-satellite (space-to-Earth)</p>		<p>1613.8-1621.35 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) 5.208B</p>	<p>5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372</p>
<p>5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372</p>		<p>1621.35-1626.5 MARITIME MOBILE-SATELLITE (space-to-Earth) 5.373 5.373A MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) except maritime mobile-satellite (space-to-Earth) Radiodetermination-satellite (Earth-to-space)</p>	<p>5.149 5.341 5.364 5.366 5.367 5.368 5.370 5.372</p>
<p>5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372</p>		<p>1613.8-1621.35 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B Radiodetermination-satellite (Earth-to-space)</p>	<p>5.341 5.364 5.366 5.367 5.368 5.372 US208 US342</p>
<p>5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372</p>		<p>1613.8-1621.35 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B Radiodetermination-satellite (Earth-to-space)</p>	<p>5.341 5.364 5.366 5.367 5.368 5.372 US208</p>

		2310-2320 Fixed Mobile US100 Radiolocation G2 US97 US327	2310-2320 FIXED MOBILE BROADCASTING-SATELLITE RADIOLOCATION US97 US100 US327	Wireless Communications (27)
		2320-2345 Fixed Radiolocation G2 US327	2320-2345 BROADCASTING-SATELLITE US327	Satellite Communications (25)
		2345-2360 Fixed Mobile US100 Radiolocation G2 US327	2345-2360 FIXED MOBILE US100 BROADCASTING-SATELLITE RADIOLOCATION US327	Wireless Communications (27)
		2360-2390 MOBILE US276 RADIOLOCATION G2 G120 Fixed US101	2360-2390 MOBILE US276 US101	Aviation (87) Personal Radio (95)
		2390-2395 MOBILE US276 US101	2390-2395 AMATEUR MOBILE US276 US101	Aviation (87) Personal Radio (95) Amateur Radio (97)
		2395-2400 US101 G122	2395-2400 AMATEUR US101	Personal Radio (95) Amateur Radio (97)
		2400-2417 5.150 G122	2400-2417 AMATEUR 5.150 5.282	RF Devices (15) ISM Equipment (18) Amateur Radio (97)
		2417-2450 Radiolocation G2 5.150	2417-2450 Amateur 5.150 5.282	
5.150 5.282 5.395	5.150 5.282 5.393 5.394	2450-2483.5 FIXED MOBILE Radiolocation	2450-2483.5 FIXED MOBILE Radiolocation	RF Devices (15) ISM Equipment (18) TV Auxiliary Broadcasting (74F) Private Land Mobile (90) Fixed Microwave (101)
5.150	5.150	5.150 US41	5.150 US41	

Table of Frequency Allocations		2483.5-3600 MHz (UHF/SHF)		Page 39	
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-SATEL- LITE (space-to-Earth) 5.398 5.150 5.402 US41 US319 NG147 2495-2500 FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to- Earth) US380 RADIODETERMINATION-SATEL- LITE (space-to-Earth) 5.398 5.150 5.402 US41 US319 US391 NG147	ISM Equipment (18) Satellite Communi- cations (25)
5.150 5.399 5.401 5.402 2500-2520 FIXED 5.410 MOBILE except aeronautical mobile 5.384A	5.150 5.402 2500-2520 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A	5.150 5.401 5.402 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	5.150 5.402 US41 2500-2655	2500-2655 FIXED US205 MOBILE except aeronautical mobile	Wireless Communi- cations (27)
5.412 2520-2655 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416	5.404 2520-2655 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416	5.404 5.415A 2520-2535 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.403 5.414A 5.415A 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 2655-2670 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.208B 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive)	5.339 5.418B 5.418C 2655-2670 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive)	5.339 5.418 5.418A 5.418B 5.418C 2655-2670 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive)	5.339 US205 2655-2690 Earth exploration-satellite (passive) Radio astronomy US385 Space research (passive)	5.339 2655-2690 FIXED US205 MOBILE except aeronautical mobile Earth exploration-satellite (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)	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)	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 5.412	5.149	5.149	US205	US385	
2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)			2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive)		
5.340 5.422			US246		
2700-2900 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation			2700-2900 METEOROLOGICAL AIDS AERONAUTICAL RADIONAVIGATION 5.337 US18 Radiolocation G2	2700-2900	Aviation (87)
5.423 5.424			5.423 G15	5.423 US18	
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)			3100-3300 RADIOLOCATION G59 Earth exploration-satellite (active) Space research (active)	3100-3300 Earth exploration-satellite (active) Space research (active) Radiolocation	Private Land Mobile (90)
5.149 5.428			US342	US342	
3300-3400 RADIOLOCATION	3300-3400 RADIOLOCATION Amateur Fixed Mobile	3300-3400 RADIOLOCATION Amateur	3300-3500 RADIOLOCATION US431B G2	3300-3450	
5.149 5.429 5.429A 5.429B 5.430	5.149 5.429C 5.429D	5.149 5.429 5.429E 5.429F		US103 US342	
3400-3600 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.430A Radiolocation	3400-3500 FIXED FIXED-SATELLITE (space-to-Earth) 5.431A 5.431B MOBILE except aeronautical mobile 5.431B Amateur Radiolocation 5.433	3400-3500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile 5.432 5.432B Radiolocation 5.433		3450-3600 FIXED MOBILE except aeronautical mobile	Wireless Communications (27) Citizens Broadband (96)
5.431	5.282	5.282 5.432A	US103 US342	US103 US105 US431B US433	

Table of Frequency Allocations		3600-5460 MHz (SHF)		United States Table		FCC Rule Part(s)
		International Table		Non-Federal Table		
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table			
3400-3600 MHz: 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 US103 US431B 3550-3650 RADIOLOCATION G59 AERONAUTICAL RADIONAVIGATION (ground-based) G110		3500-3600 MHz: see previous page	
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	US105 US107 US245 US433 3650-3700		3600-3700 FIXED FIXED-SATELLITE (space-to-Earth) US107 US245 NG169 MOBILE except aeronautical mobile	Satellite Communications (25) Citizens Broadband (96)
	3700-4200 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	5.435	US109 US349 3700-4200		US105 US109 US349 US433 3700-4000 FIXED MOBILE except aeronautical mobile NG182 NG457A 4000-4200 FIXED FIXED-SATELLITE (space-to-Earth) NG457A NG182	Wireless Communications (27) 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			US113 US245 US342 4940-4990		4500-4800 FIXED-SATELLITE (space-to-Earth) 5.441 US245	
4800-4990 FIXED MOBILE 5.440A 5.441A 5.441B 5.442 Radio astronomy			5.339 US342 US385 G122 4990-5000 RADIO ASTRONOMY US74 Space research (passive)		4800-4940 US113 US342 4940-4990 FIXED MOBILE except aeronautical mobile	Public Safety Land Mobile (90Y)
5.149 5.339 5.443 4990-5000 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive)			US246		5.339 US342 US385	

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)	Aviation (87)
5010-5030 AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B	US211 5010-5030 AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION US260 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.443B	
5030-5091 AERONAUTICAL MOBILE (R) 5.443C AERONAUTICAL MOBILE-SATELLITE (R) 5.443D AERONAUTICAL RADIONAVIGATION 5.444	US115 US211 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 MOBILE except aeronautical mobile 5.446A 5.446B AERONAUTICAL RADIONAVIGATION 5.446 5.446C 5.446D 5.447 5.447B 5.447C	5150-5250 AERONAUTICAL RADIONAVIGATION US260 US211 US307 US344 5250-5255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.447D 5.448A	RF Devices (15) 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 Space research 5.447C US211 US307 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 5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B RADIOLOCATION G56 AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448C	Aviation (87) Private Land Mobile (90)
5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B RADIOLOCATION 5.448D AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448C	US390 G130 5350-5460 AERONAUTICAL RADIONAVIGATION 5.449 Earth exploration-satellite (active) 5.448B Radiolocation Space research (active) US390	Page 42

<p>13.4-13.65 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.499C 5.499D Standard frequency and time signal-satellite (Earth-to-space)</p>	<p>13.4-13.65 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.499C 5.499D Standard frequency and time signal-satellite (Earth-to-space)</p>	<p>13.4-13.75 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION GS9 SPACE RESEARCH 5.499C 5.499D 5.501A Standard frequency and time signal-satellite (Earth-to-space)</p>	<p>13.4-13.75 Earth exploration-satellite (active) Radiolocation Space research Standard frequency and time signal-satellite (Earth-to-space)</p>	<p>Private Land Mobile (90)</p>
<p>13.65-13.75 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space)</p>	<p>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</p>	<p>13.75-14 RADIOLOCATION GS9 Standard frequency and time signal-satellite (Earth-to-space) Space research US337</p>	<p>13.75-14 FIXED-SATELLITE (Earth-to-space) US337 Standard frequency and time signal-satellite (Earth-to-space) Space research Radiolocation US356 US357</p>	<p>Satellite Communications (25) Private Land Mobile (90)</p>
<p>14-14.25 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B RADIO NAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research</p>	<p>14-14.2 FIXED-SATELLITE (Earth-to-space) NGS27A Mobile-satellite (Earth-to-space) Space research US133</p>	<p>14-14.2 Space research US133</p>	<p>14-14.2 FIXED-SATELLITE (Earth-to-space) NGS27A Mobile-satellite (Earth-to-space) Space research US133</p>	<p>Satellite Communications (25)</p>
<p>14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 RADIO NAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research</p>	<p>14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 Mobile-satellite (Earth-to-space) 5.506A Radiolocation-satellite</p>	<p>14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Radiolocation-satellite</p>	<p>14.2-14.4 FIXED-SATELLITE (Earth-to-space) NGS27A Mobile-satellite (Earth-to-space)</p>	<p>Satellite Communications (25)</p>
<p>14.4-14.47 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 Space research (space-to-Earth) 5.504A</p>	<p>14.4-14.47 Fixed Mobile</p>	<p>14.4-14.47 Fixed Mobile</p>	<p>14.4-14.47 Fixed Mobile</p>	<p>Page 50</p>

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 Radiolocation 5.514	17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 BROADCASTING-SATELLITE Radiolocation 5.514 5.515	17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 Radiolocation 5.514	17.3-17.7 Radiolocation US259 G59 US402 G117	17.3-17.7 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) NG527A BROADCASTING-SATELLITE US259 US402 NG58	Satellite Communications (25)
17.7-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.517A (Earth-to-space) 5.516 MOBILE	17.7-17.8 FIXED FIXED-SATELLITE (space-to-Earth) 5.517 5.517A (Earth-to-space) 5.516 BROADCASTING-SATELLITE Mobile 5.515	17.7-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.517A (Earth-to-space) 5.516 MOBILE	17.7-17.8 US334 G117	17.7-17.8 FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) NG527A US334 NG58	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 5.517A (Earth-to-space) 5.516 MOBILE 5.519		17.8-18.6 FIXED-SATELLITE (space-to- Earth) US334 G117	17.8-18.3 FIXED Fixed-satellite (space-to-Earth) NG527A	
18.1-18.4 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B 5.517A (Earth-to-space) 5.520 MOBILE 5.519 5.521				US334 US519	Satellite Communications (25)
18.4-18.6 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B 5.517A MOBILE			US139 US519	18.3-18.6 FIXED-SATELLITE (space-to-Earth) NG527A US139 US334	

