NATIONAL COMMUNICATIONS AUTHORITY

National Table of Frequency Allocation

2024

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1. INTRODUCTION

The National Frequency Allocations Table (NFAT) of Ghana details the uses of the various frequency bands in Ghana (referred to as 'allocations'). It provides the framework within which frequency assignments are to be made for all radio services.

The NFAT may be amended as a result of changes in the National Communications Authority's Licensing decisions, or in accordance to changes to the Radio Regulations made by the World Radiocommunication Conferences (WRC) of the International Telecommunication Union (ITU), or in accordance with the application of any other national frequency decisions.
Direct references have been made within the Ghana table to those footnotes in the Radio Regulations that apply to radio services in Ghana.

Where the provisions of the Radio Regulation differ from those of Ghana's table, those of the latter will apply.

The NFAT does not infer any right for use of radio services or equipment, which must be authorized in accordance with the relevant licensing requirements.

2. TERMS AND DEFINITIONS

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

2.2 Radio waves or hertzian waves: Electromagnetic waves of frequencies arbitrarily lower than 3 000 GHz, propagated in space without artificial guide.

2.3 Radiocommunication: Telecommunication by means of radio waves.

2.4 Allocation (of a frequency band): Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunication services or the radio astronomy service under specified conditions. This term shall also be applied to the frequency band concerned.

2.5 Allotment (of a radio frequency or radio frequency channel): Entry of a designated frequency channel in an agreed plan, adopted by a competent conference, for use by one or more administrations for a terrestrial or space radiocommunication service in one or more identified countries or geographical areas and under specified conditions.

2.6 Asssignment (of a radio frequency or radio frequency channel): Authorization given by an administration for a radio station to use a radio frequency or radio frequency channel under specified conditions.

2.7 Public correspondence: Any telecommunication which the offices and stations must, by reason of their being at the disposal of the public, accept for transmission

2.8 Terrestrial radiocommunication: Any radiocommunication other than space radiocommunication or radio astronomy.

2.9 Space radiocommunication: Any radiocommunication involving the use of one or more space stations or the use of one or more reflecting satellites or other objects in space.

2.10 Radiodetermination: The determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves.

2.11 Radionavigation: Radiodetermination used for the purposes of navigation, including obstruction warning.

2.12 Radiolocation: Radiodetermination used for purposes other than those of radionavigation.

2.13 Radio astronomy: Astronomy based on the reception of radio waves of cosmic origin.

2.14 Industrial, scientific and medical (ISM) applications (of radio frequency energy): Operation of equipment or appliances designed to generate and use locally radio frequency energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of telecommunications.

2.15 Emission: Radiation produced, or the production of radiation, by a radio transmitting station. For example, the energy radiated by the local oscillator of a radio receiver would not be an emission but a radiation.

2.16 Harmful interference: Interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with Radio Regulations.

2.17 Station: One or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on a radiocommunication service, or the radio astronomy service. Each station shall be classified by the service in which it operates permanently or temporarily.

2.18 Feeder link: A radio link from an earth station at a given location to a space station, or vice versa, conveying information for a space radiocommunication service other than for the fixed satellite service. The given location may be at a specified fixed point, or at any fixed point within specified areas.

2.19 Radiocommunication service: A service as defined in this Section involving the transmission, emission and/or reception of radio waves for specific telecommunication purposes. In this document, unless otherwise stated, any radiocommunication service relates to terrestrial radiocommunication.

2.20 Fixed service: A radiocommunication service between specified fixed points.

2.21 Fixed-satellite service: A radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radiocommunication services.

2.22 Inter-satellite service: A radiocommunication service providing links between artificial satellites.

2.23 Space operation service: A radiocommunication service concerned exclusively with the operation of spacecraft, in particular space tracking, space telemetry and space telecommand. These functions will normally be provided within the service in which the space station is operating.

2.24 Mobile service: A radiocommunication service between mobile and land stations, or between mobile stations

2.25 Mobile-satellite service: A radiocommunication service:

- between mobile earth stations and one or more space stations, or between space stations used by this service; or
- between mobile earth stations by means of one or more space stations. This service may also include feeder links necessary for its operation.

2.26 Land mobile service: A mobile service between base stations and land mobile stations, or between land mobile stations.

2.27 Maritime mobile service: A mobile service between coast stations and ship stations, or between ship stations, or between associated on-board communication stations; survival craft stations and emergency position-indicating radiobeacon stations may also participate in this service.

2.28 Port operations service: A maritime mobile service in or near a port, between coast stations and ship stations, or between ship stations, in which messages are restricted

to those relating to the operational handling, the movement and the safety of ships and, in emergency, to the safety of persons.
Messages which are of a public correspondence nature shall be excluded from this service.

2.29 Ship movement service: A safety service in the maritime mobile service other than a port operations service, between coast stations and ship stations, or between ship stations, in which messages are restricted to those relating to the movement of ships.

Messages which are of a public correspondence nature shall be excluded from this service.

2.30 Aeronautical mobile service: A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radiobeacon stations may also participate in this service on designated distress and emergency frequencies.

2.31 Aeronautical mobile (R)*service: An aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.

2.32 Aeronautical mobile (OR) service:** An aeronautical mobile service intended for communications, including those relating to flight coordination, primarily outside national or international civil air routes.

2.33 Aeronautical mobile-satellite service: A mobile-satellite service in which mobile earth stations are located on board aircraft; survival craft stations and emergency position-indicating radiobeacon stations may also participate in this service.

2.34 Aeronautical mobile-satellite (R)* service: An aeronautical mobile-satellite service reserved for communications relating to safety and regularity of flights, primarily along national or international civil air routes.

2.35 Aeronautical mobile-satellite (OR) service:** An aeronautical mobile-satellite service intended for communications, including those relating to flight coordination, primarily outside national and international civil air routes.

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

2.37 Broadcasting-satellite service: A radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public. In the broadcasting-satellite service, the term "direct reception" shall encompass both individual reception and community reception.

2.38 Radiodetermination service: A radiocommunication service for the purpose of radiodetermination.

2.39 Radiodetermination-satellite service: A radiocommunication service for the purpose of radiodetermination involving the use of one or more space stations.

This service may also include feeder links necessary for its own operation.

2.40 Radionavigation service: A radiodetermination service for the purpose of radionavigation.

2.41 Radionavigation-satellite service: A radiodetermination-satellite service used for the purpose of radionavigation.

This service may also include feeder links necessary for its operation.

2.42 Maritime radionavigation service: A radionavigation service intended for the benefit and for the safe operation of ships.

2.43 Aeronautical radionavigation service: A radionavigation service intended for the benefit and for the safe operation of aircraft.

2.44 Aeronautical radionavigation-satellite service: A radionavigation-satellite service in which earth stations are located on board aircraft.

2.45 Radiolocation service: A radiodetermination service for the purpose of radiolocation.

2.46 Radiolocation-satellite service: A radiodetermination-satellite service used for the purpose of radiolocation.
This service may also include the feeder links necessary for its operation.

2.47 Meteorological aids service: A radiocommunication service used for meteorological, including hydrological, observations and exploration.

2.48 Earth exploration-satellite service: A **radiocommunication service** between **earth stations** and one or more **space stations**, which may include links between **space stations**, in which:

- information relating to the characteristics of the Earth and its natural phenomena, including data relating to the state of the environment, is obtained from active sensors or passive sensors on Earth satellites;
- similar information is collected from airborne or Earth-based platforms;
- such information may be distributed to earth stations within the system concerned;
- platform interrogation may be included.

This service may also include **feeder links** necessary for its operation.

2.49 Meteorological-satellite service: An **earth exploration-satellite service** for meteorological purposes.

2.50 Standard frequency and time signal service: A **radiocommunication service** for scientific, technical and other purposes, providing the transmission of specified frequencies, time signals, or both, of stated high precision, intended for general reception.

2.51 Standard frequency and time signal-satellite service: A **radiocommunication service** using **space stations** on earth **satellites** for the same purposes as those of the **standard frequency andtime signal service.**

This service may also include **feeder links** necessary for its operation.

2.52 Space research service: A **radiocommunication service** in which **spacecraft** or other objects in space are used for scientific or technological research purposes.

2.53 Amateur service: A **radiocommunication service** for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

2.54 Amateur-satellite service: A **radiocommunication service** using **space stations** on earth **satellites** for the same purposes as those of the **amateur service.**

2.55 Radio astronomy service: A service involving the use of **radio astronomy**.

2.56 Safety service: Any **radiocommunication service** used permanently or temporarily for the safeguarding of human life and property.

2.57 Special service: A **radiocommunication service**, not otherwise defined in this Section, carried on exclusively for specific needs of general utility, and not open to **public correspondence.**

2.58 ITU-REGION 1: Comprises Europe, Africa, the former Soviet Union, Mongolia, and the Middle East west of the Persian Gulf, including Iraq.

3. STRUCTURE OF THE NATIONAL TABLE OF FREQUENCY ALLOCATIONS

The National Table of Frequency Allocations consists of Three (3) columns:

Column 1 – Frequency band: It contains allocation of frequency bands for different radiocommunication services for Region 1countries. Contents of this column are identical to the column 1 of the Table of Frequency Allocations of Article 5 of the Radio Regulations.

Column 2 – Services and foot notes: It contains different radiocommunication services in Ghana. This allocation corresponds to provisions of Article 5 of the Radio Regulations.

Column 3 – Remarks: This column gives a brief description of the footnotes for easy reference.

The following conventions apply throughout the Ghana table:

- PRIMARY services are printed in upper case.
- Secondary services are printed in lower case

Where a footnote is printed in the same line as a radio service, it applies to that radio service only, whereas where a footnote is printed at the bottom of frequency band, it applies to that band or parts thereof.

3.1 TABLE OF FREQUENCY ALLOCATION (8.3 kHz – 3000GHz)

FREQUENCY BAND	GHANA'S ALLOCATION TO SERVICES	REMARKS
Below 8.3 kHz	Not allocated 5.53 5.54	All the footnotes are incorporated in the ITU Radio Regulations.
8.3 – 9 kHz	METEOROLOGICAL AIDS 5.54A	Passive use only.
9 – 11.3 kHz	METEOROLOGICAL AIDS 5.54A RADIONAVIGATION	For sharing Rec. ITU-R RS 1881 should be applied.
11.3 – 14 kHz	RADIONAVIGATION	
14 – 19.95kHz	FIXED MARITIME MOBILE 5.57 5.56	Stations that transmit standard frequency and time signals are protected. Maritime mobile service is limited to coast radiotelegraph stations (A1A & F1B).
19.95 – 20.05kHz	STANDARD FREQUENCY AND TIME SIGNAL (20 KHz)	
20.05 – 70 kHz	FIXED MARITIME MOBILE5.57 5.56	Stations that transmit standard frequency and time signals are protected. Maritime mobile service is limited to coast radiotelegraph stations (A1A & F1B).
70 – 72 kHz	RADIONAGIVATION 5.60	
72 – 84 kHz	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56	Stations that transmit standard frequency and time signals are protected.

		Maritime mobile service is limited to coast radiotelegraph stations (A1A & F1B).
84 – 86 kHz	RADIONAVIGATION 5.60	
86 – 90 kHz	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56	Stations that transmit standard frequency and time signals are protected. Maritime mobile service is limited to coast radiotelegraph stations (A1A & F1B).
90 – 110 kHz	RADIONAVIGATION 5.62 Fixed 5.64	
110 – 112 kHz	FIXED MARITIME MOBILE RADIONAVIGATION 5.64	
112 – 115 kHz	RADIONAVIGATION 5.60	
115 – 117.6 kHz	RADIONAVIGATION 5.60 Fixed Maritime Mobile 5.64	Pulse radionavigation systems may be used on condition that they do not cause harmful interference to other services.
117.6 – 126kHz	FIXED MARITIME MOBILE RADIONAVIGATION5.60 5.64	Pulse radionavigation systems may be used on condition that they do not cause harmful interference to other services.
126 – 129 kHz	RADIONAVIGATION5.60	

129 – 130 kHz	FIXED MARITIME MOBILE RADIONAVIGATION5.60 5.64	Pulse radionavigation systems may be used on condition that they do not cause harmful interference to other services.
130 –135.7 kHz	FIXED MARITIME MOBILE 5.64	
135.7-137.8kHz	FIXED MARITIME MOBILE Amateur 5.67A 5.64	Amateur Operators should not exceed 1Watt (e.i.r.p.).
137.8 -148.5 kHz	FIXED MARITIME MOBILE 5.64	Stations are authorized for only classes A1A or F1B, A2C, A3C, F1C or F3C. Exceptionally, class J2B or J7B emissions are also authorized for maritime mobile service.
148.5 – 255kHz	BROADCASTING	
255 – 283.5 kHz	BROADCASTING AERONAUTICAL RADIONAVIGATION	
283.5 – 315kHz	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 5.74	
315 – 325kHz	AERONAUTICALRADIONAVIGATION Maritime Radionavigation (radiobeacons) 5.73	
325 – 405 kHz	AERONAUTICAL RADIONAVIGATION	
405 – 415 kHz	RADIONAVIGATION 5.76	
415 – 435 kHz	MARITIME MOBILE 5.79 AERONAUTICALRADIONAVIGATION	Maritime Mobile services is limited to radiotelegraphy.
435 – 472 kHz	MARITIME MOBILE 5.79 Aeronautical radionavigation 5.82	Maritime Mobile services is limited to radiotelegraphy.

