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Qatar National Frequency Allocation Plan and Specific Assignments

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QNFAP - PART 1
GENERAL INFORMATION

1. Introduction

The National Frequency Allocation Plan (NFAP) serves as a binding basis for the organizational units of the Administration responsible for frequency assignment so that they can fulfil their responsibilities in relation to frequency assignment. Frequency allocation in the NFAP includes the allocation of the frequency spectrum to the various radio services categories in accordance with the Radio Regulations of the International Telecommunication Union (ITU). The processes and mechanisms relevant to the preparation of the NFAP are presented and explained in the following chapters.

2. Principals of Spectrum Management

2.1 National level

As radio frequencies are limited resource, efficient use of this resource is essential for the functioning of modern communication societies. The Emiree Decree No. (42) of 2014 and the Telecommunications Law No. (34) of 2006 include a direct mandate for the body responsible for frequency management to act appropriately in order to ensure efficient and interference-free use of frequency. Regulation is fundamentally concerned with combining the various interests of frequency users and manufacturers within the aforementioned legal mandate.

In order for frequency regulation to be as target-oriented as possible, the sometimes-conflicting interests of the various frequency users must be recorded as accurately as possible and weighed against each other. The requirements of industry and the associated civil uses are largely tabled via the international working groups of the ITU. Individual project groups then examine the tabled requirements; the relevant bodies then draw up and adopt appropriate basic documentation. These jointly developed principles then serve to allow regionally and internationally harmonized use of frequency resources. The activity of these working groups is usually limited to civil frequency use. Discussion of military requirements does not take place within the bodies in question. To record the needs of military and civil defense, CRA convened a permanent coordination committee. This committee deals with the coordination of frequency use in bands, which are currently subject to joint, use according to the NFAP though which in future will also be subject to joint use. The aforementioned activities are ultimately reflected in the NFAP, which as mentioned above, must be considered as a legal basis document for the assignment of individual frequency rights by the relevant authorities.

As radio signals propagate across international borders, cross-border agreements regarding frequency use are vital both between neighboring countries and between economic interest blocks on a global scale. The use of all frequency resources is harmonized at the international level at the ITU World Radiocommunication Conferences in order to ensure efficient and interference-free use of the frequency spectrum. The respective decisions of the World Radiocommunication Conferences are stipulated in the Radio Regulations of 17 November 1995, specifically in Article 5 “Frequency allocations”.

2.2 International level

CRA analyses the spectrum requirements for existing and planned radio services in Qatar. This is necessary for efficient and equitable planning and coordination of frequencies in order to avoid interference. It is also necessary because CRA represents Qatar in regional and international bodies in the frequency sector, where it safeguards Qatar interests in order to promote them on an international (regional and global) level.

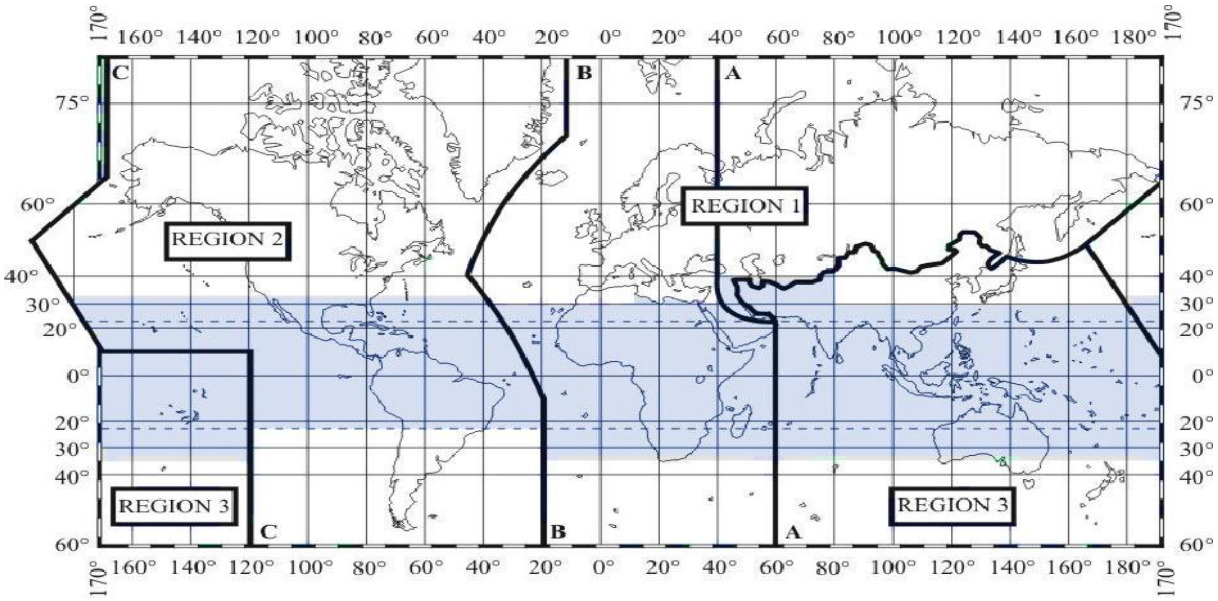
The Qatar strategy aims to regulate access to the frequency spectrum (for both commercial and non-commercial radio services) on a national and international level in a coordinated manner. It aims to ensure that Qatar rights are respected in accordance with international law. International bodies aim to harmonize the use of the spectrum by the various radio services. Any international decisions taken therefore play a part in national spectrum management.