Table of Frequency Allocations			18.6-24.45 GHz (SHF)		Page 53
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) 5.517A 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 5.517A 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) 5.517A 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 5.517A 5.523A MOBILE			18.8-20.2 FIXED-SATELLITE (space-to-Earth) US334 G117	18.8-19.3 FIXED-SATELLITE (space-to-Earth) NG165 NG527A US139 US334	
19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.517A 5.523B 5.523C 5.523D 5.523E MOBILE				19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) NG166 US334 NG527A	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) 5.524	19.7-20.1 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 5.529	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A Mobile-satellite (space-to-Earth) 5.524		19.7-20.2 FIXED-SATELLITE (space-to-Earth) NG527A MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528 5.529 US334	Satellite Communications (25)
20.1-20.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528			US139		
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)			US532		Fixed Microwave (101)
21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A 5.530B	21.4-22 FIXED 5.530E MOBILE 5.530A	21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A 5.530B 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 MOBILE			23.15-23.55 FIXED INTER-SATELLITE US145 US278 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	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 MOBILE except aeronautical mobile 5.338A 5.532AB	24.25-24.45 FIXED 5.532AA MOBILE except aeronautical mobile 5.338A 5.532AB RADIONAVIGATION	24.25-24.45 FIXED MOBILE 5.338A 5.532AB 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)		Page 55
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 MOBILE except aeronautical mobile 5.338A 5.532AB	24.45-24.65 FIXED 5.532AA INTER-SATELLITE MOBILE except aeronautical mobile 5.338A 5.532AB RADIONAVIGATION 5.533	24.45-24.65 FIXED INTER-SATELLITE MOBILE 5.338A 5.532AB 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 MOBILE except aeronautical mobile 5.338A 5.532AB	24.65-24.75 FIXED 5.532AA INTER-SATELLITE MOBILE except aeronautical mobile 5.338A 5.532AB RADIOLOCATION-SATELLITE (Earth-to-space)	24.65-24.75 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE 5.338A 5.532AB	24.65-24.75 INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)		
24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B MOBILE except aeronautical mobile 5.338A 5.532AB	24.75-25.25 FIXED 5.532AA FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE except aeronautical mobile 5.338A 5.532AB	24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE 5.338A 5.532AB	24.75-25.25	24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE NG65	RF Devices (15) Satellite Communications (25) Upper Microwave Flexible Use (30)
25.25-25.5 FIXED 5.534A INTER-SATELLITE 5.536 MOBILE 5.338A 5.532AB Standard frequency and time signal-satellite (Earth-to-space)			25.25-25.5 FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	25.25-25.5 Inter-satellite 5.536 Standard frequency and time signal-satellite (Earth-to-space)	RF Devices (15)
25.5-27 EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536B FIXED 5.534A INTER-SATELLITE 5.536 MOBILE 5.338A 5.532AB SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space)			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)	25.5-27 SPACE RESEARCH (space-to-Earth) Inter-satellite 5.536 Standard frequency and time signal-satellite (Earth-to-space)	
5.536A			5.536A US258	5.536A US258	
27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE 5.338A 5.532AB	27-27.5 FIXED 5.534A FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE 5.338A 5.532AB		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 5.517A 5.539 MOBILE			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)
5.538 5.540				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 5.517A 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540					
29.1-29.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.517A 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541				NG62 29.1-29.25 FIXED FIXED-SATELLITE (Earth-to-space) NG166 MOBILE	Satellite Communications (25) Fixed Microwave (101)
5.540				29.25-29.5 FIXED-SATELLITE (Earth-to-space) NG527A NG535A NG62	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)	
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				5.525 5.526 5.527 5.529 5.543	
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 5.543B 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		

<p>37-37.5 FIXED MOBILE except aeronautical mobile 5.550B SPACE RESEARCH (space-to-Earth) 5.547</p>	<p>37-37.5 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth)</p>	<p>37-37.5 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth)</p>	<p>Upper Microwave Flexible Use (30)</p>
<p>37.5-38 FIXED FIXED-SATELLITE (space-to-Earth) 5.550C MOBILE except aeronautical mobile 5.550B SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547</p>	<p>37.5-38 FIXED FIXED-SATELLITE (space-to-Earth) NG63 MOBILE except aeronautical mobile</p>	<p>US151 38-39.5 FIXED MOBILE 38.6-39.5</p>	<p>Satellite Communications (25) Upper Microwave Flexible Use (30)</p>
<p>38-39.5 FIXED 5.550D FIXED-SATELLITE (space-to-Earth) 5.550C MOBILE 5.550B Earth exploration-satellite (space-to-Earth) 5.547</p>	<p>US151 38-38.6 FIXED MOBILE 38.6-39.5</p>	<p>38-39.5 FIXED MOBILE 38.6-39.5</p>	<p>Upper Microwave Flexible Use (30)</p>
<p>39.5-40 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C MOBILE 5.550B MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547 5.550E</p>	<p>39.5-40 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US382</p>	<p>39.5-40 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US382</p>	<p>Satellite Communications (25)</p>
<p>40-40.5 EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C MOBILE 5.550B MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth) 5.550E</p>	<p>G117 40-40.5 EARTH EXPLORATION-SATELLITE (Earth-to-space) SATELLITE (Earth-to-space) FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth) G117</p>	<p>G117 40-40.5 EARTH EXPLORATION-SATELLITE (Earth-to-space) SATELLITE (Earth-to-space) FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth) G117</p>	<p>Satellite Communications (25)</p>
<p>40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) 5.550C LAND MOBILE 5.550B BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile 5.547</p>	<p>40.5-41 FIXED-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth)</p>	<p>40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) 5.550C LAND MOBILE 5.550B BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile Mobile-satellite (space-to-Earth) 5.547</p>	<p>Upper Microwave Flexible Use (30)</p>
<p>41-42.5 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C LAND MOBILE 5.550B BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile 5.547</p>	<p>US211 G117 41-42.5</p>	<p>US211 G117 41-42.5</p>	<p>Upper Microwave Flexible Use (30)</p>

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
41-42.5 GHz: see previous page			41-42.5 GHz: see previous page		
42.5-43.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile 5.550B RADIO ASTRONOMY 5.149 5.547			42.5-43.5 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile RADIO ASTRONOMY US342		42-42.5 FIXED MOBILE US211 42.5-43.5 RADIO ASTRONOMY US342
43.5-47 MOBILE 5.553 5.553A 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		
			46.9-47 MOBILE MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE		46.9-47 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE
5.554			5.554		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) 5.550C 5.552 MOBILE 5.553B 5.552A					47.2-48.2 FIXED FIXED-SATELLITE (Earth-to-space) US297 MOBILE Satellite Communications (25) Upper Microwave Flexible Use (30)
47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 (space-to-Earth) 5.516B 5.554A MOBILE 5.553B		47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE 5.553B			
47.9-48.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE 5.553B 5.552A					NG65

<p>48.2-48.54 FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 (space-to-Earth) 5.516B 5.554A 5.555B</p>	<p>48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.516B 5.550C 5.552 MOBILE</p>	<p>48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) US156 US297 MOBILE US264</p>	<p>Satellite Communications (25)</p>
<p>MOBILE 48.54-49.44 FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE 5.149 5.340 5.555</p>			
<p>49.44-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.550C 5.552 (space-to-Earth) 5.516B 5.554A 5.555B</p>	<p>MOBILE 5.149 5.340 5.555</p>	<p>5.555 US342</p>	
<p>50.2-50.4 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340</p>	<p>50.2-50.4 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US246</p>		
<p>50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.550C MOBILE Mobile-satellite (Earth-to-space)</p>	<p>50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) US156 MOBILE MOBILE-SATELLITE (Earth-to-space) G117</p>	<p>50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) US156 MOBILE MOBILE-SATELLITE (Earth-to-space) NG65</p>	<p>Satellite Communications (25)</p>
<p>51.4-52.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.555C MOBILE 5.338A 5.547 5.556</p>	<p>51.4-52.6 FIXED US157 MOBILE</p>		
<p>52.4-52.6 FIXED 5.338A MOBILE 5.547 5.556</p>			
<p>52.6-54.25 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556</p>	<p>52.6-54.25 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US246</p>		
<p>54.25-55.78 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive) 5.556B</p>	<p>54.25-55.78 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive)</p>	<p>Satellite Communications (25)</p>	
<p>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</p>	<p>55.78-56.9 EARTH EXPLORATION-SATELLITE (passive) FIXED US379 INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) US353 US532</p>	<p>Page 60</p>	

<p>66-71 INTER-SATELLITE MOBILE 5.553 5.558 5.559AA MOBILE-SATELLITE RADIO NAVIGATION RADIO NAVIGATION-SATELLITE 5.554</p>	<p>66-71 MOBILE 5.553 5.558 MOBILE-SATELLITE RADIO NAVIGATION RADIO NAVIGATION-SATELLITE 5.554</p>	<p>66-71 INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIO NAVIGATION RADIO NAVIGATION-SATELLITE 5.554</p>	<p>Fixed Microwave (101)</p>
<p>71-74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) US389</p>	<p>71-74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) US389</p>	<p>71-74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) US389</p>	<p>RF Devices (15) Fixed Microwave (101)</p>
<p>74-76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) 5.561</p>	<p>74-76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Space research (space-to-Earth) US389</p>	<p>74-76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) US389</p>	<p>RF Devices (15) Fixed Microwave (101)</p>
<p>76-77.5 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149</p>	<p>76-81 RADIO ASTRONOMY RADIOLOCATION Space research (space-to-Earth) US342</p>	<p>76-77 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur Space research (space-to-Earth) US342</p>	<p>RF Devices (15) Personal Radio (85) Amateur Radio (97)</p>
<p>77.5-78 AMATEUR AMATEUR-SATELLITE RADIOLOCATION 5.559B Radio astronomy Space research (space-to-Earth) 5.149</p>	<p>77-81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.560 US342</p>	<p>77-81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.560 US342</p>	<p>RF Devices (15) Personal Radio (85) Amateur Radio (97)</p>
<p>78-79 RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth) 5.149 5.560</p>	<p>78-81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149</p>	<p>78-81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149</p>	<p>RF Devices (15) Personal Radio (85) Amateur Radio (97)</p>

155.5-158.5 FIXED MOBILE RADIO ASTRONOMY	155.5-158.5 FIXED MOBILE RADIO ASTRONOMY	
5.149	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)	164-167 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive)	
5.340	US246	
167-174.5 FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558	167-174.5 FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558	
5.149 5.562D	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 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	174.8-182 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	
182-185 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	182-185 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	
5.340	US246	
185-190 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	185-190 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	
190-191.8 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive)	190-191.8 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive)	
5.340	US246	

238-240 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE	238-240 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE		
240-241 FIXED MOBILE RADIOLOCATION	240-241 FIXED MOBILE RADIOLOCATION		
241-248 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite	241-248 RADIO ASTRONOMY RADIOLOCATION	241-248 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite	ISM Equipment (18) Amateur Radio (97)
5.138 5.149	5.138 US342	5.138 US342	
248-250 AMATEUR AMATEUR-SATELLITE Radio astronomy	248-250 Radio astronomy	248-250 AMATEUR AMATEUR-SATELLITE Radio astronomy	Amateur Radio (97)
5.149	US342	US342	
250-252 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	250-252 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive)		
5.340 5.563A	5.563A US246		
252-265 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE	252-265 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE		
5.149 5.554	5.554 US211 US342		
265-275 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY	265-275 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY		
5.149 5.563A	5.563A US342		
275-3000 (Not allocated)	275-3000 (Not allocated)		Amateur Radio (97)
5.564A 5.565	US565		Page 68

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(b) * * * * *

(67) 5.67 Additional allocation: in Kyrgyzstan and Turkmenistan, the frequency band 130–148.5 KHz is also allocated to the radionavigation service on a secondary basis. Within and

between these countries this service shall have an equal right to operate.