472 – 479 kHz	MARITIME MOBILE 5.79 Amateur 5.80A Aeronautical radionavigation 5.82	Maritime Mobile services is limited to radiotelegraphy. Amateur Operators should not exceed 5Watt (e.i.r.p.), however they are to ensure that they don't cause harmful interference to the aeronautical radionavigation service.
479 – 495 kHz	MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.82	Maritime Mobile services is limited to radiotelegraphy. Coast stations in the NAVTEX service should refer to resolution 339 (Rev.WRC-07). For use of 490kHz refer to Articles 31 and 52 of the ITU RR..
495 - 505 kHz	MARITIME MOBILE 5.82C 5.82D	
505 – 526.5 kHz	MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	Maritime Mobile services is limited to radiotelegraphy. Coast stations in the NAVTEX service should refer to resolution 339 (Rev.WRC-07). For use of 518kHz refer to Articles 31 and 52 of ITU RR.
526 .5– 1606.5 kHz	BROADCASTING	
1606.5 – 1625 kHz	FIXED MARITIME MOBILE 5.90	

	LAND MOBILE 5.92	
1625 – 1635 kHz	RADIOLOCATION	
1635 – 1800 kHz	FIXED MARITIME MOBILE 5.90 LAND MOBILE	
1800 – 1810kHz	RADIOLOCATION	
1810 – 1850 kHz	AMATEUR 5.100	Amateur Operators should coordinate the use of the band with Operators in Togo.
1850 – 2000 kHz	FIXED MOBILE except Aeronautical mobile 5.92 5.103	
2000 – 2025 kHz	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	
2025 – 2045 kHz	FIXED MOBILE except Aeronautical mobile (R) Meteorological Aids 5.104 5.92 5.103	Meteorological aid services is limited to oceanographic buoy station.
2045 – 2160 kHz	FIXED MARITIME MOBILE LAND MOBILE 5.92	
2160 – 2170 kHz	RADIOLOCATION	
2170 – 2173.5 kHz	MARITIME MOBILE	
2173.5 – 2190.5 kHz	MOBILE (distress and calling) 5.108 5.109 5.110 5.111	Refer to Articles 31 & 52 of ITU RR.
2190.5 – 2194 kHz	MARITIME MOBILE	
2194 – 2300kHz	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	
2300 – 2498 kHz	FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.103	For the use of 2498 kHz see Nos. 5.16 to 5.20, 5.21 and 23.3 to 23.10 of the ITU RR.

2498 – 2501 kHz	STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)	
2501 – 2502 kHz	STANDARD FREQUENCY AND TIME SIGNAL Space Research	
2502 – 2625 kHz	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	
2625 – 2650 kHz	MARITIME MOBILE MARITIME RADIONAVIGATION 5.92	Maritime Radionavigation service should not exceed 50W.
2650 – 2850 kHz	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	
2850 – 3025 kHz	AERONAUTICAL MOBILE (R) 5.111 5.115	For the use of 3023 kHz refer to Article 31 of the ITU RR.
3025 – 3155 kHz	AERONAUTICAL MOBILE (OR)	
3155 – 3200 kHz	FIXED MOBILE expect aeronautical mobile (R) 5.116	Low power wireless hearing aids shall be used.
3200 – 3230 kHz	FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.116	Low power wireless hearing aids shall be used. For broadcasting services see Nos. 5.16 to 5.20, 5.21 and 23.3 to 23.10 of ITU RR.
3230 – 3400 kHz	FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116	Low power wireless hearing aids shall be used. For broadcasting services see Nos. 5.16 to 5.20, 5.21 and 23.3 to 23.10 of ITU RR.
3400 – 3500 kHz	AERONAUTICAL MOBILE (R)	
3500 – 3800 kHz	AMATEUR FIXED MOBILE except aeronautical mobile 5.92	
3800 – 3900 kHz	FIXED	

	AERONAUTICAL MOBILE (OR) LAND MOBILE	
3900 – 3950 kHz	AERONAUTICAL MOBILE (OR)	
3950 – 4000 kHz	FIXED BROADCASTING	
4000 – 4063 kHz	FIXED MARITIME MOBILE 5.127	For Maritime mobile service see No. 52.220 and Appendix 17 of the ITU RR.
4063 – 4438 kHz	MARITIME MOBILE 5.79A 5.82D 5.109 5.110 5.130, 5.131 5.132 5.128	Coast stations in the NAVTEX service should refer to resolution 339 (Rev.WRC-07). For the use of 4125 kHz, 4177.5 kHz, 4207.5 kHz refer to Article 31 and 52 of the ITU RR. 4209.5kHz is used exclusively by coast stations for meteorological and navigational warnings and urgent information to ships 4210kHz is used for the transmission of maritime safety information (MSI) see Appendix 17 of ITU RR.
4438 – 4488 kHz	FIXED MOBILE except aeronautical mobile (R) Radiolocation 5.132A	Radiolocation services are limited to oceanographic radars, refer to Resolution 612 (Rev.WRC-12).
4488 – 4650 kHz	FIXED MOBILE except aeronautical mobile (R)	
4650 – 4700 kHz	AERONAUTICAL MOBILE (R)	
4700 – 4750 kHz	AERONAUTICAL MOBILE (OR)	

4750 – 4850 kHz	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	For broadcasting services see Nos. 5.16 to 5.20, 5.21 and 23.3 to 23.10 of ITU RR.
4850 – 4995 kHz	FIXED LAND MOBILE BROADCASTING 5.113	For broadcasting services see Nos. 5.16 to 5.20, 5.21 and 23.3 to 23.10 of ITU RR.
4995 – 5003 kHz	STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)	
5003 – 5005 kHz	STANDARD FREQENCY AND TIME SIGNAL Space Research	
5005 – 5060 kHz	FIXED BROADCASTING 5.113	For broadcasting services see Nos. 5.16 to 5.20, 5.21 and 23.3 to 23.10 of ITU RR.
5060 – 5250 kHz	FIXED Mobile except aeronautical mobile	
5250 – 5275 kHz	FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	Radiolocation services are limited to oceanographic radars, refer to Resolution 612 (Rev.WRC-12).
5275- 5351.5 kHz	FIXED MOBILE except aeronautical mobile	
5351.5-5366.5 kHz	FIXED MOBILE except aeronautical mobile Amateur 5.133B	Stations in the Amateur service using the frequency 5351.5-5366.5 KHz shall not exceed a maximum power of 15 W (eirp)
5366.5 – 5450 kHz	FIXED MOBILE except aeronautical mobile	
5450 – 5480 kHz	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	

5480 – 5680 kHz	AERONAUTICAL MOBILE (R) 5.111 5.115	For the use of 5680 kHz refer to Article 31 of the ITU RR.
5680 – 5730 kHz	AERONATICAL MOBILE (OR) 5.111 5.115	For the use of 3023 kHz refer to Article 31 of the ITU RR.
5730 – 5900 kHz	FIXED LAND MOBILE	
5900 – 5950 kHz	BROADCASTING 5.134 5.136	Refer to Article 12 and Resolution 517 (Rev. WRC-07). Fixed and Land mobile services may operate with a minimum power.
5950 – 6200 kHz	BROADCASTING	
6200 – 6525 kHz	MARITIME MOBILE 5.109 ,5.110, 5.130, 5.132 5.137, 5.137A	For the use of 6215 kHz, 6268 kHz, 6312 kHz refer to Article 31 and 52 of the ITU RR. 6314 kHz is used for the transmission of maritime safety information (MSI) see Appendix 17 of ITU RR. Fixed services may operate with a mean power not exceeding 50W.
6525 – 6685 kHz	AERONAUTICAL MOBILE (R)	
6685 – 6765 kHz	AERONAUTICAL MOBILE (OR)	

6765 – 7000 kHz	FIXED MOBILE except aeronautical mobile (R) 5.138	Also designated for ISM applications, with reference to latest relevant ITU-R Recommendations.
7000 – 7100 kHz	AMATEUR AMATEUR-SATELLITE	Amateur Operators should coordinate the use of the band with Operators in Togo.
7100 – 7200 kHz	AMATEUR	
7200 – 7300 kHz	BROADCASTING	
7300 – 7400 kHz	BROADCASTING 5.134 5.143 5.143B	Refer to Article 12 and Resolution 517 (Rev. WRC-07). Fixed and Land mobile services may operate at a minimum power of 24 dBW.
7400 – 7450 kHz	BROADCASTING 5.143B	Fixed and Land mobile services may operate at a minimum power of 24 dBW.
7450 – 8100 kHz	FIXED MOBILE except aeronautical mobile (R)	
8100 – 8195 kHz	FIXED MARITIME MOBILE	
8195 – 8815 kHz	MARITIME MOBILE 5.109 5.110 5.132 , 5.137A 5.145 5.111	For the use of 8414.5 kHz, 8376.5kHz, 8364 kHz, 8291 kHz refer to Article 31 and 52 of the ITU RR. 8416.5 kHz is used for the transmission of maritime

		safety information (MSI) see Appendix 17 of ITU RR.
8815 – 8965 kHz	AERONAUTICAL MOBILE (R)	
8965 – 9040 kHz	AERONAUTICAL MOBILE (OR)	
9040 – 9305 kHz	FIXED	
9305 – 9355 kHz	FIXED Radiolocation 5.145A	Radiolocation services are limited to oceanographic radars, refer to Resolution 612 (Rev.WRC-12).
9355 – 9400 kHz	FIXED	
9400 – 9500 kHz	BROADCASTING 5.134 5.146	Refer to Article 12 and Resolution 517 (Rev. WRC-07).
9500 – 9900 kHz	BROADCASTING 5.147	Fixed services may operate at a minimum power of 24 dBW.
9900 – 9995 kHz	FIXED	
9995 – 10003 kHz	STANDARD FREQUENCY AND TIME SIGNAL (10 MHz) 5.111	For the use of 10003 kHz refer to Article 31 of the ITU RR. Emissions must be confined in a band of ± 3 kHz about the frequency.
10003 – 10005 kHz	STANDARD FREQUENCY AND TIME SIGNAL Space Research 5.111	For the use of 10003 kHz refer to Article 31 of the ITU RR. Emissions must be confined in a band of ± 3 kHz about the frequency.
10005 – 10100 kHz	AERONAUTICAL MOBILE (R) 5.111	

10100 – 10150 kHz	FIXED Amateur	
10150 – 11175 kHz	FIXED Mobile except aeronautical mobile (R)	
11175 – 11275 kHz	AERONAUTICAL MOBILE (OR)	
11275 – 11400 kHz	AERONAUTICAL MOBILE (R)	
11400 – 11600 kHz	FIXED	
11600 – 11650 kHz	BROADCASTING 5.134 5.146	Refer to Article 12 and Resolution 517 (Rev. WRC-07).
11650 – 12050 kHz	BROADCASTING 5.147	Fixed services may operate at a minimum power of 24 dBW.
12050 – 12100 kHz	BROADCASTING 5.134 5.146	Refer to Article 12 and Resolution 517 (Rev. WRC-07).
12100 – 12230 kHz	FIXED	
12230 – 13200 kHz	MARITIME MOBILE 5.109 5.110 5.132 5.137A 5.145	For the use of 12577 kHz, 12520 kHz, 12290 kHz refer to Article 31 and 52 of the ITU RR. 12579 kHz is used for the transmission of maritime safety information (MSI) see Appendix 17 of ITU RR.
13200 – 13260 kHz	AERONAUTICAL MOBILE (OR)	
13260 – 13360 kHz	AERONAUTICAL MOBILE (R)	

13360 – 13410 kHz	FIXED RADIO ASTRONOMY 5.149	Fixed service operators should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
13410 – 13450 kHz	FIXED Mobile except aeronautical mobile (R)	
13450 – 13550 kHz	FIXED Mobile except aeronautical mobile (R) Radiolocation 5.132A	Radiolocation services are limited to oceanographic radars, refer to Resolution 612 (Rev.WRC-12).
13550 – 13570 kHz	FIXED Mobile except aeronautical mobile (R) 5.150	Also designated for ISM applications, subject to the provisions of No. 15.13 of the ITU-RR.
13570 – 13600 kHz	BROADCASTING 5.134 5.151	Refer to Article 12 and Resolution 517 (Rev. WRC-07).
13600 – 13800 kHz	BROADCASTING	
13800 – 13870 kHz	BROADCASTING 5.134 5.151	Refer to Article 12 and Resolution 517 (Rev. WRC-07).
13870 – 14000 kHz	FIXED Mobile expect aeronautical mobile (R)	
14000 – 14250 kHz	AMATEUR AMATEUR-SATELLITE	
14250 – 14350 kHz	AMATEUR	
14350 – 14990 kHz	FIXED Mobile except aeronautical mobile (R)	

14990 – 15005 kHz	STANDARD FREQUENCY AND TIME SIGNAL (15 MHz) 5.111	For the use of 14993 kHz refer to Article 31 of the ITU RR. Emissions must be confined in a band of ± 3 kHz about the frequency.
15005 – 15010 kHz	STANDARD FREQUENCY AND TIME SIGNAL Space Research	
15010 – 15100 kHz	AERONAUTICAL MOBILE (OR)	
15100 – 15600 kHz	BROADCASTING	
15600 – 15800 kHz	BROADCASTING 5.134 5.146	Refer to Article 12 and Resolution 517 (Rev. WRC-07).
15800 – 16100 kHz	FIXED	
16100 – 16200 kHz	FIXED Radiolocation 5.145A	Radiolocation services are limited to oceanographic radars, refer to Resolution 612 (Rev.WRC-12).
16200 – 16360 kHz	FIXED	
16360 – 17410 kHz	MARITIME MOBILE 5.109 5.110 5.132 5.137A 5.145	For the use of 16804.5 kHz, 16695 kHz, 16420 kHz refer to Article 31 and 52 of the ITU RR. 16806.5 kHz is used for the transmission of maritime safety information (MSI) see Appendix 17 of ITU RR.
17410 – 17480 kHz	FIXED	

17480 – 17550 kHz	BROADCASTING 5.134 5.146	Refer to Article 12 and Resolution 517 (Rev. WRC-07).
17550 – 17900 kHz	BROADCASTING	
17900 – 17970 kHz	AERONAUTICAL MOBLIE (R)	
17970 – 18030 kHz	AERONAUTICAL MOBILE (OR)	
18030 – 18052 kHz	FIXED	
18052 – 18068 kHz	FIXED Space Research	
18068 – 18168 kHz	AMATEUR AMATEUR – SATELLITE	
18168 – 18780 kHz	FIXED Mobile except aeronautical mobile	
18780 – 18900 kHz	MARITIME MOBILE	
18900 – 19020 kHz	BROADCASTING 5.134 5.146	Refer to Article 12 and Resolution 517 (Rev. WRC-07).
19020 – 19680 kHz	FIXED	
19680 – 19800 kHz	MARITIME MOBILE 5.132	19680.5 kHz is used for the transmission of maritime safety information (MSI) see Appendix 17 of ITU RR.
19800 – 19990 kHz	FIXED	

19990 – 19995 kHz	STANDARD FREQUENCY AND TIME SIGNAL Space Research 5.111	For the use of 19993 kHz refer to Article 31 of the ITU RR. Emissions must be confined in a band of ± 3 kHz about the frequency.
19995 – 20010 kHz	STANDARD FREQUENCY AND TIME SIGNAL (20MHz) 5.111	
20010 – 21000 kHz	FIXED Mobile	
21000 – 21450 kHz	AMATEUR AMATEUR-SATELLITE	
21450 – 21850 kHz	BROADCASTING	
21850 – 21870 kHz	FIXED	
21870 – 21924 kHz	FIXED 5.155B	Used by the fixed service for provision of services related to aircraft flight safety.
21924 – 22000 kHz	AERONAUTICAL MOBILE (R)	
22000 – 22855 kHz	MARITIME MOBILE 5.132 5.137A	22376 kHz is used for the transmission of maritime safety information (MSI) see Appendix 17 of ITU RR.
22855 – 23000 kHz	FIXED	
23000 – 23200 kHz	FIXED Mobile except aeronautical (R)	
23200 – 23350 kHz	AERONAUTICAL MOBILE (OR) FIXED 5.156A	Used by the fixed service for provision of services related to aircraft flight safety.

23350 – 24000 kHz	FIXED MOBILE except aeronautical mobile 5.157	Maritime mobile service is limited to inter-ship radiotelegraphy.
24000 – 24450 kHz	FIXED LAND MOBILE	
24450 – 24600 kHz	FIXED LAND MOBILE Radiolocation 5.132A	Radiolocation services are limited to oceanographic radars, refer to Resolution 612 (Rev.WRC-12).
24600 – 24890 kHz	FIXED LAND MOBILE	
24890 – 24990 kHz	AMATEUR AMATEUR-SATELLITE	
24990 – 25005 kHz	STANDARD FREQUENCY AND TIME SIGNAL (25MHz)	
25005 – 25010 kHz	STANDARD FREQUENCY AND TIME SIGNAL Space Research	
25010 – 25070 kHz	FIXED MOBILE except aeronautical mobile	
25070 – 25210 kHz	MARITIME MOBILE	
25210 – 25550 kHz	FIXED MOBILE except aeronautical mobile	
25550 – 25670 kHz	RADIO ASTRONOMY 5.149	
25670 – 26100 kHz	BROADCASTING	
26100 – 26175 kHz	MARITIME MOBILE 5.132	26100.5 kHz is used for the transmission of maritime safety information (MSI) see Appendix 17 of ITU RR.

26175 – 26200 kHz	FIXED MOBILE except aeronautical mobile	
26200 – 26350kHz	FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	Radiolocation services are limited to oceanographic radars, refer to Resolution 612 (Rev.WRC-12).
26350 – 27500 kHz	FIXED MOBILE except aeronautical mobile 5.150	Also designated for ISM applications, subject to the provisions of No.15.13 of the ITU-RR.
27.5 – 28 MHz	METEOROLOGICAL AIDS FIXED MOBILE	
28 – 29.7 MHz	AMATEUR AMATEUR-SATELLITE	
29.7 – 30.005 MHz	FIXED MOBILE	
30.005 – 30.01 MHz	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	
30.01 – 37.5 MHz	FIXED MOBILE	
37.5 – 38.25 MHz	FIXED MOBILE Radio Astronomy 5.149	Fixed and mobile service operators should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
38.25 – 39 MHz	FIXED MOBILE	

39 – 39.5 MHz	FIXED MOBILE Radiolocation 5.132A	Radiolocation services are limited to oceanographic radars, refer to Resolution 612 (Rev.WRC-12).
39.5 – 39.986 MHz	FIXED MOBILE	
39.986 – 40 MHz	FIXED MOBILE Space Research	
40-40.02 MHz	FIXED MOBILE Earth Exploration-satellite (active) 5.159A Space Research	
40.02 – 40.98 MHz	FIXED MOBILE Earth Exploration-satellite (active) 5.159A 5.150	Also designated for ISM applications, subject to the provisions of No.15.13 of the ITU-RR.
40.98 – 41.015 MHz	FIXED MOBILE Earth Exploration-satellite (active) 5.159A Space Research	
41.015 - 42	FIXED MOBILE Earth Exploration-satellite (active) 5.159A	
42 – 42.5 MHz	FIXED MOBILE Earth Exploration-satellite (active) 5.159A Radiolocation 5.132A	Radiolocation services are limited to oceanographic radars, refer to Resolution 612 (Rev.WRC-12).

42.5 – 47 MHz	FIXED MOBILE Earth Exploration-satellite (active) 5.159A	
47 – 50 MHz	BROADCASTING Earth exploration-satellite (active) 5.159A	
50-52 MHZ	BROADCASTING Amateur 5.166B 5.166C	
52-68 MHz	BROADCASTING	
68 – 74.8 MHz	FIXED MOBILE except aeronautical mobile 5.149	
74.8 – 75.2 MHz	AERONAUTICAL RADIONAVIGATION 5.180	The frequency 75 MHz is assigned to marker beacons, other services should avoid causing harmful interference to it.
75.2 – 87.5 MHz	FIXED MOBILE except aeronautical mobile	
87.5 – 108 MHz	BROADCASTING	Used by Sound Broadcasting Operators.
108 – 117.975 MHz	AERONAUTICAL RADIONAVIGATION 5.197A	Refer to Resolution 413 (Rev.WRC-07).
117.975 - 137 MHz	AERONAUTICAL MOBILE (R) AERONAUTICAL MOBILE-SATELLITE (R) 5.198A 5.198B 5.111 5.200	Refer to Article 31 of the ITU RR. 136-144 MHz is used by 2-way Radio Networks.
137 - 137.025 MHz	SPACE OPERATION (space-to-Earth) 5.203C METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth)	Refer to Resolution 739 (Rev. WRC-07).

	Fixed Mobile except aeronautical mobile (R)	Mobile-satellite service is limited to non-geostationary-satellite systems. The mobile-satellite service is subject to coordination under No. 9.11A of the ITU-RR. 136-144 MHz is used by 2-way Radio Networks.
137.025 - 37.175MHz	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) 5.208 5.208A 5.208B 5.209	Refer to Resolution 739 (Rev. WRC-07). Mobile-satellite service is limited to non-geostationary-satellite systems. The mobile-satellite service is subject to coordination under No. 9.11A of the ITU-RR. 136-144 MHz is used by 2-way Radio Networks.
137.175 – 137.825MHz	SPACE OPERATION (space-to-Earth) 5.203C 5.209A METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R)	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**. Total number of satellites in a n-GSO SDM system shall not exceed 10 satellites

		Refer to Resolution 739 (Rev. WRC-07). Mobile-satellite service is limited to non-geostationary-satellite systems. The mobile-satellite service is subject to coordination under No. 9.11A of the ITU-RR. 136-144 MHz is used by 2-way Radio Networks.
137.825 – 138 MHz	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 operations services using NGSO satellites in the frequency band 137-138 MHz is subject to Resolution 660(WRC-19). Total number of satellites in a n-GSO SDM system shall not exceed 10 satellites Refer to Resolution 739 (Rev. WRC-07). Mobile-satellite service is limited to non-geostationary-satellite systems. The mobile-satellite service is subject to coordination under No. 9.11A of the ITU RR. 136-144 MHz is used by 2-way Radio Networks.
138 – 144MHz	FIXED MOBILE	For use by 2-way Radio Networks.

	5.212	
144 – 146 MHz	AMATEUR AMATEUR-SATELLITE	
146-148 MHz	FIXED MOBILE except aeronautical mobile (R)	For use by 2-way Radio Networks.
148- 149.9 MHz	FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.218A 5.219 5.221	For use by 2-way Radio Networks.
149.9- 150.05 MHz	MOBILE-SATELLITE (Earth-to-space) 5.209 5.220	For use by 2-way Radio Networks.
150.05- 153 MHz	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	For use by 2-way Radio Networks.
153-154 MHz	FIXED MOBILE except aeronautical mobile (R) Meteorological aids	For use by 2-way Radio Networks.
154-156.4875 MHz	FIXED MOBILE except aeronautical mobile (R) 5.226	For use by 2-way Radio Networks.