* * * * *

(ii) 5.67B The use of the frequency band 135.7–137.8 kHz in Algeria, Egypt, Iraq, Lebanon, Syrian Arab Republic, Sudan, South Sudan and Tunisia is limited to the fixed and maritime mobile services. The amateur service shall not be used in the previously-mentioned countries in the frequency band 135.7–137.8 kHz, and this should be taken into account by the countries authorizing such use.

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(70) 5.70 *Alternative allocation:* in Angola, Botswana, Burundi, the Central African Rep., Congo (Rep. of the), Eswatini, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, the Dem. Rep. of the Congo, South Africa, Tanzania, Chad, Zambia and Zimbabwe, the frequency band 200–283.5 kHz is allocated to the aeronautical radionavigation service on a primary basis.

* * * * *

(77) 5.77 *Different category of service:* in Australia, China, the French overseas communities of Region 3, Korea (Rep. of), India, Iran (Islamic Republic of), Japan, Pakistan, Papua New Guinea, the Dem. People’s Rep. of Korea and Sri Lanka, the allocation of the frequency band 415–495 kHz to the aeronautical radionavigation service is on a primary basis. In Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Latvia, Uzbekistan and Kyrgyzstan, the allocation of the frequency band 435–495 kHz to the aeronautical radionavigation service is on a primary basis. Administrations in all the aforementioned countries shall take all practical steps necessary to ensure that aeronautical radionavigation stations in the frequency band 435–495 kHz do not cause interference to reception by coast stations of transmissions from ship stations on frequencies designated for ship stations on a worldwide basis.

* * * * *

(79) 5.79 In the maritime mobile service, the frequency bands 415–495 kHz and 505–526.5 kHz are limited to radiotelegraphy and may also be used for the NAVDAT system in accordance with the most recent version of Recommendation ITU–R M.2010, subject to agreement between interested and affected administrations. NAVDAT transmitting stations are limited to coast stations.

* * * * *

(82) * * *

(i) 5.82C The frequency band 495–505 kHz is used for the international

NAVDAT system as described in the most recent version of Recommendation ITU–R M.2010. NAVDAT transmitting stations are limited to coast stations.

(ii) [Reserved]

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(87) 5.87 *Additional allocation:* in Angola, Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia and Niger, the frequency band 526.5–535 kHz is also allocated to the mobile service on a secondary basis.

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(107) 5.107 *Additional allocation:* in Saudi Arabia, Eritrea, Eswatini, Ethiopia, Iraq, Libya and Somalia, the frequency band 2160–2170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of stations in these services shall not exceed 50 W.

* * * * *

(109) 5.109 The frequencies 2187.5 kHz, 4207.5 kHz, 6312 kHz, 8414.5 kHz, 12 577 kHz and 16 804.5 kHz are international distress frequencies for digital selective calling. The conditions for the use of these frequencies are prescribed in Article 31.

(110) 5.110 The frequencies 2174.5 kHz, 4177.5 kHz, 6268 kHz, 8376.5 kHz, 12 520 kHz and 16 695 kHz are international distress frequencies for narrow-band direct-printing telegraphy. The conditions for the use of these frequencies are prescribed in Article 31.

(111) 5.111 The carrier frequencies 2182 kHz, 3023 kHz, 5680 kHz, 8364 kHz and the frequencies 121.5 MHz, 156.525 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article 31. The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of ± 3 kHz about the frequency.

(112) 5.112 *Alternative allocation:* in Sri Lanka, the frequency band 2194–2300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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(114) 5.114 *Alternative allocation:* in Iraq, the frequency band 2502–2625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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(117) 5.117 *Alternative allocation:* in Côte d’Ivoire, Egypt, Liberia, Sri Lanka and Togo, the frequency band 3155–

3200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

(118) 5.118 *Additional allocation:* in the United States, Mexico and Peru, the frequency band 3230–3400 kHz is also allocated to the radiolocation service on a secondary basis.

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(123) 5.123 *Additional allocation:* in Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe, the frequency band 3900–3950 kHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. 9.21.

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(128) 5.128 Frequencies in the frequency bands 4063–4123 kHz and 4130–4438 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W, on condition that harmful interference is not caused to the maritime mobile service. In addition, in Afghanistan, Argentina, Armenia, Belarus, Botswana, Burkina Faso, the Central African Rep., China, the Russian Federation, Georgia, India, Kazakhstan, Mali, Niger, Pakistan, Kyrgyzstan, Tajikistan, Chad, Turkmenistan and Ukraine, in the frequency bands 4063–4123 kHz, 4130–4133 kHz and 4408–4438 kHz, stations in the fixed service, with a mean power not exceeding 1 kW, can be operated on condition that they are situated at least 600 km from the coast and that harmful interference is not caused to the maritime mobile service.

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(132) 5.132 The frequencies 4210 kHz, 6314 kHz, 8416.5 kHz, 12579 kHz, 16 806.5 kHz, 19 680.5 kHz, 22 376 kHz and 26 100.5 kHz are the international frequencies for the transmission of maritime safety information (MSI) (see Appendix 17).

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

(133) * * *

(i) 5.133A *Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency bands 5250–5275 kHz and 26 200–26 350 kHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

(ii) 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 countries and territories within the Kingdom 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.).

(134) 5.134 The use of the frequency bands 5900–5950 kHz, 7300–7350 kHz, 9400–9500 kHz, 11 600–11 650 kHz, 12 050–12 100 kHz, 13 570–13 600 kHz, 13 800–13 870 kHz, 15 600–15 800 kHz, 17 480–17 550 kHz and 18 900–19 020 kHz by the broadcasting service is subject to the application of the procedure of Article 12. Administrations are encouraged to use these frequency bands to facilitate the introduction of digitally modulated emissions in

accordance with the provisions of Resolution 517 (Rev.WRC–19).

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(141) * * *
 (ii) 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, the Dem. People’s Rep. of Korea, 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.

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(145) 5.145 The conditions for the use of the carrier frequencies 8291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles 31 and 52.

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(ii) 5.145B *Alternative allocation*: in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency bands 9305–9355 kHz and 16 100–16 200 kHz are allocated to the fixed service on a primary basis.

(146) 5.146 *Additional allocation*: frequencies in the bands 9400–9500 kHz, 11 600–11 650 kHz, 12 050–12 100 kHz, 15 600–15 800 kHz, 17 480–17 550

kHz and 18 900–19 020 kHz may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

(147) 5.147 On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9775–9900 kHz, 11 650–11 700 kHz and 11 975–12 050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.

* * * * *

(149) 5.149 In making assignments to stations of other services to which the bands listed in table 1 to paragraph (b)(149) of this section are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 4.5 and 4.6 and Article 29).

TABLE 1 TO PARAGRAPH (b)(149) INTRODUCTORY TEXT

13 360–13 410 kHz	23.07–23.12 GHz.
25 550–25 670 kHz	31.2–31.3 GHz.
37.5–38.25 MHz	31.5–31.8 GHz in Regions 1 and 3.
73–74.6 MHz in Regions 1 and 3	36.43–36.5 GHz.
150.05–153 MHz in Region 1	42.5–43.5 GHz.
322–328.6 MHz	48.94–49.04 GHz.
406.1–410 MHz	76–86 GHz.
608–614 MHz in Regions 1 and 3	92–94 GHz.
1330–1400 MHz	94.1–100 GHz.
1610.6–1613.8 MHz	102–109.5 GHz.
1660–1670 MHz	111.8–114.25 GHz.
1718.8–1722.2 MHz	128.33–128.59 GHz.
2655–2690 MHz	129.23–129.49 GHz.
3260–3267 MHz	130–134 GHz.
3332–3339 MHz	136–148.5 GHz.
3345.8–3352.5 MHz	151.5–158.5 GHz.
4825–4835 MHz	168.59–168.93 GHz.
4950–4990 MHz	171.11–171.45 GHz.
4990–5000 MHz	172.31–172.65 GHz.
6650–6675.2 MHz	173.52–173.85 GHz.
10.6–10.68 GHz	195.75–196.15 GHz.
14.47–14.5 GHz	209–226 GHz.
22.01–22.21 GHz	241–250 GHz.
22.21–22.5 GHz	252–275 GHz.
22.81–22.86 GHz	

(i) 5.149A *Alternative allocation*: in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency band 13 450–

13 550 kHz is allocated to the fixed service on a primary basis and to the

mobile, except aeronautical mobile (R), service on a secondary basis.

(ii) [Reserved]

(150) 5.150 The following bands: 13 553–13 567 kHz (centre frequency 13 560 kHz), 26 957–27 283 kHz (centre frequency 27 120 kHz), 40.66–40.70 MHz (centre frequency 40.68 MHz), 902–928 MHz in Region 2 (centre frequency 915 MHz), 2400–2500 MHz (centre frequency 2450 MHz), 5725–5875 MHz (centre frequency 5800 MHz), and 24–24.25 GHz (centre frequency 24.125 GHz) are also designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within these bands must accept harmful interference which may be caused by these applications. ISM equipment operating in these bands is subject to the provisions of No. 15.13.

(151) 5.151 *Additional allocation:* frequencies in the bands 13 570–13 600 kHz and 13 800–13 870 kHz may be used by stations in the fixed service and in the mobile except aeronautical mobile (R) service, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

(152) 5.152 *Additional allocation:* in Armenia, Azerbaijan, China, Côte d'Ivoire, the Russian Federation, Georgia, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 14 250–14 350 kHz is also allocated to the fixed service on a primary basis. Stations of the fixed service shall not use a radiated power exceeding 24 dBW.

(153) 5.153 In Region 3, the stations of those services to which the band 15 995–16 005 kHz is allocated may transmit standard frequency and time signals.

(154) 5.154 *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 18 068–18 168 kHz is also allocated to the fixed service on a primary basis for use within their boundaries, with a peak envelope power not exceeding 1 kW.

(155) 5.155 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the band 21 850–21 870 kHz is also allocated to the aeronautical mobile (R) service on a primary basis.

(i) 5.155A In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the use of the band 21 850–21 870 kHz by the fixed service is limited to provision of services related to aircraft flight safety.

(ii) 5.155B The band 21 870–21 924 kHz is used by the fixed service for provision of services related to aircraft flight safety.

(156) 5.156 *Additional allocation:* in Nigeria, the band 22 720–23 200 kHz is also allocated to the meteorological aids service (radiosondes) on a primary basis.

(i) 5.156A The use of the band 23 200–23 350 kHz by the fixed service is limited to provision of services related to aircraft flight safety.

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(157) 5.157 The use of the band 23 350–24 000 kHz by the maritime mobile service is limited to inter-ship radiotelegraphy.

(158) 5.158 *Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency band 24 450–24 600 kHz is allocated to the fixed and land mobile services on a primary basis.

(159) 5.159 *Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency band 39–39.5 MHz is allocated to the fixed and mobile services on a primary basis.

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(161) * * *

(i) 5.161A *Additional allocation:* in Korea (Rep. of), the United States and Mexico, the frequency bands 41.015–41.665 MHz and 43.35–44 MHz are also allocated to the radiolocation service on a primary basis. Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution 612 (Rev.WRC–12).

(ii) 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, Liechtenstein, Lithuania, Luxembourg, North Macedonia, 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.

(162) * * *

(i) 5.162A *Additional allocation:* in Germany, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Denmark, Spain, Estonia, the Russian Federation, Finland, France, Ireland, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Monaco, Montenegro, Norway, the Netherlands, Poland, Portugal, the Czech Rep., the United Kingdom, Serbia, Slovenia, Sweden and Switzerland the frequency band 46–68 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).

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(163) 5.163 *Additional allocation:* in Armenia, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency bands 47–48.5 MHz and 56.5–58 MHz are also allocated to the fixed and land mobile services on a secondary basis.

(164) 5.164 *Additional allocation:* in Albania, Algeria, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Croatia, Denmark, Spain, Estonia, Eswatini, Finland, France, Gabon, Greece, Hungary, 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, 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 bands 48.5–56.5 MHz and 58–68 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each 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.

(165) 5.165 *Additional allocation:* in Angola, Cameroon, Congo (Rep. of the), Egypt, Madagascar, Mozambique, Niger, Somalia, Sudan, South Sudan, Tanzania and Chad, the frequency band 47–68 MHz is also allocated to the fixed and

mobile, except aeronautical mobile, services on a primary basis.

(166)(i) 5.166A *Different category of service*: in Austria, Cyprus, the Vatican, Croatia, Denmark, Spain, Finland, Hungary, Latvia, the Netherlands, the Czech Republic, the United Kingdom, Slovakia and Slovenia, the frequency band 50.0–50.5 MHz is allocated to the amateur service on a primary basis. Stations in the amateur service in these countries shall not cause harmful interference to, or claim protection from, stations of the broadcasting, fixed and mobile services operating in accordance with the Radio Regulations in the frequency band 50.0–50.5 MHz in the countries not listed in this provision. For a station of these services, the protection criteria in paragraph (b)(169)(ii) of this section shall also apply. In Region 1, with the exception of those countries listed in paragraph (b)(169) of this section, wind profiler radars operating in the radiolocation service under paragraph (b)(162)(i) of this section are authorized to operate on the basis of equality with stations in the amateur service in the frequency band 50.0–50.5 MHz.

(ii) 5.166B In Region 1, stations in the amateur service operating on a secondary basis shall not cause harmful interference to, or claim protection from, stations of the broadcasting service. The field strength generated by an amateur station in Region 1 in the frequency band 50–52 MHz shall not exceed a calculated value of +6 dB(μ V/m) at a height of 10 m above ground for more than 10% of time along the border of a country with operational analogue broadcasting stations in Region 1 and of neighbouring countries with broadcasting stations in Region 3 listed in paragraphs (b)(167) and (b)(168) of this section.

(iii) 5.166C In Region 1, stations in the amateur service in the frequency band 50–52 MHz, with the exception of those countries listed in paragraph (b)(169) of this section, shall not cause harmful interference to, or claim protection from, wind profiler radars operating in the radiolocation service under paragraph (b)(162)(i) of this section.

(iv) 5.166D *Different category of service*: in Lebanon, the frequency band 50–52 MHz is allocated to the amateur service on a primary basis. Stations in the amateur service in Lebanon shall not cause harmful interference to, or claim protection from, stations of the broadcasting, fixed and mobile services operating in accordance with the Radio Regulations in the frequency band 50–52 MHz in the countries not listed in this provision.

(v) 5.166E In the Russian Federation, only the frequency band 50.080–50.280 MHz is allocated to the amateur service on a secondary basis. The protection criteria for the other services in the countries not listed in this provision are specified in paragraphs (b)(166)(ii) and (b)(169)(ii) of this section.

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(169) 5.169 *Alternative allocation*: in Botswana, Eswatini, Lesotho, Malawi, Namibia, Rwanda, South Africa, Zambia and Zimbabwe, the frequency band 50–54 MHz is allocated to the amateur service on a primary basis. In Senegal, the frequency band 50–51 MHz is allocated to the amateur service on a primary basis.

(i) 5.169A *Alternative allocation*: in the following countries in Region 1: Angola, Saudi Arabia, Bahrain, Burkina Faso, Burundi, the United Arab Emirates, Gambia, Jordan, Kenya, Kuwait, Mauritius, Mozambique, Oman, Uganda, Qatar, South Sudan and Tanzania, the frequency band 50–54 MHz is allocated to the amateur service on a primary basis. In Guinea-Bissau, the frequency band 50.0–50.5 MHz is allocated to the amateur service on a primary basis. In Djibouti, the frequency band 50–52 MHz is allocated to the amateur service on a primary basis. With the exception of those countries listed in this paragraph (b)(169), stations in the amateur service operating in Region 1 under this footnote, in all or part of the frequency band 50–54 MHz, shall not cause harmful interference to, or claim protection from, stations of other services operating in accordance with the Radio Regulations in Algeria, Egypt, Iran (Islamic Republic of), Iraq, Israel, Libya, Palestine, the Syrian Arab Republic, the Dem. People's Republic of Korea, Sudan and Tunisia. The field strength generated by an amateur station in the frequency band 50–54 MHz shall not exceed a value of +6 dB(μ V/m) at a height of 10 m above ground for more than 10% of time along the borders of listed countries requiring protection.

Note 1 to § 2.106(b)(169)(i): Pursuant to Resolution 99 (Rev. Dubai, 2018) and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

(ii) 5.169B Except countries listed under this paragraph (b)(169), stations in the amateur service used in Region 1, in all or part of the 50–54 MHz frequency band, shall not cause harmful interference to, or claim protection from, stations of other services used in accordance with the Radio Regulations in Algeria, Armenia, Azerbaijan, Belarus, Egypt, Russian Federation, Iran (Islamic Republic of), Iraq, Kazakhstan,

Kyrgyzstan, Libya, Uzbekistan, Palestine, the Syrian Arab Republic, Sudan, Tunisia and Ukraine. The field strength generated by an amateur station in the frequency band 50–54 MHz shall not exceed a value of +6 dB(μ V/m) at a height of 10 m above ground for more than 10% of time along the borders of the countries listed in this provision.

Note 2 to § 2.106(b)(169)(ii): Pursuant to Resolution 99 (Rev. Dubai, 2018) and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

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(171) 5.171 *Additional allocation*: in Botswana, Eswatini, Lesotho, Malawi, Mali, Namibia, Dem. Rep. of the Congo, Rwanda, South Africa, Zambia and Zimbabwe, the frequency band 54–68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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(194) 5.194 *Additional allocation*: in Kyrgyzstan, Somalia and Turkmenistan, the frequency band 104–108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a secondary basis.

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(201) 5.201 *Additional allocation*: in Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq (Republic of), Japan, Kazakhstan, Mali, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Kyrgyzstan, Romania, Senegal, 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.

(202) 5.202 *Additional allocation*: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bulgaria, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Mali, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, Senegal, 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.

(203) 5.203C The use of the space operation service (space-to-Earth) with non-geostationary satellite short-

duration mission systems in the frequency band 137–138 MHz is subject to Resolution 660 (WRC–19). Resolution 32 (WRC–19) applies. These systems shall not cause harmful interference to, or claim protection from, the existing services to which the frequency band is allocated on a primary basis.

(204) 5.204 *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Kuwait, Montenegro, Oman, Pakistan, the Philippines, Qatar, Singapore, Thailand and Yemen, the frequency band 137–138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. 5.33).

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(208) * * *

(i) 5.208A In making assignments to space stations in the mobile-satellite service in the frequency bands 137–138 MHz, 387–390 MHz and 400.15–401 MHz and in the maritime mobile-satellite service (space-to-Earth) in the frequency bands 157.1875–157.3375 MHz and 161.7875–161.9375 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the frequency bands 150.05–153 MHz, 322–328.6 MHz, 406.1–410 MHz and 608–614 MHz from harmful interference from unwanted emissions as shown in the most recent version of Recommendation ITU–R RA.769.

(ii) 5.208B In the frequency bands 137–138 MHz, 157.1875–157.3375 MHz, 161.7875–161.9375 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–19) applies.

(209) * * *

(i) 5.209A The use of the frequency band 137.175–137.825 MHz by non-geostationary-satellite systems in the space operation service identified as short-duration mission in accordance with Appendix 4 is not subject to No. 9.11A.

(ii) [Reserved]

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(211) 5.211 *Additional allocation:* in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Guinea, Ireland, Israel, Kenya, Kuwait, Lebanon, Liechtenstein, Luxembourg, North Macedonia, 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.

(212) 5.212 *Alternative allocation:* in Angola, Botswana, Cameroon, the Central African Rep., Congo (Rep. of the), Eswatini, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Lesotho, Liberia, Libya, Malawi, Mozambique, Namibia, Niger, Oman, Uganda, Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sierra Leone, South Africa, Chad, Togo, Zambia and Zimbabwe, the frequency band 138–144 MHz is allocated to the fixed and mobile services on a primary basis.

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(214) 5.214 *Additional allocation:* in Eritrea, Ethiopia, Kenya, North Macedonia, Montenegro, Serbia, Somalia, Sudan, South Sudan and Tanzania, the frequency band 138–144 MHz is also allocated to the fixed service on a primary basis.

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(218) * * *

(i) 5.218A The frequency band 148–149.9 MHz in the space operation service (Earth-to-space) may be used by non-geostationary-satellite systems with short-duration missions. Non-geostationary-satellite systems in the space operation service used for a short-duration mission in accordance with Resolution 32 (WRC–19) of the Radio Regulations are not subject to agreement under No. 9.21. At the stage of coordination, the provisions of Nos. 9.17 and 9.18 also apply. In the frequency band 148–149.9 MHz, non-geostationary-satellite systems with short-duration missions shall not cause unacceptable interference to, or claim protection from, existing primary services within this frequency band, or impose additional constraints on the space operation and mobile-satellite services. In addition, earth stations in non-geostationary-satellite systems in the space operation service with short-duration missions in the frequency band 148–149.9 MHz shall ensure that the power flux-density does not exceed –149 dB(W/(m² · 4 kHz)) for more than 1% of time at the border of the territory of the following countries: Armenia, Azerbaijan, Belarus, China, Korea (Rep. of), Cuba, Russian Federation, India, Iran (Islamic Republic of), Japan, Kazakhstan, Malaysia, Uzbekistan, Kyrgyzstan, Thailand and Viet Nam. In case this power flux-density limit is exceeded, agreement under No. 9.21 is required to be obtained from countries mentioned in this footnote.

(ii) [Reserved]

(219) 5.219 The use of the frequency band 148–149.9 MHz by the mobile-

satellite service is subject to coordination under No. 9.11A. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the frequency band 148–149.9 MHz. The use of the frequency band 148–149.9 MHz by non-geostationary-satellite systems in the space operation service identified as short-duration mission is not subject to No. 9.11A.