156.4875-156.5625 MHz	FIXED 5.227 MOBILE 5.227 MARITIME MOBILE (distress and calling via DSC) 5.111 5.226	For use by 2-way Radio Networks
156.5625-156.7625 MHz	FIXEDMOBILE except aeronautical mobile (R) 5.226	For use by 2-way Radio Networks
156.7625-156.7875 MHz	MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	For use by 2-way Radio Networks
156.7875-156.8125 MHz	MARITIME MOBILE (distress and calling) 5.111 5.266	For use by 2-way Radio Networks
156.8125-156.8375 MHz	MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	For use by 2-way Radio Networks
156.8375-157.1875 MHz	FIXED MOBILE except aeronautical mobile 5.226	For use by 2-way Radio Networks
157.1875- 157.3375 MHz	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.226	For use by 2-way Radio Networks
157.3375- 161.7875 MHz	FIXED MOBILE except aeronautical mobile 5.226	For use by 2-way Radio Networks

161.7875-161.9375 MHz	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228 5.226	For use by 2-way Radio Networks
161.9375- 161.9625 MHz	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to- space) 5.228AA	For use by 2-way Radio Networks
161.9625-161.9875 MHz	FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A	For use by 2-way Radio Networks
161.9875- 162.0125 MHz	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to- space) 5.228AA 5.226	For use by 2-way Radio Networks
162.0125- 162.0375 MHz	FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A	For use by 2-way Radio Networks
162.0375 - 174 MHz	FIXED MOBILE except aeronautical mobile 5.226	For use by 2-way Radio Networks.
174 – 230 MHz	BROADCASTING	Used by Analogue Television Broadcasting Operators.
230 - 235 MHz	FIXED MOBILE	
235 - 267 MHz	FIXED MOBILE 5.111 5.254 ,5.256	For the use of 243 MHz refer to Article 31 of the ITU RR. May be used by the mobile-satellite service, subject to agreement obtained under No. 9.21 of the ITU RR.

267 – 272 MHz	FIXED MOBILE Space Operation (space-to-Earth) 5.254 5.257	Refer to No. 9.21 of the ITU RR.
272 - 273 MHz	SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254	May be used by the mobile-satellite service, subject to agreement obtained under No. 9.21 of the ITU RR.
273 – 312 MHz	FIXED MOBILE 5.254	May be used by the mobile-satellite service, subject to agreement obtained under No. 9.21 of the ITU RR.
312 - 315 MHz	FIXED MOBILE Mobile-Satellite (Earth-to-space) 5.254, 5.255	May be used by the mobile-satellite service, subject to agreement obtained under Nos. 9.21 and 9.11A of the ITU RR.
315 - 322 MHz	FIXED MOBILE 5.254	May be used by the mobile-satellite service, subject to agreement obtained under No. 9.21 of the ITU RR.
322 – 328.6 MHz	FIXED MOBILE RADIO ASTRONOMY 5.149	Fixed and Mobile service operators should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
328.6 - 335.4 MHz	AERONAUTICAL RADIONAVIGATION 5.258	Aeronautical radionavigation service is limited to Instrument Landing Systems (glide path).
335.4 - 387 MHz	FIXED MOBILE	Used for Studio-Transmitter-Links (STL) and Outside

	55.254	Broadcasting (OB) operations. See Resolution 739 (Rev. WRC-15)
387-390MHz	FIXED MOBILE Mobile -satellite (space to Earth) 5.208A,5.208B,5.245,5.255	
390-399.9 MHz	FIXED MOBILE 5.254	FIXED MOBILE
399.9-400.05 MHz	MOBILE SATELLITE (Earth-to-space) 5.209 5.220 5.260A 5.260B	

400.05 – 400.15 MHz	STANDARD FREQUENCY AND TIME SIGNAL SATELLITE (400.1MHz) 5.261 5.262	
400.15-401 MHz	METEOROLOGICAL AIDS METEOLOGICAL -SATELLITE (Space to Earth) MOBILE-SATELLITE (space to Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space to Earth) 5.263 Space operation (space to Earth) 5.262, 5.264	The Band has been designated for Fixed and Mobile services.
401-402 MHz	METEOROLOGICAL AIDS SPACE OPERATION (space to Earth) EARTH EXPLORATION-SATELLITE (Earth to space) METEOLOGICAL -SATELLITE (Space to Earth) Fixed Mobile except aeronautical mobile 5.264A 5.264B	The Band has been designated for Fixed and Mobile services.

402-403 MHz	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth to space) METEOLOGICAL -SATELLITE (Space to Earth) Fixed Mobile except aeronautical mobile 5.264A 5.264B	The Band has been designated for Fixed and Mobile services.
403-406 MHz	METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile 5.265	The Band has been designated for Fixed and Mobile services.
406-406.1MHz	MOBILE- SATELLITE (space-to-Earth) 5.265 5.266 5.257	Refer to Article 31.
406.1-410MHz	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149, 5.265	Fixed and Mobile service operators should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
410-420MHz	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268	
420-430MHz	FIXED MOBILE except aeronautical mobile Radiolocation	
430 -432MHz	AMATEUR RADIOLOCATION	
432-438 MHz	AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A 5.138 5.282	

438-440 MHz	AMATEUR RADIOLOCATION	
440-450MHz	FIXED MOBILE except aeronautical mobile Radiolocation 5.286	
450-470 MHz	FIXED MOBILE 5.286AA	Refer to Resolution 224 and 749(Rev.WRC-15.
470-694MHz	BROADCASTING 5.296 5.304 5.311A	Land mobile services may also be used on a secondary basis.
694-790MHz	MOBILE except aeronautical mobile 5.312A 5.312B 5.317A	Refer to Resolutions 224(Rev. WRC-15), 760 (WRC-15) and 749 (WRC-15)
790-862MHz	FIXED MOBILE except aeronautical mobile 5.312B 5.316B 5.317A	825-835 MHz used for IMT services. Refer to Resolutions 224(Rev.WRC-12) & 749 (Rev. WRC-12).
862-890MHz	FIXED MOBILE except aeronautical mobile 5.312B 5.317A	870-880 MHz used for IMT services. Refer to Resolutions 224(Rev.WRC-12) & 749 (Rev. WRC-12).
890-960MHz	FIXED MOBILE except aeronautical mobile 5.312B 5.317A	Used for IMT services.

		Refer to Resolutions 224(Rev.WRC-12) & 749 (Rev. WRC-12).
960-1164MHz	AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328 5.328A	For Aeronautical Mobile (R), refer to Resolution 417 (Rev. WRC-12). The 1087.7-1092.3 MHz is also allocated aeronautical mobile-satellite ® services on a primary basis limited to ADS-B operations subject to Resolution 425 (WRC-15). 960-1215 MHz is reserved for the operation & development of airborne electronic aids to air navigation and any directly associated ground-based facilities.
1164 – 1215MHz	AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-earth)(space-to-space) 5.328A5.328B	960-1215 MHz is reserved for the operation & development of airborne electronic aids to air navigation and any directly associated ground-based facilities, refer to the provisions of No. 21.18 in the ITU RR. For radionavigation satellite services, the provisions of Nos. 9.12, 9.12A & 9.13 of the ITU-RR and Resolution 610(WRC-03) shall apply.

		For radionavigation-satellite service refer to Resolution 609 (Rev.WRC-07).
1215-1240 MHz	EARTH EXPLORATION RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (ACTIVE) 5.331 5.332	
1240-1300 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (Active) Amateur 5.282 5.331 5.332 5.322A 5.335A	
1300-1350MHz	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 RADIONAVIGATION-SATELLITE (Earth-to-Space) 5.337A, 5.149	Restricted to ground-base radars for aeronautical radionavigation services. Service operators should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
1350-1400MHz	FIXED MOBILE RADIOLOCATION 5.149, 5.338A, 5.339	Service operators should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR. Refer to Resolution 750 (Rev.WRC-12).
1400-1427MHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340, 5.341	

1427-1429MHz	SPACE OPERATION(Earth-to-space) FIXED MOBILE except aeronautical mobile 5.341A 5.338A 5.341	Refer to Resolution 750 (Rev.WRC-12).
1429-1452MHz	FIXED MOBILE except aeronautical mobile 5.338A 5.341 5.341A	Refer to Resolution 750 (Rev.WRC-12).
1452-1492MHz	FIXED MOBILE except aeronautical mobile 5.346 BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.345	Refer to Resolution 739 (Rev. WRC-07).
1492-1518MHZ	FIXED MOBILE except aeronautical mobile 5.341A 5.341	
1518 – 1525MHz	FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 5.348, 5.351A 5.341	Mobile satellite services shall not claim protection from the fixed service. Refer to No. 9.11A of the ITU RR & Resolutions 212 (Rev. WRC-07) & 225(Rev. WRC-07).
1525-1530MHz	SPACE OPERATION(space-to-Earth) FIXED MOBILE- SATELLITE(space-to-Earth) 5.208B 5.351A Earth exploration-satellite Mobile except aeronautical mobile 5.341 5.351 5.354	Refer to Resolution 739 (Rev. WRC-07). For mobile satellite services see Resolutions 212 (Rev.WRC-07) and 225 (Rev.WRC-07). 1525-1544 MHz shall not be used for feeder links of any service.

		Mobile satellite service is subject to coordination under No. 9.11A.
1530-1535MHz	SPACE OPERATION(space-to-Earth) MOBILE- SATELLITE(space-to-Earth) 5.208B 5.351A 5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile 5.341 5.351 5.354	Refer to Resolution 739 (Rev. WRC-07). For mobile satellite services see Resolutions 212, 225(Rev.WRC-07) and 222 (Rev.WRC-2000). 1525-1544 MHz shall not be used for feeder links of any service. Mobile satellite service is subject to coordination under No. 9.11A.
1535-1559MHz	MOBILE- SATELLITE (space-to-Earth) 5.208B 5.351A 5.341 5.351 5.353A 5.354 5.356 5.357 5.357A	Refer to Resolution 739 (Rev. WRC-07). For mobile satellite services see Resolutions 212, 225(Rev.WRC-07) and 222 (Rev.WRC-2000). Mobile satellite service is subject to coordination under No. 9.11A. 1525-1544 MHz & 1545-1559 shall not be used for feeder links of any service.

		For the use of 1544-1545 MHz refer to Article 31 and 44. Transmissions in 1545-1555 MHz by terrestrial aeronautical stations can be used to extend or supplement the satellite-to-aircraft links.
1559-1610MHz	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth)(space-to-space) 5.208B 5.328B 5.329A 5.341	Refer to Resolution 739 (Rev. WRC-07). For radionavigation satellite services, the provisions of Nos. 9.12, 9.12A & 9.13 of the ITU-RR and Resolution 610(WRC-03) shall apply.
1610-1610.6MHz	MOBILE- SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION 5.341 5.364 5.366 5.367 5.368 5.371 5.372	For mobile satellite services see Resolutions 212 & 225(Rev.WRC-07). Refer to Nos.9.11A, 5.366 & 5.359 of ITU RR. For the use of 1610 – 1626.5 MHz, refer to No. 9.21 of the ITU RR.
1610.6-1613.8MHz	MOBILE- SATELLITE (Earth-to-space) 5.351A RADIO-ASTRONOMY AERONAUTICAL RADIONAVIGATION 5.149 5.341 5.364 5.366 5.367 5.368 5.371 5.372	For mobile satellite services see Resolutions 212 & 225(Rev.WRC-07). Refer to Nos.9.11A, 5.366 & 5.359 of ITU RR.

		For the use of 1610 – 1626.5 MHz, refer to No. 9.21 of the ITU RR. Mobile satellite and aeronautical radionavigation services should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
1613.8-1 621.35MHz	MOBILE- SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile- satellite (space-to-Earth) 5.208B 5.341 5.364 5.365 5.366 5.367 5.368 5.371 5.372 5.372A	For mobile satellite services see Resolutions 212 & 225(Rev.WRC-07). Refer to Nos.9.11A, 5.366 & 5.359 of ITU RR. For the use of 1610 – 1626.5 MHz, refer to No. 9.21 of the ITU RR. Refer to Resolution 739 (Rev. WRC-07).
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) 5.208B 5.341 5.364 5.365 5.366 5.367 5.368 5.371 5.372	Refer to Resolution 739 (Rev. WRC-07). Refer to Nos.9.11A, 5.366 & 5.359 of ITU RR.
1626.5-1660MHz	MOBILE- SATELLITE (Earth-to-space) 5.351A 5.341 5.351 5.353A 5.354 5.357A 5.375 5.376	For mobile satellite services see Resolutions 212,

		225(Rev.WRC-07) and 222 (Rev.WRC-2000). 1626.5-1646.5 MHz shall not be used for feeder links of any service. 1626.5 – 1660.5 MHz is subject to coordination under No. 9.11A. For the use of 1645.5-1646.5 MHz refer to Article 31. Transmissions in 1646.5-1656.5 MHz by terrestrial aeronautical stations can be used to extend or supplement the satellite-to-aircraft links.
1660-1660.5MHz	MOBILE- SATELLITE (Earth-to-space) 5.351A RADIO-ASTRONOMY 5.149 5.341 5.351 5.354 5.376A	For mobile satellite services see Resolutions 212 (Rev.WRC-07) and 225 (Rev.WRC-07). Mobile satellite services should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR. 1660.5 MHz shall not be used for feeder links of any service. Mobile satellite service is subject to coordination under No. 9.11A.

		Mobile earth station shall not cause harmful interference to the radaio astronomy service.
1660.5-1668MHz	RADIO-ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341	
1668-1668.4MHz	MOBILE-SATELLITE (Earth-to-space) 5.351A, 5.379B, 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341	For mobile satellite services see Resolutions 212 (Rev.WRC-07) and 225 (Rev.WRC-07).
1668.4- 1670	METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) 5.351A, 5.379B, 5.379C RADIO ASTRONOMY 5.149 5.341 5.379D	For mobile satellite services see Resolutions 212 (Rev.WRC-07) and 225 (Rev.WRC-07). The use of 1668-1675 MHz by the Mobile satellite service is subject to coordination under No. 9.11A. To protect the radio astronomy service the aggregate power flux density by the mobile earth stations should not exceed -181 dB(W/m^2) in 10 MHz & -194 dB(W/m^2) in 20kHz.

		Meteorological Aids, Fixed, Mobile except aeronautical mobile and mobile satelliteservices should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR. The use of 1668-1675 MHz by the Mobile satellite service is subject to coordination under No. 9.11A. For sharing of 1668.4-1670 MHz between the mobile satellite service & the fixed and mobile services see Resolution 744 (Rev WRC-07).
1670-1675MHz	METEOROLOGICAL AIDS FIXED METEOROLOGICAL- SATELLITE(space-to-Earth) MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.341 5.379D 5.379E 5.380A	For mobile satellite services see Resolutions 212 (Rev.WRC-07) and 225 (Rev.WRC-07). The use of 1668-1675 MHz by the Mobile satellite service is subject to coordination under No. 9.11A. For sharing of 1668.4-1670 MHz between the mobile satellite service & the fixed and mobile services see Resolution 744 (Rev WRC-07).
1675-1690MHz	METEOROLOGICAL AIDS FIXED	

	METEOROLOGICAL- SATELLITE(space-to-Earth) MOBILE except aeronautical mobile 5.341	
1690-1700MHz	METEOROLOGICAL AIDS METEOROLOGICAL- SATELLITE(space-to-Earth) Fixed Mobile except aeronautical mobile 5.289 5.341	Earth Exploration satellite can also be used for space-to-earth transmissions provided it does not cause harmful interference to other services in this band.
1700 - 1710 MHz	FIXED METEOROLOGICAL-SATELLITE (space- to-earth) MOBILE except aeronautical mobile 5.289 5.341	Earth Exploration satellite can also be used for space-to-earth transmissions provided it does not cause harmful interference to other services in this band.
1710 - 1980 MHz	FIXED MOBILE 5.384A 5.388 5.388A 5.149	Assignment to operators for 2G services. HAPS operating as an IMT base station in neighboring countries shall not exceed a co-channel power flux-density of -127 dB(W/m^2) See Resolution 212 (Rev.WRC-07) & Resolution 223 (Rev.WRC-07).
1980 - 2010 MHz	FIXED MOBILE MOBILE-SATELLITE (earth-to-space) 5.351A 5.388 5.389A	For mobile satellite services see Resolutions 212 (Rev.WRC-07) and 225 (Rev.WRC-07). See Resolution 223 (Rev. WRC-07).

		The Mobile satellite service is subject to coordination under No. 9.11A & Resolution 716 (Rev. WRC-2000).
2010 - 2025 MHz	FIXED MOBILE 5.388 5.388A	HAPS operating as an IMT base station in neighbouring countries shall not exceed a co-channel power flux-density of -127 dB (W/m^2). See Resolution 212 (Rev.WRC-07) & Resolution 223 (Rev.WRC-07).
2025 - 2110 MHz	SPACE OPERATION (earth-space) (space-space) EARTH EXPLORATION-SATELLITE (earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (earth-space) (space-space) 5.392	For mobile services, refer to Recommendation ITU-R SA. 1154. Space-space transmissions between two or more non-geostationary satellite service shall not impose any constraints on Earth-space, space – Earth and other space-space transmissions of the space operation, space research and the earth exploration satellite service.
2110 - 2170 MHz	FIXED MOBILE 5.388 5.388A	HAPS operating as an IMT base station in neighbouring countries shall not exceed a co-channel power flux-density of -127 dB (W/m^2).

		See Resolution 212 (Rev.WRC-07) & Resolution 223 (Rev.WRC-07).
2170 - 2200 MHz	FIXED MOBILE 5.388 MOBILE- SATELLITE (space-earth) 5.351A 5.389A	For mobile satellite services see Resolutions 212 (Rev.WRC-07) and 225 (Rev.WRC-07). See Resolution 223 (Rev. WRC-07). The Mobile satellite service is subject to coordination under No. 9.11A & Resolution 716 (Rev. WRC-2000).
2200 - 2290 MHz	SPACE OPERATION (space-earth) (space-to-space) EARTH EXPLORATION SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (space-to-earth) (space-to-space) 5.392	For mobile services, refer to Recommendation ITU-R SA. 1154. Space-space transmissions between two or more non-geostationary satellite services shall not impose any constraints on Earth-space, space – Earth and other space-space transmissions of the spce operation, space research and the earth exploration satellite service.
2290 - 2300 MHz	FIXED MOBILE except aeronautical mobile	Used by Internet and Data Service Providers.
2300 – 2450 MHz	FIXED MOBILE 5.384A Amateur Radiolocation	For IMT services in 2300-2400 MHz, see Resolution 223 (Rev. WRC-07).

	5.150	The frequency 2400-2483.5 MHz is designated for ISM applications, subject to the provisions of No.15.13 of the ITU-RR.
2450 – 2483.5 MHz	FIXED MOBILE Radiolocation 5.150	Designated for ISM applications, subject to the provisions of No.15.13 of the ITU-RR.
2483.5 - 2500 MHz	FIXED MOBILE MOBILE-SATELLITE (space to Earth) 5.351A RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 Radiolocation 5.398A 5.150 5.368 5.372A 5.402	Designated for ISM applications, subject to the provisions of No.15.13 of the ITU-RR.
2500 - 2690 MHz	FIXED MOBILE except aeronautical mobile 5.384A 5.409A	Used by Broadband Wireless Access (BWA) Operators.
2690 - 2700 MHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	
2700 - 2900 MHz	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423	Use by aeronautical radionavigation services is restricted to ground based radars & to associated air-borne transponders. Also authorized for Ground base radars used for meteorological purposes.
2900 - 3100 MHz	RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427	Radionavigation services using radar systems are protected.

		The aeronautical radionavigation service is limited to ground-base radars. 2930-2950 MHz is allocated for shipborne interrogator-transponder. The radiolocation service shall not cause harmful interference to the radionavigation service.
3100 - 3300 MHz	RADIOLOCATION Earth Exploration-Satellite (active) Space Research (active)	3100-3140 MHz has been assigned to for Fixed Services.
3300 - 3400 MHz	RADIOLOCATION MOBILE except aeronautical mobile 5.429A 5.429B	Earmarked for IMT
3400 - 3600 MHz	FIXED FIXED-SATELLITE (space-Earth) MOBILE except aeronautical mobile 5.430A Radiolocation 5.431	Used by Internet and Data Service Providers. A base or mobile station in the mobile service shall ensure that the power flux density produced at 3m above ground does not exceed -154.5 dB(W/m^2 – 4kHz) at the border. Fixed and mobile service operators should coordinate

		their use with the satellite service providers. See Nos. 9.17 and 9.18.
3600 - 3800 MHz	FIXED FIXED-SATELLITE (space-earth) MOBILE except aeronautical mobile 5.434A 5.434B	Fixed and mobile service operators should coordinate their use with the satellite service providers. See Nos. 9.17 and 9.18.
3800 – 4200 MHz	FIXED FIXED-SATELLITE (space-earth) Mobile	Fixed and mobile service operators should coordinate their use with the satellite service providers. See Nos. 9.17 and 9.18.
4200 - 4400 MHz	AERONAUTICAL MOBILE (R) 5.436 AERONAUTICAL RADIONAVIGATION 5.438 5.437 5.440	Aeronautical mobile ® services is reserved exclusively for wireless avionics intra-communication system that operate in accordance with the international aeronautical standards.
4400 - 4500 MHz	FIXED MOBILE	
4500 - 4800 MHz	FIXED FIXED-SATELLITE (space-Earth) 5.441 MOBILE	For fixed-satellite services refer to Appendix 30B.
4800 - 4990 MHz	FIXED MOBILE 5.441B Radio Astronomy 5.149 5.339	Fixed and mobile services should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.

		4950-4990 MHz is also allocated to space research (passive) and earth exploration-satellite (passive) services on a secondary basis.
4990 - 5000 MHz	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149	Fixed and mobile except aeronautical mobile services should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
5000 – 5010 MHz	AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space)	The aeronautical mobile-satellite service is subject to agreement obtained under No. 9.21 of the ITU-RR.
5010 – 5030 MHz	AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-earth) (space-to-space) 5.328B 5.443B	The aeronautical mobile-satellite service is subject to agreement obtained under No. 9.21 of the ITU-RR. For radionavigation satellite services, the provisions of Nos. 9.12, 9.12A & 9.13 of the ITU-RR and Resolution 610(WRC-03) shall apply. Radionavigation satellite service system shall not exceed -124.5 dB(W/m^2) in a 150 kHz band to avoid harmful interference to the microwave landing system operating above 5030 MHz.
5030 – 5091 MHz	AERONAUTICAL MOBILE (R) 5.443C AERONAUTICAL MOBILE-SATELLITE (R) 5.443D AERONAUTICAL RADIO NAVIGATION	The aeronautical mobile (R) service is limited to internationally standardized

	5.444	aeronautical systems. Unwanted emissions of this service should not exceed -75 dBW/MHz. The aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems & is subject to coordination under No. 9.11A. International standard system (Microwave landing system) would have priority. For the use of 5091-5150 MHz, see No. 5.444A & Resolution 114 (Rev.WRC-12).
5091- 5150 MHz	FIXED-SATELLITE (Earth to space) 5.444A AERONAUTICAL MOBILE 5.444B AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION 5.444	For use by aeronautical mobile service, see No.1.83 of Resolution 418(Rev.WRC-12)& Resolution 748 (Rev.WRC-12). The aeronautical mobile-satellite service is subject to agreement obtained under No. 9.21 of the ITU-RR. International standard system (Microwave landing system) would have priority. For the use of 5091-5150 MHz, see No. 5.444A & Resolution 114 (Rev.WRC-12).