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(221) 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, Eswatini, 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, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, North Macedonia, 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, Tanzania, Chad, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe.

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(228) * * *

(i) 5.228AB The use of the frequency bands 157.1875–157.3375 MHz and 161.7875–161.9375 MHz by the maritime mobile-satellite service (Earth-to-space) is limited to non-geostationary-satellite systems operating in accordance with Appendix 18.

(ii) 5.228AC The use of the frequency bands 157.1875–157.3375 MHz and 161.7875–161.9375 MHz by the maritime mobile-satellite service (space-

to-Earth) is limited to non-geostationary-satellite systems operating in accordance with Appendix 18. Such use is subject to agreement obtained under No. 9.21 with respect to the terrestrial services in Azerbaijan, Belarus, China, Korea (Rep. of), Cuba, the Russian Federation, the Syrian Arab Republic, the Dem. People's Rep. of Korea, South Africa and Viet Nam.

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(242) 5.242 *Additional allocation*: in Canada and Mexico, the frequency band 216–220 MHz is also allocated to the land mobile service on a primary basis.

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(252) 5.252 *Alternative allocation*: in Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe, the frequency bands 230–238 MHz and 246–254 MHz are allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. 9.21.

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(260)(i) 5.260A In the frequency band 399.9–400.05 MHz, the maximum e.i.r.p. of any emission of earth stations in the mobile-satellite service shall not exceed 5 dBW in any 4 kHz band and the maximum e.i.r.p. of each earth station in the mobile-satellite service shall not exceed 5 dBW in the whole 399.9–400.05 MHz frequency band. Until 22 November 2022, this limit shall not apply to satellite systems for which complete notification information has been received by the Radiocommunication Bureau by 22 November 2019 and that have been brought into use by that date. After 22 November 2022, these limits shall apply to all systems within the mobile-satellite service operating in this frequency band. In the frequency band 399.99–400.02 MHz, the e.i.r.p. limits as specified in this paragraph (b)(260)(i) shall apply after 22 November 2022 to all systems within the mobile-satellite service. Administrations are requested that their mobile-satellite service satellite links in the 399.99–400.02 MHz frequency band comply with the e.i.r.p. limits as specified in this paragraph (b)(260)(i), after 22 November 2019.

(ii) 5.260B In the frequency band 400.02–400.05 MHz, the provisions of paragraph (b)(169)(i) of this section are not applicable for telecommand uplinks within the mobile-satellite service.

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(264) * * *

(i) 5.264A In the frequency band 401–403 MHz, the maximum e.i.r.p. of any emission of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 22 dBW in any 4 kHz band

for geostationary-satellite systems and non-geostationary-satellite systems with an orbit of apogee equal or greater than 35 786 km. The maximum e.i.r.p. of any emission of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 7 dBW in any 4 kHz band for non-geostationary-satellite systems with an orbit of apogee lower than 35 786 km. The maximum e.i.r.p. of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 22 dBW for geostationary-satellite systems and non-geostationary-satellite systems with an orbit of apogee equal or greater than 35 786 km in the whole 401–403 MHz frequency band. The maximum e.i.r.p. of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 7 dBW for non-geostationary-satellite systems with an orbit of apogee lower than 35 786 km in the whole 401–403 MHz frequency band. Until 22 November 2029, these limits shall not apply to satellite systems for which complete notification information has been received by the Radiocommunication Bureau by 22 November 2019 and that have been brought into use by that date. After 22 November 2029, these limits shall apply to all systems within the meteorological-satellite service and the Earth exploration-satellite service operating in this frequency band.

(ii) 5.264B Non-geostationary-satellite systems in the meteorological-satellite service and the Earth exploration-satellite service for which complete notification information has been received by the Radiocommunication Bureau before 28 April 2007 are exempt from provisions of paragraph (b)(264)(i) of this section and may continue to operate in the frequency band 401.898–402.522 MHz on a primary basis without exceeding a maximum e.i.r.p. level of 12 dBW.

(265) 5.265 In the frequency band 403–410 MHz, Resolution 205 (Rev.WRC–19) applies.

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(275) 5.275 *Additional allocation*: in Croatia, Estonia, Finland, Libya, North 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.

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(277) 5.277 *Additional allocation*: in Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo (Rep. of the), Djibouti, the Russian Federation, Georgia, Hungary, Israel, Kazakhstan, Mali,

Uzbekistan, Poland, the Dem. Rep. of the Congo, Kyrgyzstan, Slovakia, Romania, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the frequency band 430–440 MHz is also allocated to the fixed service on a primary basis.

(278) 5.278 *Different category of service*: in Argentina, Brazil, Colombia, Costa Rica, Cuba, Guyana, Honduras, Panama, Paraguay, Uruguay and Venezuela, the allocation of the frequency band 430–440 MHz to the amateur service is on a primary basis (see No. 5.33).

(279) 5.279 *Additional allocation*: in Mexico, the frequency bands 430–435 MHz and 438–440 MHz are also allocated on a primary basis to the mobile, except aeronautical mobile, service, and on a secondary basis to the fixed service, subject to agreement obtained under No. 9.21.

(i) 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.1260–2. 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.

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(280) 5.280 In Germany, Austria, Bosnia and Herzegovina, Croatia, Liechtenstein, North Macedonia, Montenegro, Portugal, Serbia, Slovenia and Switzerland, the frequency band 433.05–434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services of these countries operating within this frequency band must accept harmful interference which may be caused by these applications. ISM equipment operating in this frequency band is subject to the provisions of No. 15.13.

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(286) * * *

(ii) 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–19). 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.

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(287) 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.1174–4. The use of these frequency bands in territorial waters is subject to the national regulations of the administration concerned.

(288) 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.1174–4.

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(295) 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–19). 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.

(296) 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, Eswatini, Finland, France, Gabon, Georgia, Ghana, Hungary, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, North Macedonia, 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, Romania, the United Kingdom, Rwanda, San Marino, Serbia, Sudan, South Africa, Sweden, Switzerland, 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.

(i) 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–19). 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.

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(297) 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. In Mexico, the frequency band 512–608 MHz is also allocated on a secondary basis to the fixed service (see No. 5.32).

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(308) 5.308 *Additional allocation:* in Belize, Colombia and Guatemala, 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.

(i) 5.308A In the Bahamas, Barbados, Belize, Canada, Colombia, the United

States, Guatemala and Mexico, the frequency band 614–698 MHz, or portions thereof, is identified for International Mobile Telecommunications (IMT)—see Resolution 224 (Rev.WRC–19). 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.

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(312) 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, and in Bulgaria the frequency bands 646–686 MHz, 726–753 MHz, 778–811 MHz and 822–852 MHz, are also allocated to the aeronautical radionavigation service on a primary basis.

(i) 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 (Rev.WRC–19). See also Resolution 224 (Rev.WRC–19).

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(313) 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, the Dem. People’s Rep. of Korea, 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.

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(316) 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-19) and 749 (Rev.WRC-19) shall apply, as appropriate.

(317) * * *

(i) 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-19), 760 (Rev.WRC-19) and 749 (Rev.WRC-19), 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.

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(323) 5.323 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 862–960 MHz, in Bulgaria the frequency bands 862–880 MHz and 915–925 MHz, and in Romania the frequency bands 862–880 MHz and 915–925 MHz, are also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. 9.21 with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime.

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(325) * * *

(i) 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, Paraguay, Uruguay and Venezuela, the frequency band 902–928 MHz is allocated to the land mobile service on a primary basis. In Mexico, the frequency band 902–928 MHz is allocated to the mobile, except aeronautical 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.

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(328) * * *

(ii) 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 (Rev.WRC-19) shall apply.

(iii) 5.328B The use of the bands 1164–1300 MHz, 1559–1610 MHz and 5010–5030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the Radiocommunication Bureau after 1 January 2005 is subject to the application of the provisions of Nos. 9.12, 9.12A and 9.13. Resolution 610 (Rev.WRC-19) shall also apply; however, in the case of radionavigation-satellite service (space-to-space) networks and systems, Resolution 610 (Rev.WRC-19) shall only apply to transmitting space stations. In accordance with No. 5.329A, for systems and networks in the radionavigation-satellite service (space-to-space) in the bands 1215–1300 MHz and 1559–1610 MHz, the provisions of Nos. 9.7, 9.12, 9.12A and 9.13 shall only apply with respect to other systems and networks in the radionavigation-satellite service (space-to-space).

(329) 5.329 Use of the radionavigation-satellite service in the frequency 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 paragraph (b)(331) of this section. Furthermore, the use of the radionavigation-satellite service in the frequency 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-19) shall apply.

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(331) 5.331 *Additional allocation:* in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, Lesotho, Latvia,

Lebanon, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, Pakistan, the Kingdom of the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sudan, South Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the frequency band 1215–1300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the frequency band 1240–1300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service.

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(i) 5.338A In the frequency bands 1350–1400 MHz, 1427–1452 MHz, 22.55–23.55 GHz, 24.25–27.5 GHz, 30–31.3 GHz, 49.7–50.2 GHz, 50.4–50.9 GHz, 51.4–52.4 GHz, 52.4–52.6 GHz, 81–86 GHz and 92–94 GHz, Resolution 750 (Rev.WRC-19) applies.

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(341) * * *

(i) 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-19). 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 paragraph (b)(342) of this section.

(ii) 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-19). 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.

(iii) 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-19). The use of these frequency bands by the referenced 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.

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(345) 5.345 Use of the frequency 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-19).

(346) 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, Eswatini, 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, Tanzania, Chad, Togo, Tunisia, Zambia, and Zimbabwe, the frequency band 1452-1492 MHz is identified for use by administrations listed in this paragraph (b)(346) wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC-19). 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 paragraph (b)(342) of this section. See also Resolution 761 (Rev.WRC-19).

Note 3 to § 2.16(b)(346) introductory text: 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. Dubai, 2018) and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

(i) 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-19) and Resolution 761 (Rev.WRC-19). 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.

(ii) [Reserved]

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(349) 5.349 *Different category of service*: in Saudi Arabia, Azerbaijan, Bahrain, Cameroon, Egypt, Iran (Islamic Republic of), Iraq, Israel, Kazakhstan, Kuwait, Lebanon, North Macedonia, Morocco, Qatar, Syrian Arab Republic, Kyrgyzstan, Turkmenistan and Yemen, the allocation of the frequency band 1525-1530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. 5.33).

(350) 5.350 *Additional allocation*: in Kyrgyzstan and Turkmenistan, the frequency band 1525-1530 MHz is also allocated to the aeronautical mobile service on a primary basis.

(351) * * *

(i) 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-19) and 225 (Rev.WRC-12).

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(352) 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, 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.

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(359) 5.359 *Additional allocation*: in Germany, Saudi Arabia, Armenia, Azerbaijan, Belarus, Cameroon, the Russian Federation, 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.

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(368) 5.368 The provisions of No. 4.10 do not apply with respect to the radiodetermination-satellite and mobile-satellite services in the frequency band 1610-1626.5 MHz. However, No. 4.10 applies in the frequency band 1610-1626.5 MHz with respect to the aeronautical radionavigation-satellite service when operating in accordance with paragraph (b)(366) of this section, the aeronautical mobile satellite (R) service when operating in accordance with paragraph (b)(367) of this section, and in the frequency band 1621.35-1626.5 MHz with respect to the maritime mobile-satellite service when used for GMDSS.