		Also allocated to the fixed satellite service (Earth-to-space) on a primary basis & is subject to coordination under No. 9.11A.
5150- 5250 MHz	FIXED-SATELLITE (Earth to space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B AERONAUTICAL RADIONAVIGATION 5.447B	Designated for ISM applications, subject to the provisions of No.15.13 of the ITU-RR. Maximum E.I.R.P. should be 200mW.
5250- 5350 MHz	EARTH EXPLORATION- SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F RADIOLOCATION SPACE RESEARCH 5.447D 5.448B	Designated for ISM applications, subject to the provisions of No.15.13 of the ITU-RR. Maximum E.I.R.P. should be 200mW.
5350- 5460 MHz	EARTH EXPLORATION- SATELLITE (active) 5.448B RADIOLOCATION 5.448D AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448C	Radar systems in the aeronautical radionavigation service are protected in accordance with No. 5.449 of the ITU-RR. Space research service in 5350-5460MHz shall not cause harmful interference to, nor claim protection from other services.
5460- 5470 MHz	EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION 5.448D RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448B	

5470 – 5725 MHz	FIXED MOBILE except aeronautical mobile 5.446A	Designated for ISM applications, subject to the provisions of No.15.13 of the ITU-RR. Maximum E.I.R.P. should be 1W.
5725 – 5830 MHz	FIXED 5.453 MOBILE except aeronautical mobile 5.446A	Designated for ISM applications, subject to the provisions of No.15.13 of the ITU-RR. Maximum E.I.R.P. should be 4W.
5830 – 5850 MHz	FIXED 5.453 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-Satellite (space-to-Earth)	
5850 – 5925 MHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.150	
5925 – 6700 MHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A MOBILE 5.457E	5925 – 6425 MHz is designated for long haul fixed links.
6700 – 7075 MHz	FIXED FIXED-SATELLITE (earth-space) (space-earth) 5.441 MOBILE 5.457E	5925 – 6425 MHz & 6425 – 7110 MHz are designated for long haul fixed links.
7075 – 7145 MHz	FIXED MOBILE 5.457E	7110 - 7750 MHz is designated for long haul fixed links.
7145 – 7235 MHz	FIXED SPACE RESEARCH (earth-space) 5.460	7110 - 7750 MHz is designated for long haul fixed links.

		The band 7190-7235 MHz is also allocated for Earth Exploration satellite (Earth to space) on a primary basis. See footnote 5.460A and 5.560A.
7235- 7250 MHz	FIXED FIXED-SATELLITE (space-earth)	7110 - 7750 MHz is designated for long haul fixed links.
7250 – 7300 MHz	FIXED FIXED-SATELLITE (space-earth)	7110 - 7750 MHz is designated for long haul fixed links.
7300 – 7450 MHz	FIXED FIXED-SATELLITE (space-earth) MOBILE except aeronautical mobile 5.461 5.461AC	7110 - 7750 MHz is designated for long haul fixed links. The band 7375-7450 is allocated for Maritime mobile-satellite (space to earth) on a primary basis. See footnote 5.461AA
7450 – 7550 MHz	FIXED FIXED-SATELLITE (space-earth) MOBILE except aeronautical mobile 5.461 5.461AC	7110 - 7750 MHz is designated for long haul fixed links. The band is also allocated for Maritime mobile-satellite (space to earth) on a primary basis. See footnote 5.461AA
7550 – 7750 MHz	FIXED FIXED-SATELLITE (space-earth) MOBILE except aeronautical mobile 5.461AC	7110 - 7750 MHz& 7725 – 8275 MHz is designated for long haul fixed links. See Recommendation ITU-R F.386.

		The band is also allocated for Maritime mobile-satellite (space to earth) on a primary basis. See footnote 5.461AA and 5.461AB
7750 -7900 MHz	FIXED MOBILE except aeronautical mobile	7725 – 8275 MHz is designated for long haul fixed links. See Recommendation ITU-R F.386. The band is also allocated for Meteorological-satellite (space to earth) on a primary basis. See footnote 5.461B
7900 – 8025 MHz	FIXED FIXED-SATELLITE (earth-space) 5.461	7725 – 8275 MHz is designated for long haul fixed links. See Recommendation ITU-R F.386.
8025- 8175 MHz	FIXED FIXED-SATELLITE (earth-space)	7725 – 8275 MHz is designated for long haul fixed links. See Recommendation ITU-R F.386.
8175 -8215 MHz	FIXED FIXED-SATELLITE (Earth-space)	7725 – 8275 MHz is designated for long haul fixed links. See Recommendation ITU-R F.386.
8215 – 8400 MHz	FIXED FIXED-SATELLITE (Earth-space)	7725 – 8275 MHz & 8275 – 8500 MHz is designated for long haul fixed links. See Recommendation ITU-R F.386.
8400 – 8500 MHz	FIXED	8275 – 8500 MHz is designated for long haul fixed

		links. See Recommendation ITU-R F.386.
8500 – 8550 MHz	RADIOLOCATION	
8550 – 8650 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.469A	The earth exploration satellite and the space research services should not cause harmful interference to the radiolocation service.
8650 – 8750 MHz	RADIOLOCATION	
8750 – 8850 MHz	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470	The aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8800 MHz.
8850 – 9000 MHz	RADIOLOCATION MARITIME RADIONAVIGATION 5.472	The maritime radionavigation service is limited to shore-based radars.
9000 – 9200 MHz	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 5.473A	Use by aeronautical radionavigation services is restricted to ground-based radars & to associated air-borne transponders. The radiolocation service shall not cause harmful interference to the radionavigation service.
9200 – 9300 MHz	EARTH EXPLORATION SATELLITE (active) 5.474A 5.474B 5.474C RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.474 5.474D	The maritime radionavigation service is limited to shore-based radars.

		Search & rescue transponders (SART) may be used, refer to Article 31.
9300 – 9500 MHz	EARTH EXPLORATION SATELLITE (active) SPACE RESEARCH (active) RADIONAVIGATION 5.475 RADIOLOCATION 5.427 5.474 5.475 5.475A 5.475B 5.476A	The radiolocation service shall not cause harmful interference to the radionavigation service. Search & rescue transponders (SART) may be used, refer to Article 31. Aeronautical radionavigation service is limited to airborne weather radars & ground-based radars. The earth exploration-satellite service (active) & the space research service (active) is limited to systems requiring necessary bandwidth greater than 300 MHz that cannot be fully accommodated within the 9500-9800 MHz band. The earth exploration satellite & space research (active) shall not cause harmful interference to the radionavigation and radiolocation services.
9500- 9800 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active)	The earth exploration satellite & space research (active) shall not cause harmful interference to the

	5.476A	radionavigation and radiolocation services.
9800 – 9900 MHz	RADIOLOCATION Earth exploration-satellite (active) Space research (active) Fixed 5.478A 5.478B	The earth exploration-satellite service (active) & the space research service (active) is limited to systems requiring necessary bandwidth greater than 500 MHz that cannot be fully accommodated within the 9300-9800 MHz band. The earth exploration satellite service (active) & the space research service (active) shall not cause harmful interference to the fixed service.
9900 – 10000MHz	EARTH EXPLORATION SATELLITE (active) 5.474A, 5.74B, 5.474C RADIOLOCATION Fixed 5.474D 5.479	9975 – 10025MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.
10-10.4 GHz	EARTH EXPLORATION SATELLITE (active) 5.474A, 5.74B, 5.474C FIXED MOBILE RADIOLOCATION Amateur 5.474A, 5.479	9.975-10.025 GHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars. 10.15 – 10.30 GHz is designated for point-multipoint services.
10.4-10.45 GHz	FIXED MOBILE RADIOLOCATION Amateur	10.15 – 10.30 GHz is designated for point-multipoint services.

10.45-10.5 GHz	RADIOLOCATION Amateur Amateur Satellite	
10.5-10.55 GHz	FIXED MOBILE Radiolocation	10.50 – 10.68 GHz is designated for Point-multiPoint services.
10.55-10.6 GHz	FIXED MOBILE except aeronautical mobile Radiolocation	10.50 – 10.68 GHz is designated for point-multipoint services.
10.6-10.68 GHz	EARTH EXPLORATION SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482 5.482A	10.50 – 10.68 GHz is designated for point-multipoint services.
10.68-10.7 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	
10.7-11.7 GHz	FIXED FIXED-SATELLITE (Earth-space) (space-Earth) 5.441, 5.484, 5.484A MOBILE except aeronautical mobile	Used for point –point fixed links. The fixed-satellite service (Earth-to-space) is limited to feeder links for broadcasting-satellite service.

11.7-12.5 GHz	FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492 5.487 5.487A	Other services in this band shall not cause harmful interference to the broadcasting satellite service. Fixed satellite services (space-to-Earth) can also be operated on a primary basis.
12.5-12.75 GHz	FIXED FIXED SATELLITE (Earth-to- Space) (Space-to- Earth) 5.484A MOBILE except aeronautical mobile 5.494	Also allocated for fixed and mobile, except aeronautical mobile.
12.75-13.25 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.441 5.496A MOBILE Space Research (deep space) (space-to-Earth)	Used for point-to–point fixed links.
13.25-13.4 GHz	AERONAUTICAL RADIONAVIGATION 5.497 EARTH EXPLORATION SATELLITE (active) SPACE RESEARCH (active) 5.498A	Aeronautical radionavigation service is limited to Doppler navigation aids. The earth exploration satellite service (active) & the space research service (active) shall not cause harmful interference to the aeronautical radionavigation service.
13.4-13.65 GHz	EARTH EXPLORATION SATELLITE (active) FIXED-SATELLITE (Space-Earth) 5.499A 5.499B RADIOLOCATION SPACE RESEARCH 5.499C, 5.99D, 5.501A Standard Frequency and Time Signal-Satellite (Earth –to- space) 5.499E, 5.510B	Space research services are limited to active spaceborne sensors. The earth exploration satellite service (active) & the space research service (active) shall

		not cause harmful interference to the radiolocation service.
13.65-13.75 GHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.501B	
13.75- 14 GHz	FIXED- SATELLITE (Earth-to-space) 5.484A RADIOLOCATION Standard Frequency and Time Signal- satellite (Earth-to-space) Space Research Earth Exploration Satellite 5.502 5.503	For fixed satellite services using non-geostationary systems refer to No. 9.12.
14-14.3 GHz	FIXED- SATELLITE (Earth-to-Space) 5.457A 5.457B 5.484B 5.506 RADIONAVIGATION 5.504 Mobile satellite (Earth –to-space) 5.504B 5.506A Space research 5.504A	For fixed satellite services see Resolution 902 (WRC-03). For fixed satellite service using non-geostationary systems refer to No. 9.21. 14-14.5 GHz may be used as feeder links for the broadcasting satellite service subject to coordination with other networks in the fixed satellite service. Radionavigation service shall provide sufficient protection to space stations of the fixed-satellite service.

		Aeronautical mobile satellite service operating in the band 14 – 14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M. 1643. For ship earth stations refer to Resolution 902 (WRC-03). In 14-14.5 GHz, aircraft earth stations in the aeronautical mobile satellite service may communicate with space stations in the fixed satellite service, see Nos. 5.29, 5.30 & 5.31.
14.3-14.4 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile satellite (Earth-to-space) 5.504B 5.506A Radionavigation-satellite 5.504A	For ship earth stations refer to Resolution 902 (WRC-03). For fixed satellite services using non-geostationary systems refer to No. 9.12. 14-14.5 GHz may be used as feeder links for the broadcasting satellite service subject to coordination with other networks in the fixed satellite service. Aeronautical mobile satellite service operating in the band 14 – 14.5 GHz shall comply with the provisions of Annex 1,

		Part C of Recommendation ITU-R M. 1643. For ship earth stations refer to Resolution 902 (WRC-03). In 14-14.5 GHz, aircraft earth stations in the aeronautical mobile satellite service may communicate with space stations in the fixed satellite service, see Nos. 5.29, 5.30 & 5.31.
14.4-14.47 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A Space Research (space-to-Earth) 5.504A	For ship earth stations refer to Resolution 902 (WRC-03). For fixed satellite services using non-geostationary systems refer to No. 9.12. 14-14.5 GHz may be used as feeder links for the broadcasting satellite service subject to coordination with other networks in the fixed satellite service. Aeronautical mobile satellite service operating in the band 14 – 14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M. 1643. For ship earth stations refer to Resolution 902 (WRC-03).