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(372) 5.372 Harmful interference shall not be caused to stations of the radio astronomy service using the frequency band 1610.6-1613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. 29.13 applies). The equivalent power flux-density (epfd) produced in the frequency band 1610.6-1613.8 MHz by all space stations of a non-geostationary-satellite system in the mobile-satellite service (space-to-Earth) operating in frequency band 1613.8-1626.5 MHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, using the methodology given in Recommendation ITU-R M.1583-1, and the radio astronomy antenna pattern described in Recommendation ITU-R RA.1631-0.

(373) 5.373 Maritime mobile earth stations receiving in the frequency band 1621.35-1626.5 MHz shall not impose additional constraints on earth stations operating in the maritime mobile-satellite service or maritime earth stations of the radiodetermination-satellite service operating in accordance with the Radio Regulations in the frequency band 1610-1621.35 MHz or on earth stations operating in the maritime mobile-satellite service operating in accordance with the Radio Regulations in the frequency band 1626.5-1660.5 MHz, unless otherwise agreed between the notifying administrations.

(i) 5.373A Maritime mobile earth stations receiving in the frequency band

1621.35–1626.5 MHz shall not impose constraints on the assignments of earth stations of the mobile-satellite service (Earth-to-space) and the radiodetermination-satellite service (Earth-to-space) in the frequency band 1621.35–1626.5 MHz in networks for which complete coordination information has been received by the Radiocommunication Bureau before 28 October 2019.

(ii) [Reserved]

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(382) 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, Lebanon, North Macedonia, 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.

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(384) * * *

(i) 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–19). 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.

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(388) 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–19) (see also Resolution 223 (Rev.WRC–19)).

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(ii) 5.388B In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire,

China, Cuba, Djibouti, Egypt, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lebanon, Libya, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, South Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT base station in neighbouring countries, in the frequency bands referred to in paragraph (b)(388)(i) of this section, shall not exceed a co-channel power flux-density of $-127 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ at the Earth's surface outside a country's borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS.

(389) * * *

(i) 5.389B The use of the frequency band 1980–1990 MHz by the mobile-satellite service shall not cause harmful interference to or constrain the development of the fixed and mobile services in Argentina, Brazil, Canada, Chile, Ecuador, the United States, Honduras, Jamaica, Mexico, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay and Venezuela.

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(iv) 5.389F In Algeria, Cape Verde, Egypt, Iran (Islamic Republic of), Mali, Syrian Arab Republic and Tunisia, the use of the frequency bands 1980–2010 MHz and 2170–2200 MHz by the mobile-satellite service shall neither cause harmful interference to the fixed and mobile services, nor hamper the development of those services prior to 1 January 2005, nor shall the former service request protection from the latter services.

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(393) 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–19), with the exception of *resolves* 3 in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz. Complementary terrestrial sound broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use.

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(401) 5.401 In Angola, Australia, Bangladesh, China, Eritrea, Eswatini, Ethiopia, India, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, Dem. Rep. of the Congo, Sudan, 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.

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(418) 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–19). The provisions of paragraph (b)(416) of this section 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–19). 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: $-130 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for $0^\circ \leq \theta \leq 5^\circ$, $-130 + 0.4(\theta - 5) \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for $5^\circ < \theta \leq 25^\circ$, $-122 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for $25^\circ < \theta \leq 90^\circ$, 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 provided in this paragraph (b)(418), the pfd value of $-122 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ 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 paragraph (b)(416) of this section for which complete Appendix 4 coordination information has been received after 1 June 2005.

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(428) 5.428 *Additional allocation*: in Kyrgyzstan and Turkmenistan, the frequency band 3100–3300 MHz is also allocated to the radionavigation service on a primary basis.

(429) 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, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, New Zealand, 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. New Zealand and the countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service.

(i) 5.429A *Additional allocation*: in Angola, Benin, Botswana, Burkina Faso, Burundi, Djibouti, Eswatini, Ghana, Guinea, Guinea-Bissau, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sudan, South Sudan, South Africa, 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.

(ii) 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, Eswatini, 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, 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–19). 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.

(iii) 5.429C *Different category of service*: in Argentina, Belize, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, El Salvador, 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, the Dominican Republic, Guatemala, Mexico, Paraguay and Uruguay, 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.

(iv) 5.429D In the following countries in Region 2: Argentina, Belize, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, El Salvador, Ecuador, Guatemala, Mexico, Paraguay 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–19). This use in Argentina, Paraguay 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.

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(vi) 5.429F In the following countries in Region 3: Cambodia, India, Indonesia, 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–19). 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.

(430) 5.430 *Additional allocation*: in Kyrgyzstan and Turkmenistan, the frequency band 3300–3400 MHz is also allocated to the radionavigation service on a primary basis.

(i) 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 $-154.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$ 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).

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(431) 5.431 *Additional allocation*: in Germany, the frequency band 3400–3475 MHz is also allocated to the amateur service on a secondary basis.

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(432) 5.432 *Different category of service*: in Korea (Rep. of), Japan, Pakistan and the Dem. People's Rep. of Korea, the allocation of the frequency band 3400–3500 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. 5.33).

(i) 5.432A In Korea (Rep. of), Japan, Pakistan and the Dem. People's Rep. of Korea, the frequency band 3400–3500 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 $-154.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$ 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 in this paragraph (i). Stations of the mobile service in the frequency 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).

(ii) 5.432B *Different category of service*: in Australia, Bangladesh, Brunei Darussalam, China, French overseas communities of Region 3, India, Indonesia, Iran (Islamic Republic of),

Malaysia, New Zealand, the Philippines, Singapore and Thailand, 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 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 $-154.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$ 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 in this paragraph (ii). Stations of the mobile service in the frequency 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).

(433) * * *

(i) 5.433A In Australia, Bangladesh, Brunei Darussalam, China, French overseas communities of Region 3, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, New Zealand, Pakistan, the Philippines and the Dem. People's Rep. of Korea, 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 $-154.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$ 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 in this paragraph (i). 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).

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(434) 5.434 In Canada, Chile, Colombia, Costa Rica, El Salvador, the United States and Paraguay, 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 $-154.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$ 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 in this paragraph (434). 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).

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(441) * * *

(i) 5.441A In Brazil, Paraguay and 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–19).

(ii) 5.441B In Angola, Armenia, Azerbaijan, Benin, Botswana, Brazil, Burkina Faso, Burundi, Cambodia, Cameroon, China, Côte d’Ivoire, Djibouti, Eswatini, Russian Federation, Gambia, Guinea, Iran (Islamic Republic of), Kazakhstan, Kenya, Lao P.D.R., Lesotho, Liberia, Malawi, Mauritius, Mongolia, Mozambique, Nigeria, Uganda, Uzbekistan, the Dem. Rep. of the Congo, Kyrgyzstan, the Dem. People’s Rep. of Korea, Sudan, South Africa, Tanzania, Togo, Viet Nam, Zambia and Zimbabwe, 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 IMT stations 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 (pfd) 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 pfd criterion is subject to review at WRC–23. Resolution 223 (Rev.WRC–19) applies. This identification shall be effective after WRC–19.

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(444) * * *

(ii) 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–19); aeronautical telemetry transmissions from aircraft stations (see No. 1.83) in accordance with Resolution 418 (Rev.WRC–19).

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(446) * * *

(i) 5.446A The use of the frequency bands 5150–5350 MHz and 5470–5725 MHz by the stations in the mobile, except aeronautical mobile, service shall be in accordance with Resolution 229 (Rev.WRC–19).

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(iii) 5.446C *Additional allocation:* in Region 1 (except in Algeria, Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan, South Sudan and Tunisia), the frequency 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–19). These stations shall not claim protection from other stations operating in accordance with Article 5. No. 5.43A does not apply.

(iv) 5.446D *Additional allocation:* 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–19).

(447) 5.447 *Additional allocation:* in Côte d’Ivoire, Egypt, Lebanon, the Syrian Arab Republic and Tunisia, the frequency band 5150–5250 MHz is also allocated to the mobile service, on a primary basis, subject to agreement obtained under No. 9.21. In this case, the provisions of Resolution 229 (Rev.WRC–19) do not apply.

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(vi) 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). The radiolocation service, the Earth exploration-satellite service (active) and the space research service (active) shall not impose more stringent conditions upon the mobile service than those stipulated in Resolution 229 (Rev.WRC–19).

(448) 5.448 *Additional allocation:* in Kyrgyzstan, Romania and Turkmenistan, the frequency band 5250–5350 MHz is also allocated to the radionavigation service on a primary basis.

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(450) * * *

(i) 5.450A In the frequency band 5470–5725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. The radiodetermination services shall not impose more stringent conditions upon the mobile service than those stipulated in Resolution 229 (Rev.WRC–19).

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(453) 5.453 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d’Ivoire, Djibouti, Egypt, the United Arab Emirates, Eswatini, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Niger, Nigeria, Oman, Uganda, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People’s Rep. of Korea, Singapore, Sri Lanka, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the frequency band 5650–5850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution 229 (Rev.WRC–19) do not apply. In addition, in Afghanistan, Angola, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Dem. Rep. of the Congo, Fiji, Ghana, Kiribati, Lesotho, Malawi, Maldives, Mauritius, Micronesia, Mongolia, Mozambique, Myanmar, Namibia, Nauru, New Zealand, Papua New Guinea, Rwanda, Solomon Islands, South Sudan, South Africa, Tonga, Vanuatu, Zambia and Zimbabwe, the frequency band 5725–5850 MHz is allocated to the fixed service on a primary basis, and stations operating in the fixed service shall not cause harmful interference to and shall not claim protection from other primary services in the frequency band.

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(455) 5.455 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Uzbekistan,

Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the frequency band 5670–5850 MHz is also allocated to the fixed service on a primary basis.

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(458) 5.458 In the band 6425–7075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7075–7250 MHz, passive microwave sensor measurements are carried out.

Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6425–7075 MHz and 7075–7250 MHz.

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(468) 5.468 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Djibouti, Egypt, the United Arab Emirates, Eswatini, 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, Chad, Togo, Tunisia and Yemen, the frequency band 8500–8750 MHz is also allocated to the fixed and mobile services on a primary basis.

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(473) 5.473 *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the frequency bands 8850–9000 MHz and 9200–9300 MHz are also allocated to the radionavigation service on a primary basis.

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(474) * * *

(iv) 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 9900–10 000 MHz and the radiolocation service in the frequency band 10.0–10.4 GHz.

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(477) 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 9800–10 000 MHz to the fixed service is on a primary basis (see No. 5.33).

(478) 5.478 *Additional allocation:* in Azerbaijan, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the frequency band 9800–10 000 MHz is also allocated to the radionavigation service on a primary basis.

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(479) 5.479 The band 9975–10 025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.

(480) 5.480 *Additional allocation:* in Argentina, Brazil, Chile, Cuba, El Salvador, Ecuador, Guatemala, Honduras, Paraguay, the overseas countries and territories within the Kingdom of the Netherlands in Region 2, 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.

(481) 5.481 *Additional allocation:* in Algeria, Germany, Angola, Brazil, China, Côte d'Ivoire, Egypt, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Pakistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania, Tunisia 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.

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(483) 5.483 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, China, Colombia, Korea (Rep. of), Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, Tajikistan, Turkmenistan and Yemen, the frequency band 10.68–10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

(484) * * *

(ii) 5.484B Resolution 155 (Rev.WRC-19) shall apply.

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(495) 5.495 *Additional allocation:* in Greece, Monaco, Montenegro, Uganda 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.

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(505) 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, Eswatini, 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, Chad, Viet Nam and Yemen, the frequency band 14–14.3 GHz is also allocated to the fixed service on a primary basis.

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(508) 5.508 *Additional allocation:* in Germany, France, Italy, Libya, North Macedonia and the United Kingdom, the frequency band 14.25–14.3 GHz is also allocated to the fixed service on a primary basis.

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(509) * * *

(iii) 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 $-151.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$ produced at all altitudes from 0 m to 19 000 m above sea level at 22 km seaward from all coasts, defined as the low-water mark, as officially recognized by each coastal State.

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(ii) 5.516B The following bands are identified for use by high-density applications in the fixed-satellite service: 17.3–17.7 GHz (space-to-Earth) in Region 1, 18.3–19.3 GHz (space-to-Earth) in Region 2, 19.7–20.2 GHz (space-to-Earth) in all Regions, 39.5–40 GHz (space-to-Earth) in Region 1, 40–40.5 GHz (space-to-Earth) in all Regions, 40.5–42 GHz (space-to-Earth) in Region 2, 47.5–47.9 GHz (space-to-Earth) in Region 1, 48.2–48.54 GHz (space-to-Earth) in Region 1, 49.44–50.2

GHz (space-to-Earth) in Region 1, and 27.5–27.82 GHz (Earth-to-space) in Region 1, 28.35–28.45 GHz (Earth-to-space) in Region 2, 28.45–28.94 GHz (Earth-to-space) in all Regions, 28.94–29.1 GHz (Earth-to-space) in Regions 2 and 3,

29.25–29.46 GHz (Earth-to-space) in Region 2, 29.46–30 GHz (Earth-to-space) in all Regions, 48.2–50.2 GHz (Earth-to-space) in Region 2. This identification does not preclude the use of these frequency bands by other fixed-satellite service applications or by other services to which these frequency bands are allocated on a co-primary basis and does not establish priority in these Radio Regulations among users of the frequency bands. Administrations should take this into account when considering regulatory provisions in relation to these frequency bands. See Resolution 143 (Rev.WRC–19).

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(517) * * *

(i) 5.517A The operation of earth stations in motion communicating with geostationary fixed-satellite service space stations within the frequency bands 17.7–19.7 GHz (space-to-Earth) and 27.5–29.5 GHz (Earth-to-space) shall be subject to the application of Resolution 169 (WRC–19).

(ii) [Reserved]

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(530) * * *

(ii) 5.530E The allocation to the fixed service in the frequency band 21.4–22 GHz is identified for use in Region 2 by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which it is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation by HAPS is limited to the HAPS-to-ground direction, and shall be in accordance with the provisions of Resolution 165 (WRC–19).

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(532) * * *

(ii) 5.532AA The allocation to the fixed service in the frequency band 24.25–25.25 GHz is identified for use in Region 2 by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by other fixed-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. Such use of the fixed-service allocation by HAPS is limited to the HAPS-to-ground direction and shall

be in accordance with the provisions of Resolution 166 (WRC–19).

(iii) 5.532AB The frequency band 24.25–27.5 GHz is identified for use by administrations wishing to implement the terrestrial component 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. Resolution 242 (WRC–19) applies.

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(534) 5.534A The allocation to the fixed service in the frequency band 25.25–27.5 GHz is identified in Region 2 for use by high-altitude platform stations (HAPS) in accordance with the provisions of Resolution 166 (WRC–19). Such use of the fixed-service allocation by HAPS shall be limited to the ground-to-HAPS direction in the frequency band 25.25–27.0 GHz and to the HAPS-to-ground direction in the frequency band 27.0–27.5 GHz. Furthermore, the use of the frequency band 25.5–27.0 GHz by HAPS shall be limited to gateway links. This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this band is allocated on a co-primary basis, and does not establish priority in the Radio Regulations.

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(536) * * *

(i) 5.536A Administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account the most recent version of Recommendation ITU–R SA.1862. Resolution 242 (WRC–19) applies.

(ii) 5.536B In Algeria, Saudi Arabia, Austria, Bahrain, Belgium, Brazil, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Estonia, Finland, Hungary, India, Iran (Islamic Republic of), Iraq, Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People’s Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Slovenia, Sudan, 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. Resolution 242 (WRC–19) applies.

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(537) * * *

(i) 5.537A In Bhutan, Cameroon, China, 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 27.9–28.2 GHz may also be used by high altitude platform stations (HAPS) within the territory of these countries. Such use of 300 MHz of the fixed-service allocation by HAPS in the above countries is further limited to operation in the HAPS-to-ground direction and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services. Furthermore, the development of these other services shall not be constrained by HAPS. See Resolution 145 (Rev.WRC–19).

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(543) * * *

(i) 5.543B The allocation to the fixed service in the frequency band 31–31.3 GHz is identified for worldwide use by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by other fixed-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. Such use of the fixed-service allocation by HAPS shall be in accordance with the provisions of Resolution 167 (WRC–19).

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(546) 5.546 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Lebanon, Moldova, Mongolia, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, the United Kingdom, South Africa, Tajikistan, Turkmenistan and Turkey, the allocation of the frequency band 31.5–31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33).

(547) 5.547 The bands 31.8–33.4 GHz, 37–40 GHz, 40.5–43.5 GHz, 51.4–52.6 GHz, 55.78–59 GHz and 64–66 GHz are

available for high-density applications in the fixed service (see Resolution 75 (Rev.WRC-12)). Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the bands 39.5–40 GHz and 40.5–42 GHz (see para. (b)(516)(ii) of this section), administrations should further take into account potential constraints to high-density applications in the fixed service, as appropriate.

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(550) * * *
 (ii) 5.550B The frequency band 37–43.5 GHz, or portions thereof, is identified for use by administrations wishing to implement the terrestrial component 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. Because of the potential deployment of FSS earth stations within the frequency range 37.5–42.5 GHz and high-density applications in the fixed-satellite service in the frequency bands 39.5–40 GHz in Region 1, 40–40.5 GHz in all Regions and 40.5–42 GHz in Region 2 (see paragraph (b)(516)(ii) of this section), administrations should further take into account potential constraints to IMT in these frequency bands, as appropriate. Resolution 243 (WRC-19) applies.

(iii) 5.550C The use of the frequency bands 37.5–39.5 GHz (space-to-Earth), 39.5–42.5 GHz (space-to-Earth), 47.2–50.2 GHz (Earth-to-space) and 50.4–51.4 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to the application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service but not with non-geostationary-satellite systems in other services. Resolution 770 (WRC-19) shall also apply, and No. 22.2 shall continue to apply.

(iv) 5.550D The allocation to the fixed service in the frequency band 38–39.5 GHz is identified for worldwide use by administrations wishing to implement high-altitude platform stations (HAPS). In the HAPS-to-ground direction, the HAPS ground station shall not claim protection from stations in the fixed, mobile and fixed-satellite services; and No. 5.43A does not apply. This identification does not preclude the use of this frequency band by other fixed-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. Furthermore, the development of the fixed-satellite, fixed and mobile services shall not be unduly constrained by HAPS. Such use of the fixed-service allocation by HAPS shall be in accordance with the provisions of Resolution 168 (WRC-19).

(v) 5.550E The use of the frequency bands 39.5–40 GHz and 40–40.5 GHz by non-geostationary-satellite systems in the mobile-satellite service (space-to-Earth) and by non-geostationary-satellite systems in the fixed-satellite service (space-to-Earth) is subject to the application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite and mobile-satellite services but not with non-geostationary-satellite systems in other services. No. 22.2 shall continue to apply for non-geostationary-satellite systems.

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(552) * * *

(i) 5.552A The allocation to the fixed service in the frequency bands 47.2–47.5 GHz and 47.9–48.2 GHz is identified for use by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation in the frequency bands 47.2–47.5 GHz and 47.9–48.2 GHz by HAPS shall be in accordance with the provisions of Resolution 122 (Rev.WRC-19).

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(i) 5.553A In Algeria, Angola, Bahrain, Belarus, Benin, Botswana, Brazil, Burkina Faso, Cabo Verde, Korea (Rep. of), Côte d'Ivoire, Croatia, United Arab Emirates, Estonia, Eswatini, Gabon, Gambia, Ghana, Greece, Guinea, Guinea-Bissau, Hungary, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Lesotho, Latvia, Liberia, Lithuania, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Qatar, Senegal, Seychelles, Sierra Leone, Slovenia, Sudan, South Africa, Sweden, Tanzania, Togo, Tunisia, Zambia and Zimbabwe, the frequency band 45.5–47 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT), taking into account paragraph (b)(553) of this section. With respect to the aeronautical mobile service and radionavigation service, the use of this frequency band

for the implementation of IMT is subject to agreement obtained under No. 9.21 with concerned administrations and shall not cause harmful interference to, or claim protection from these services. 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. Resolution 244 (WRC-19) applies.

(ii) 5.553B In Region 2 and Algeria, Angola, Saudi Arabia, Australia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Rep., Comoros, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lesotho, Liberia, Libya, Lithuania, Madagascar, Malaysia, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Singapore, Slovenia, Somalia, Sudan, South Sudan, South Africa, Sweden, Tanzania, Chad, Togo, Tunisia, Zambia and Zimbabwe, the frequency band 47.2–48.2 GHz 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 any priority in the Radio Regulations. Resolution 243 (WRC-19) applies.

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(555) * * *

(ii) 5.555C The use of the frequency band 51.4–52.4 GHz by the fixed-satellite service (Earth-to-space) is limited to geostationary-satellite networks. The earth stations shall be limited to gateway earth stations with a minimum antenna diameter of 2.4 metres.

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(559) * * *

(i) 5.559AA The frequency band 66–71 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which this frequency band is allocated and does not establish priority in the Radio

Regulations. Resolution 241 (WRC-19) applies.

(ii) 5.559B The use of the frequency band 77.5-78 GHz by the radiolocation service shall be limited to short-range radar for ground-based applications, including automotive radars. The technical characteristics of these radars are provided in the most recent version of Recommendation ITU-R M.2057. The provisions of No. 4.10 do not apply.

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(562) * * *

(ii) 5.562B In the frequency bands 105-109.5 GHz, 111.8-114.25 GHz and 217-226 GHz, the use of this allocation is limited to space-based radio astronomy only.

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(564) 5.564A For the operation of fixed and land mobile service applications in frequency bands in the range 275-450 GHz: The frequency bands 275-296 GHz, 306-313 GHz, 318-333 GHz and 356-450 GHz are identified for use by administrations for the implementation of land mobile and fixed service applications, where no specific conditions are necessary to protect Earth exploration-satellite service (passive) applications. The frequency bands 296-306 GHz, 313-318 GHz and 333-356 GHz may only be used by fixed and land mobile service applications when specific conditions to ensure the protection of Earth exploration-satellite service (passive) applications are determined in accordance with Resolution 731 (Rev.WRC-19). In those portions of the frequency range 275-450 GHz where radio astronomy applications are used, specific conditions (e.g. minimum separation distances and/or avoidance angles) may be necessary to ensure protection of radio astronomy sites from land mobile and/or fixed service applications, on a case-by-case basis in accordance with Resolution 731 (Rev.WRC-19). The use of the above-mentioned frequency bands by land mobile and fixed service applications does not preclude use by, and does not establish priority over, any other applications of radio services in the range of 275-450 GHz.