		In 14-14.5 GHz, aircraft earth stations in the aeronautical mobile satellite service may communicate with space stations in the fixed satellite service, see Nos. 5.29, 5.30 & 5.31.
14.47-14.5 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile satellite (Earth-to-space) 5.504B 5.506A Radio Astronomy 5.149 5.504A	For ship earth stations refer to Resolution 902 (WRC-03). For fixed satellite services using non-geostationary systems refer to No. 9.12. 14-14.5 GHz may be used as feeder links for the broadcasting satellite service subject to coordination with other networks in the fixed satellite service. Aeronautical mobile satellite service operating in the band 14 – 14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M. 1643. Other services either than the radioastronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR. In 14-14.5 GHz, aircraft earth stations in the aeronautical

		mobile satellite service may communicate with space stations in the fixed satellite service, see Nos. 5.29, 5.30 & 5.31.
14.5-15.35 GHz	FIXED MOBILE SPACE RESEARCH 5.510A	14.5 – 15.35 GHz is designated for point-point fixed links. See Recommendation ITU-R F.636.
15.35-15.4 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	
15.4 – 15.43 GHz	RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION Aeronautical mobile (OR) 5.511G	Radiolocation services shall not cause harmful interference to aeronautical radionavigation services. Radiolocation stations operating in 15.4-15.7 GHz shall not exceed the power flux-density level of -156 dB(W/m^2) in a 50MHz bandwidth in order to protect the radioastronomy service in 15.35-15.4 GHz.
15.43- 15.63 GHz	FIXED-SATELLITE (space to Earth) 5.511A RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION Aeronautical mobile (OR) 5.511G 5.511C	The fixed-satellite service (space-to-Earth) (Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile satellite service subject to coordination under 9.11A.

		Radiolocation services shall not cause harmful interference to aeronautical radionavigation services. Radiolocation stations operating in 15.4-15.7 GHz shall not exceed the power flux-density level of -156 dB(W/m^2) in a 50MHz bandwidth in order to protect the radioastronomy service in 15.35-15.4 GHz. For aeronautical radionavigation, see ITU-R S.1340.
15.63-15.7 GHz	RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIO NAVIGATION Aeronautical mobile (OR) 5.511G	Radiolocation services shall not cause harmful interference to aeronautical radionavigation services. Radiolocation stations operating in 15.4-15.7 GHz shall not exceed the power flux-density level of -156 dB(W/m^2) in a 50MHz bandwidth in order to protect the radioastronomy service in 15.35-15.4 GHz. Emissions from non-geostationary satellite shall

		not exceed -146 dB (W/(m^2 – MHz)).
15.7-16.6 GHz	RADIOLOCATION	
16.6-17.1 GHz	RADIOLOCATION Space Research (deep space) (Earth to-space)	
17.1- 17.2 GHz	RADIOLOCATION	
17.2- 17.3 GHz	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.513A	Space borne active sensors shall not cause harmful interference to the radiolocation and other services allocated on a primary basis.
17.3-17.7 GHz	FIXED-SATELLITE (Earth-to- space) 5.516 (space-to-Earth) 5.516A 5.516B Radiolocation	For fixed satellite services refer to No. 9.12 of the ITU-R. Earth stations of the fixed satellite service shall not claim protection from feeder links of the Broadcasting satellite service.
17.7-18.1 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.517A 5.517B (Earth- to- space) 5.516 MOBILE	Designated for point-point fixed links. See Recommendation ITU-R F.595. For fixed satellite services using non-geostationary systems refer to No. 9.12.
18.1- 18.4 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B 5.517A 5.517B (Earth- to- space) 5.520 INTER-SATELLITE 5.521A MOBILE	Designated for point-to-point fixed links. See Recommendation ITU-R F.595.

	5.519	For fixed satellite service using non-geostationary systems refer to No. 9.12. The fixed satellite service is limited to feeder links of geostationary-satellite systems in the broadcasting satellite service. Also allocated on a primary basis to the meteorological satellite service using geostationary satellite.
18.4-18.6 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.517A 5.517B INTER-SATELLITE 5.521A MOBILE	Designated for point-to-point fixed links. See Recommendation ITU-R F.595. For fixed satellite services using non-geostationary systems refer to No. 9.12.
18.6-18.8 GHz	EARTH EXPLORATION SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.517A 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A	Designated for point-to-point fixed links. See Recommendation ITU-R F.595. Fixed satellite service is limited to geostationary systems & systems with an orbit of apogee greater than 20,000 km. For emission values of the fixed service & fixed satellite

		service refer to Nos. 21.5A &21.16.2 of the ITU-RR.
18.8-19.3 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.517A 5.517B 5.523A INTER-SATELLITE 5.521A MOBILE	Designated for point-to-point fixed links. See Recommendation ITU-R F.595. For fixed satellite services refer to No. 9.11A of the ITU-RR.
19.3-19.7 GHz	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.517A 5.523B 5.523C 5.523D 5.523E INTER-SATELLITE 5.521A 5.523DA MOBILE	Designated for point-to-point fixed links. See Recommendation ITU-R F.595. Fixed satellite services is limited to feeder links for non-geostationary satellite systems in the mobile satellite service. see No. 9.11A.
19.7-20.1 GHz	FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.517B 5.527A INTER-SATELLITE 5.521A Mobile-Satellite (space-to-Earth)	For fixed satellite services using non-geostationary systems refer to No. 9.12.
20.1-20.2 GHz	FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.517B 5.527A INTER-SATELLITE 5.521A MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528	For fixed satellite services using non-geostationary systems refer to No. 9.12.
20.2-21.2 GHz	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard Frequency and Time Signal (space-to-Earth) 5.529A	
21.2-21.4 GHz	FIXED	

	MOBILE EARTH EXPLORATION SATELLITE (passive) SPACE RESEARCH (passive)	
21.4-22 GHz	FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A 5.530B	Refer to Resolution 555 & 755 (WRC-12). For broadcasting-satellite services refer to Resolution 739 (Rev.WRC). Fixed & Mobile services shall not produce a power flux density in excess of -120.4 dB (W/(m^2-MHz)) at 3m above the ground.
22-22.21 GHz	FIXED MOBILE except aeronautical mobile (R) 5.531A 5.531B 5.531C 5.531D 5.531F 5. 149	Designated for point-to-point fixed links. See Recommendation ITU-R F.637. Allocated services should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
22.21-22.5 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE REASEARTH (passive) 5.149 5.532	Designated for point-to-point fixed links. See Recommendation ITU-R F.637. Other services either than the radioastronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
22.5 - 22.55 GHz	FIXED MOBILE	Designated for point-to-point fixed links. See

		Recommendation ITU-R F.637.
22.55 – 23.15 GHz	FIXED INTER-SATELLITE 5.338A MOBILE SPACE RESEARCH (Earth-to-space) 5.149	Designated for point-to-point fixed links. See Recommendation ITU-R F.637. See Resolution 750.
23.15-23.55 GHz	FIXED INTER-SATELLITE 5.338A MOBILE	Designated for point-to-point fixed links. See Recommendation ITU-R F.637. See Resolution 750.
23.55 - 23.6 GHz	FIXED MOBILE	Designated for point-to-point fixed links. See Recommendation ITU-R F.637.
23.6-24 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	
24-24.05 GHz	AMATEUR AMATEUR-SATELLITE 5.150	Designated for ISM applications, subject to the provisions of No.15.13 of the ITU-RR.
24.05-24.25 GHz	RADIOLOCATION Amateur Earth Exploration-satellite (active) 5.150	Designated for ISM applications, subject to the provisions of No.15.13 of the ITU-RR.
24.25-24.45 GHz	FIXED MOBILE except aeronautical mobile 5.338A 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)
24.45-24.65 GHz	FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.338A 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)
24.65-24.75 GHz	FIXED FIXED SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE except aeronautical mobile 5.338A 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) The fixed satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5m.
24.75-25.25 GHz	FIXED FIXED SATELLITE (Earth-to-space) 5.532B MOBILE except aeronautical mobile 5.338A 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) The fixed satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5m.

25.25-25.5 GHz	FIXED INTER-SATELLITE 5.536 MOBILE5.338A 5.532AB Standard Frequency and Time Signal-satellite (Earth-to-space)	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)
25.5-27 GHz	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED INTER-SATELLITE 5.536 MOBILE 5.338A 5.532AB SPACE RESEARCH (space-to-Earth) Standard frequency and time signal-satellite (Earth-to-space) 5.536A	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) The Earth exploration satellite service & the space research service shall not claim protection from stations in the fixed & mobile service. Also see Recommendation ITU-R SA.1862.
27-27.5 GHz	FIXED INTER-SATELLITE 5.536 MOBILE 5.338A 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)
27.5-28.5 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.517B 5.539 INTER-SATELLITE 5.521A MOBILE	Designated for point-to-multipoint links. See Recommendation ITU-R F.748 Annex 2.For fixed satellite services using non-

	5.538 5.540	geostationary systems refer to No. 9.12. Fixed satellite service (space-to-Earth) is also allocated in 27.500-27.501 GHz. Transmissions shall not exceed an e.i.r.p of +10 dBW. 27.5-30 GHz may be used by the fixed satellite service (Earth-to-space) for feeder links for the Broadcast satellite service.
28.5 – 29.1 GHz	FIXED FIXED- SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.517B 5.523A 5.539 INTER-SATELLITE 5.521A MOBILE Earth Exploration-Satellite (Earth-to-space) 5.541 5.540	Designated for point-to-multipoint links. See Recommendation ITU-R F.748 Annex 2. For fixed satellite services using non-geostationary systems refer to No. 9.12. 27.5-30 GHz may be used by the fixed satellite service (Earth-to-space) for feeder links for the Broadcast satellite service.
29.1– 29.5 GHz	FIXED FIXED- SATELLITE (Earth-to-space) 5.516B 5.517A 5.523C 5.523E 5.535A 5.539 5.541A INTER-SATELLITE 5.521A MOBILE Earth exploration-satellite (Earth to space) 5.541 5.540	For fixed satellite service refer to No. 9.11A of the ITU-RR. 27.5-30 GHz may be used by the fixed satellite service (Earth-to-space) for feeder links for the Broadcast satellite service.

29.5– 29.9 GHz	FIXED- SATELLITE(Earth-to-space) 5.484A 5.516B 5.517B 5.527A 5.539 INTER-SATELLITE 5.521A Earth Exploration–Satellite(Earth-to-space) 5.541 Mobile-Satellite (Earth-to-space) 5.540	For fixed satellite services using non-geostationary systems refer to No. 9.12. 27.5-30 GHz may be used by the fixed satellite service (Earth-to-space) for feeder links for the Broadcast satellite service.
29.9– 30 GHz	FIXED-SATELLITE (Earth-to-space) 5.539 5.484A 5.484B 5.516B 5.517B 5.527A INTER-SATELLITE 5.521A 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	For fixed satellite services using non-geostationary systems refer to No. 9.12. 27.5-30 GHz may be used by the fixed satellite service (Earth-to-space) for feeder links for the Broadcast satellite service. Fixed satellite service (space-to-Earth) is also allocated in 29.999-30.000 GHz. Transmissions shall not exceed an e.i.r.p of +10 dBW.
30 – 31 GHz	FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) 5.529A	Refer to Resolution 750 (Rev.WRC-12).
31 – 31.3 GHz	FIXED 5.338A 5.543B MOBILE Standard frequency and time signals-satellite (space-to-Earth) Space Research 5.544	The band 31-31.3 GHz is identified for worldwide use by high-altitude platform stations (HAPS)

	5.149	
31.3 – 31.5 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	
31.5 – 31.8 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149	Other services either than the radioastronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
31.8 – 32.3 GHz	FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.548	Designated for point-to-multipoint links. See Recommendation ITU-R F.1520 Annex 1. For radionavigation services see Recommendation 707.
32.3 – 33 GHz	FIXED 5.547A INTER-SATELLITE RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.548	Designated for point-to-multipoint links. See Recommendation ITU-R F.1520 Annex 1. For radionavigation services see Recommendation 707.
33 – 33.4 GHz	FIXED 5.547A RADIONAVIGATION 5.547	Designated for point-to-multipoint links. See Recommendation ITU-R F.1520 Annex 1.
33.4 – 34.2 GHz	RADIOLOCATION	
34.2 – 34.7 GHz	RADIOLOCATION SPACE RESEARCH (deep space) (space-to-Earth)	

34.7– 35.2 GHz	RADIOLOCATION Space Research	
35.2 – 35.5 GHz	METEOROLOGICAL AIDS RADIOLOCATION	
35.5 - 36 GHz	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549A	
36 – 37GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A	Refer to Resolution 752 (WRC-07) of the ITU-RR.
37 – 37.5 GHz	FIXED MOBILE except aeronautical mobile 5.550B SPACE RESEARCH (space-to-Earth) 5.547	The frequency band 37-43.5 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT).
37.5 – 38 GHz	FIXED FIXED SATELLITE (space-to-Earth) 5.550C 5.550CA MOBILE except aeronautical mobile 5.550B SPACE RESEARCH (space-to-Earth) Earth Exploration –Satellite (space-to- Earth) 5.547	The frequency band 37-43.5 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT).
38 – 39.5 GHz	FIXED 5.550D FIXED SATELLITE (space-to-Earth) 5.550C MOBILE 5.550B Earth Exploration –Satellite (space-to- Earth) 5.547	The band 38-39.5 GHz is identified for worldwide use by administrations wishing to implement high-altitude platform stations (HAPS).