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(c) * * *

(1) US1 The bands 2501-2502 kHz, 5003-5005 kHz, 10.003-10.005 MHz, 15.005-15.01 MHz, 19.99-19.995 MHz, 20.005-20.01 MHz, and 25.005-25.01 MHz are also allocated to the space research service on a secondary basis for Federal use. In the event of interference to the reception of the standard frequency and time broadcasts, these space research transmissions are subject

to immediate temporary or permanent shutdown.

* * * * *

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

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

(ii) The use of the bands 156.7625-156.7875 MHz (AIS 3 with center frequency 156.775 MHz) and 156.8125-156.8375 MHz (AIS 4 with center frequency 156.825 MHz) by the mobile-satellite service (Earth-to-space) is restricted to the reception of long-range AIS broadcast messages from ships (Message 27; see most recent version of Recommendation ITU-R M.1371).

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

(iv) Federal stations in the maritime mobile service may also be authorized as follows:

(A) Vessel traffic services under the control of the U.S. Coast Guard on a simplex basis by coast and ship stations on the frequencies 156.25, 156.55, 156.6 and 156.7 MHz;

(B) Inter-ship use of the frequency 156.3 MHz on a simplex basis;

(C) Navigational bridge-to-bridge and navigational communications on a simplex basis by coast and ship stations on the frequencies 156.375 and 156.65 MHz;

(D) Port operations use on a simplex basis by coast and ship stations on the frequencies 156.6 and 156.7 MHz;

(E) Environmental communications on the frequency 156.75 MHz in accordance with the national plan; and

(F) Duplex port operations use of the frequencies 157 MHz for ship stations and 161.6 MHz for coast stations.

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(79) * * *

(iii) US79A The use of the bands 415-472 kHz, 479-495 kHz, and 505-510 kHz by the maritime mobile service is limited to radiotelegraphy.

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(82) US82 In the bands 4146-4152 kHz, 6224-6233 kHz, 8294-8300 kHz,

12.353-12.368 MHz, 16.528-16.549 MHz, 18.825-18.846 MHz, 22.159-22.18 MHz, and 25.1-25.121 MHz, the assignable frequencies may be authorized on a shared non-priority basis to Federal and non-Federal ship and coast stations (SSB telephony, with peak envelope power not to exceed 1 kW).

* * * * *

(100) US100 The bands 2310-2320 and 2345-2360 MHz are available for Federal aeronautical telemetering and associated telecommand operations for flight testing of manned or unmanned aircraft, missiles, or major components thereof, on a secondary basis to the Wireless Communications Service (WCS). The frequencies 2312.5 MHz and 2352.5 MHz are shared on a co-equal basis by Federal stations for telemetering and associated telecommand operations of expendable and reusable launch vehicles, irrespective of whether such operations involve flight testing. Other Federal mobile telemetering uses may be provided in the bands 2310-2320 and 2345-2360 MHz on a non-interference basis to all other uses authorized pursuant to this paragraph (c)(100).

* * * * *

(247) US247 The band 10.1-10.15 MHz is allocated to the fixed service on a primary basis outside the United States and its insular areas. Transmissions from stations in the amateur service must not cause harmful interference to this fixed service use and stations in the amateur service must make all necessary adjustments (including termination of transmission) if harmful interference is caused.

* * * * *

(281) US281 In the band 25.07-25.21 MHz, non-Federal stations in the Industrial/Business Pool must not cause harmful interference to, and must accept interference from, stations in the maritime mobile service operating in accordance with the Table of Frequency Allocations.

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(283) US283 In the bands 2850-3025 kHz, 3400-3500 kHz, 4650-4700 kHz, 5450-5680 kHz, 6525-6685 kHz, 10.005-10.1 MHz, 11.275-11.4 MHz, 13.26-13.36 MHz, and 17.9-17.97 MHz, frequencies may be authorized for non-Federal flight test purposes on the condition that harmful interference will not be caused to services operating in accordance with the Table of Frequency Allocations.

* * * * *

(296) US296 In the bands designated for ship wide-band telegraphy, facsimile and special transmission systems, the

following assignable frequencies are available to non-Federal stations on a shared basis with Federal stations: 2070.5 kHz, 2072.5 kHz, 2074.5 kHz, 2076.5 kHz, 4154 kHz, 4170 kHz, 6235 kHz, 6259 kHz, 8302 kHz, 8338 kHz, 12.37 MHz, 12.418 MHz, 16.551 MHz, 16.615 MHz, 18.848 MHz, 18.868 MHz, 22.182 MHz, 22.238 MHz, 25.123 MHz, and 25.159 MHz.

* * * * *

(312) US312 The frequency 173.075 MHz may also be authorized on a primary basis to non-Federal stations in the Public Safety Radio Pool, limited to police licensees and an authorized bandwidth not to exceed 12.5 kHz, for stolen vehicle recovery systems.

* * * * *

(342) US342 In making assignments to stations of other services to which the bands in table 17 to paragraph (c)(342)

of this section are allocated (*indicates radio astronomy use for spectral line observations), all practicable steps must be taken to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see ITU Radio Regulations at Nos. 4.5 and 4.6 and Article 29).

TABLE 17 TO PARAGRAPH (c)(342)

Table with 2 columns listing frequency bands in MHz and GHz. Rows include: 13.36-13.41 MHz, 25.55-25.67 MHz, 37.5-38.25 MHz, 322-328.6 MHz*, 1330-1400 MHz*, 1610.6-1613.8 MHz*, 1660-1660.5 MHz*, 1668.4-1670 MHz*, 3260-3267 MHz*, 3332-3339 MHz*, 3345.8-3352.5 MHz*, 4825-4835 MHz*, 4950-4990 MHz, 6650-6675.2 MHz*, 14.47-14.5 GHz*, 22.01-22.21 GHz*, 22.21-22.5 GHz, 22.81-22.86 GHz*, 23.07-23.12 GHz*, 31.2-31.3 GHz, 36.43-36.5 GHz*, 42.5-43.5 GHz, 42.77-42.87 GHz*, 43.07-43.17 GHz*, 43.37-43.47 GHz*, 48.94-49.04 GHz*, 76-86 GHz, 92-94 GHz, 94.1-100 GHz, 102-109.5 GHz, 111.8-114.25 GHz, 128.33-128.59 GHz*, 129.23-129.49 GHz*, 130-134 GHz, 136-148.5 GHz, 151.5-158.5 GHz, 168.59-168.93 GHz*, 171.11-171.45 GHz*, 172.31-172.65 GHz*, 173.52-173.85 GHz*, 195.75-196.15 GHz*, 209-226 GHz, 241-250 GHz, 252-275 GHz.

* * * * *

(444) * * * (ii) US444B In the band 5091-5150 MHz, the following provisions apply to the aeronautical mobile service:

- (A) Use is restricted to: (1) Systems operating in the aeronautical mobile (R) service (AM(R)S) in accordance with international aeronautical standards, limited to surface applications at airports, and in accordance with Resolution 748 (Rev.WRC-12) (i.e., AeroMACS); and (2) Aeronautical telemetry transmissions from aircraft stations (AMT) in accordance with Resolution 418 (Rev.WRC-19).

(B) Consistent with Radio Regulation No. 4.10, airport surface wireless systems operating in the AM(R)S have priority over AMT systems in the band.

(C) Operators of AM(R)S and AMT systems at the following airports are urged to cooperate with each other in the exchange of information about planned deployments of their respective systems so that the prospects for compatible sharing of the band are enhanced:

(1) Boeing Field/King County Intl Airport, Seattle, WA;

(2) Lambert-St. Louis Intl Airport, St. Louis, MO;

(3) Charleston AFB/Intl Airport, Charleston, SC;

(4) Wichita Dwight D. Eisenhower National Airport, Wichita, KS;

(5) Roswell Intl Air Center Airport, Roswell, NM; and

(6) William P. Gwinn Airport, Jupiter, FL. Other airports may be addressed on a case-by-case basis.

(D) Aeronautical fixed communications that are an integral part of the AeroMACS system authorized in paragraph (c)(444)(ii)(A)(1) of this section are also authorized on a primary basis.

* * * * *

(d) * * *

(33) NG33 In the band 614-698 MHz, the following provisions apply. In the sub-bands 617-652 MHz and 663-698 MHz, low power television and TV translator stations may operate on a secondary basis to stations in the fixed and mobile services until required to terminate their operations in accordance with § 73.3700(g)(4) of this chapter, and white space devices may also operate in these sub-bands, except in those areas where their use is prohibited in accordance with §§ 15.707(a)(5) and

15.713(b)(2)(iv) of this chapter. In addition, white space devices may operate in the sub-band 657-663 MHz in accordance with § 15.707(a)(2) of this chapter, low power auxiliary stations may operate in the sub-band 653-657 MHz, and unlicensed wireless microphones may operate in the sub-bands 614-616 MHz and 657-663 MHz.

* * * * *

(169) NG169 In the band 3650-3700 MHz, use of the non-Federal fixed-satellite service (space-to-Earth) is limited to international inter-continental systems and, after December 1, 2000, primary operations are limited to grandfathered earth stations. All other earth station operations in the band 3650-3700 MHz are authorized on a secondary basis. Grandfathered earth stations are those authorized prior to December 1, 2000, or granted as a result of an application filed prior to December 1, 2000, and constructed within 12 months of initial authorization. License applications for primary operations for new earth stations, major amendments to pending earth station applications, or applications for major modifications to earth station facilities filed on or after December 18, 1998, and prior to

December 1, 2000, will not be accepted unless the proposed facilities are within 16.1 kilometers (10 miles) of an authorized primary earth station operating in the band 3650–3700 MHz. License applications for primary operations by new earth stations, major amendments to pending earth station applications, and applications for major modifications to earth station facilities, filed after December 1, 2000, will not be accepted, except for changes in polarization, antenna orientation or ownership of a grandfathered earth station.

* * * * *

(e) * * *

(2) G2 In the bands 216.965–216.995 MHz, 420–450 MHz (except as provided for in G129), 890–902 MHz, 928–942 MHz, 1300–1390 MHz, 2310–2390 MHz, 2417–2450 MHz, 2700–2900 MHz, 3300–3500 MHz, 5650–5925 MHz, and 9000–9200 MHz, use of the Federal

radiolocation service is restricted to the military services.

* * * * *

(32) G32 Except for weather radars on meteorological satellites in the band 9.975–10.025 GHz and for Federal survey operations (see paragraph (c)(108) of this section), Federal radiolocation in the band 10–10.5 GHz is limited to the military services.

* * * * *

(115) G115 In the band 13.36–13.41 MHz, the fixed service is allocated on a primary basis outside the conterminous United States. Within the conterminous United States, assignments in the fixed service are permitted, and will be protected for national defense purposes or, if they are to be used only in an emergency jeopardizing life, public safety, or important property under conditions calling for immediate

communication where other means of communication do not exist.

* * * * *

(132) 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 paragraph (b)(331) of this section. 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–19) shall apply.

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