		The frequency band 37-43.5 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). Designated for point-to-multipoint links. See Recommendation ITU-R F.749 Annex 1.
39.5 – 40 GHz	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	The frequency band 37-43.5 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT).
40 – 40.5 GHz	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	The frequency band 37-43.5 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT).
40.5-41 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.550C LAND MOBILE 5.550B BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile 5.547	The frequency band 37-43.5 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT).

41 – 42.5 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C LAND MOBILE 5.550B BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile 5.547 5.551H 5.551I	The frequency band 37-43.5 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT).
42.5 – 43.5 GHz	FIXED FIXED SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile 5.550B RADIO ASTRONOMY 5.149 5.547	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR. The frequency band 37-43.5 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT).
43.5 – 47 GHz	MOBILE 5.553 5.553A MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	The frequency band 45.5-47 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT),
47 – 47.2 GHz	AMATEUR AMATEUR SATELLITE	
47.2 - 47.5 GHz	FIXED FIXED SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE 5.553B 5.552A	The frequency band 47.2-48.2 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT).

47.5-47.9 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 (space-to-Earth) 5.516B 5.554A MOBILE 5.553B	The frequency band 47.2-48.2 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT).
47.9-48.2 GHz	FIXED FIXED-SA TELLITE (Earth-to-space) 5.550C 5.552 MOBILE 5.553B 5.552A	The frequency band 47.2-48.2 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT).
48.2-48.54 GHz	FIXED FIXED-SA TELLITE (Earth-to-space) 5.550C 5.552 (space-to-Earth) 5.516B 5.554A 5.553B MOBILE	
48.54-49.44 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE 5.149 5.555	
49.44 - 50.2GHz	FIXED FIXED SATELLITE (Earth-to-space) 5.338A 5.550C 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	Also refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR. For fixed satellite service (Earth-to-space) see Resolution 750 (WRC-12).
50.2 - 50.4 GHz	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340	
50.4– 51.4 GHz	FIXED FIXED SATELLITE (Earth-to-space) 5.338A 5.550C MOBILE Mobile-Satellite (Earth-to-space)	For fixed satellite service (Earth-to-space) in 50.4-50.9 GHz, see Resolution 750 (WRC-12).

51.4-52.4 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.555C MOBILE 5.338A 5.547 5.556	In 51.4-54.25 GHz radio astronomy observations may be carried out under national arrangements.
52.4 - 52.6GHz	FIXED 5.338A MOBILE 5.547 5.556	For fixed services, see Resolution 750 (WRC-12). In 51.4-54.25 GHz radio astronomy observations may be carried out under national arrangements.
52.6– 54.25 GHz	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556	In 51.4-54.25 GHz, radio astronomy observations may be carried out under national arrangements.
54.25 – 55.78 GHz	EARTH EXPLORATION-SATELITTE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive)	The use of 54.25-56.90 GHz by the inter-satellite service is limited to satellites in the geostationary satellite orbit. The power flux-density shall not exceed -147 dB(W/(m^2 – 100MHz)).
55.78 – 58.2 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547	To protect the earth exploration satellite service (passive) in the 55.78-56.26 GHz, the maximum power density of a fixed service station from transmitter to antenna is limited to 26 dB(W/MHz). The use of 56.9-57 GHz& 57-58.2 GHz by the inter-satellite service is limited to satellites in the geostationary satellite orbit. The power flux-density

		shall not exceed -147 dB (W/(m^2 – 100MHz)). The use of 55.78-58.2 GHz by the aeronautical mobile service shall not cause harmful interference to the inter-satellite services. See No. 5.43 of the ITU-RR.
58.2 - 59 GHz	EARTH EXPLORATION SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556	In 51.4-54.25 GHz, radio astronomy observations may be carried out under national arrangements.
59-59.3 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED INTERSATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)	The inter-satellite service is limited to satellites in the geostationary satellite orbit. The power flux-density shall not exceed -147 dB (W/(m^2 – 100MHz)). The use of 59-64 GHz by the aeronautical mobile service& airborne radars in the radiolocation services shall not cause harmful interference to the inter-satellite services. See No. 5.43 of the ITU-RR.
59.3-64 GHz	FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138	The use of 59-64 GHz by the aeronautical mobile service & airborne radars in the radiolocation services shall not cause harmful interference to the inter-satellite services. See No. 5.43 of the ITU-RR.

		61-61.5 GHz is designated for ISM applications, with regard to the latest ITU-R Recommendations.
64-65 GHz	FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556	Radio astronomy observations may be carried out under national arrangements.
65 - 66 GHz	EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE expect aeronautical mobile SPACE RESEARCH 5.547	
66 - 71 GHz	INTER-SATELLITE MOBILE 5.553 5.558 5.559AA MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	The use of 66-71 GHz by the aeronautical mobile service shall not cause harmful interference to the inter-satellite service. See No. 5.43 of the ITU-RR. The band 66-71 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT).
71 - 74 GHz	FIXED FIXED SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)	The band 71-76 GHz is designated for High capacity Fixed links.
74 – 76 GHz	FIXED FIXED SATELLITE (space-to-Earth)	Stations in the fixed, mobile and broadcasting services

	MOBILE BROADCASTING BROADCASTING-SATELLITE Space Research (space-to-Earth) 5.561	should not cause harmful interference to stations in the fixed-satellite and broadcasting-satellite services. The band 71-76 GHz is designated for High capacity Fixed links.
76-77.5 GHz	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space-research (space-to-Earth) 5.149	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
77.5-78 GHz	AMATEUR AMATEUR-SATELLITE RADIOLOCATION 5.559B Radio astronomy Space research (space-to-Earth) 5.149	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
78-79GHz	RADIOLOCATION Amateur Amateur-Satellite Radio astronomy Space Research (Space-to-Earth) 5.149 5.560	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR. Radars on space stations may be operated on a primary basis in the space research service.
79-81 GHz	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth)	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.

	5.149	
81 - 84 GHz	FIXED 5.338A FIXED SATELLITE (Earth-to-Space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) 5.149 5.561A	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR. For fixed services, see Resolution 750 (WRC-12). The band 81-86 GHz is designated for High capacity Fixed links. Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR. 81-81.5 GHz is also allocated to the amateur & amateur-satellite services on a secondary basis.
84-86 GHz	FIXED 5.338A FIXED SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149	For fixed services, see Resolution 750 (WRC-12). The band 81-86 GHz is designated for High capacity Fixed links. Other services either than the radioastronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.

86-92GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH(passive) 5.340	
92-94 GHz	FIXED 5.338A MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	For fixed services, see Resolution 750 (WRC-12). Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
94-94.1 GHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A	The Earth exploration-satellite (active) & space research (active) services is limited to spaceborne cloud radars. Earth exploration satellite providers should coordinate their operations with the radio astronomy stations.
94.1-95 GHz	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
95-100 GHz	FIXED MOBILE RADIO ASTRONOMY RADIO LOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.

100-102 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	
102-105 GHz	FIXED MOBILE RADIO ASTRONOMY 5.149 5.341	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
105-109.5 GHz	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	The use of this allocation is limited to space-based radio astronomy only. Other services either than the radioastronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
109.5 - 111.8 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	
111.8 – 114.25GHz	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	The use of this allocation is limited to space-based radio astronomy only. Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
114.25-116 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH 5.340 5.341	

116 – 122.25 GHz	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341	The inter-satellite service is limited to satellites in the geostationary satellite orbit. The power flux-density shall not exceed -148 dB ($W/(m^2.MHz)$). 122-123 GHz is designated for ISM applications, with regard to the latest ITU-R Recommendations.
122.25 – 123 GHz	FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138	122-123 GHz is designated for ISM applications, with regard to the latest ITU-R Recommendations. The aeronautical mobile service shall not cause harmful interference to the inter-satellite service. See No. 5.43 of the ITU-RR.
123 - 130 GHz	FIXED SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.149 5.554	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
130 - 134GHz	EARTH EXPLORATION SATELLITE (active) 5.562E FIXED INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A	The Earth Exploration-satellite service (active) is limited to the band 133.5-134 GHz.

		The aeronautical mobile service shall not cause harmful interference to the inter-satellite service. See No. 5.43 of the ITU-RR. Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR. Earth exploration satellite providers should coordinate their operations with the radio astronomy stations.
134 – 136 GHz	AMATEUR AMATEUR SATELLITE Radio astronomy	
136 – 141 GHz	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
141 – 148.5 GHz	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
148.5 - 151.5 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	
151.5 – 155.5 GHz	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.

	5.149	
155.5 – 158.5 GHz	FIXED MOBILE RADIO ASTROMOMY 5.149	.
158.5 – 164 GHz	FIXED FIXED SATELLITE (space-to-Earth) MOBILE MOBILE SATELLITE (space-to-Earth)	
164- 167 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	
167 – 174.5 GHz	FIXED FIXED SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558 5.149	In 167-174.8 GHz, the aeronautical mobile service shall not cause harmful interference to the inter-satellite service. See No. 5.43 of the ITU-RR. Other services either than the radioastronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
174.5 – 174.8 GHz	FIXED INTER-SATELLITE MOBILE 5.558	In 167-174.8 GHz, the aeronautical mobile service shall not cause harmful interference to the inter-satellite service. See No. 5.43 of the ITU-RR.
174.8 – 182 GHz	EARTH EXPLORATION SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	The inter-satellite service is limited to satellites in the geostationary satellite orbit. The power flux-density shall not exceed -144 dB ($W/(m^2.MHz)$).

182 - 185 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	
185 - 190 GHz	EARTH EXPLORATION SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	The inter-satellite service is limited to satellites in the geostationary satellite orbit. The power flux-density shall not exceed -144 dB ($W/(m^2.MHz)$).
190 – 191.8 GHz	EARTH EXPLORATION SATELLITE (passive) SPACE RESEARCH (passive) 5.340	
191.8 – 200 GHz	FIXED INTER SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554	The aeronautical mobile service shall not cause harmful interference to the inter-satellite service. See No. 5.43 of the ITU-RR. Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
200 – 209 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A	Ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents.
209 - 217GHz	FIXED FIXED -SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.341	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
217 – 226 GHz	FIXED FIXED SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY	The use of this allocation is limited to space-based radio astronomy only.

	SPACE RESEARCH (passive) 5.562B 5.149 5.341	Other services either than the radioastronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
226 – 231.5 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	
231.5 – 232 GHz	FIXED MOBILE Radiolocation	
232 – 235 GHz	FIXED FIXED SATELLITE (space-to-Earth) MOBILE Radiolocation	
235 - 238 GHz	EARTH EXPLORATION-SATELLITE (passive) 5.563AA FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (passive) 5.563A 5.563B	Ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents. 237.9-238GHz is also allocated to the Earth exploration-satellite service (active)& the space research service (active) for spaceborne cloud radars only.
238 - 240 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE	
240 – 241 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIOLOCATION	

241 - 248 GHz	RADIOLOCATION RADIO ASTRONOMY Amateur Amateur-Satellite 5.138 5.149	244-246 GHz is designated for ISM applications, with regard to the latest ITU-R Recommendations. Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
248 - 250 GHz	AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
250 - 252 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A	Ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents.
252 - 265 GHz	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR.
265 - 275 GHz	FIXED FIXED SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.563A	Other services either than the radio astronomy service should refer to Nos. 4.5, 4.6 and Article 29 of the ITU-RR. Ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents.
275 - 3000 GHz	(Not allocated) 5.564A 5.565	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 RES-731 (Rev.WRC-19)