The regional contact for harmonization of the frequency spectrum in the region is the Telecommunication Bureau of Gulf Countries Council. The Telecommunications Bureau provides a framework within administrations can develop provisions according to which the conditions for spectrum use can be harmonized with regard to market demand and technological developments.

The International Telecommunication Union Radiocommunication Sector (ITU-R) allocates worldwide frequencies to radio services in accordance with the Radio Regulations (RR). The RR is an international agreement, which regulates the use of frequency resources for all radio applications, as well as the orbital positions of geostationary and non-geostationary satellites. This agreement is binding for ITU member states. The RR are revised in the World Radiocommunication Conferences (WRC) to adapt the existing framework to spectrum requirements in order to refine existing applications or facilitate the introduction of new applications.

The NFAP assumes and supplements the relevant provisions of the RR for Qatar. International planning and harmonization work within the ITU results in “resolutions” and “recommendations”. The results of ITU World Conferences are set forth in “final acts”. With the adoption of the final acts, Qatar commits itself to comply with the new provisions of international law.

For the allocation of frequencies, International Telecommunication Union (ITU), a subsidiary of the United Nations, which deals with the Telecommunication sector, has divided the world into three Regions as shown on the following map:



The State of Qatar is signatory to International Telecommunication Union (ITU) convention and situated in Region 1. Region 1 includes the area limited on the east by line A (lines A, B and C are defined below) and on the west by line B, excluding any of the territory of the Islamic Republic of Iran which lies between these limits. It also includes the whole of the territory of Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russian Federation which lies between lines A and C. Whereas the lines A, B and C are defined as follows:

Line A: Line A extends from the North Pole along meridian 40° East of Greenwich to parallel 40° North; thence by great circle arc to the intersection of meridian 60° East and the Tropic of Cancer; thence along the meridian 60° East to the South Pole.

Line B: Line B extends from the North Pole along meridian 10° West of Greenwich to its intersection with parallel 72° North; thence by great circle arc to the intersection of meridian 50° West and parallel 40° North; thence by great circle arc to the intersection of meridian 20° West and parallel 10° South; thence along meridian 20° West to the South Pole.

Line C: Line C extends from the North Pole by great circle arc to the intersection of parallel 65° 30 North with the international boundary in Bering Strait; thence by great circle arc to the intersection of meridian 165° East of Greenwich and parallel 50° North; thence by great circle arc to the intersection of meridian 170° West and parallel 10° North; thence along parallel 10° North to its intersection with meridian 120° West; thence along meridian 120° West to the South Pole. 2.

The areas marked in blue (shaded area near around equator line) in the above map are the defined as tropical areas.

3. Definition of terms used

Administration:	Any governmental department or service responsible for discharging the obligations undertaken in the Constitution of the International Telecommunication Union, in the Convention of the International Telecommunication Union and in the Administrative Regulations.
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.
Radio:	A general term applied to the use of radio waves. Radio waves or Hertzian waves: Electromagnetic waves of frequencies arbitrarily lower than 3 000 GHz, propagated in space without artificial guide.
Radiocommunication:	Telecommunication by means of radio waves.
Terrestrial Radiocommunication:	Any Radiocommunication other than space Radiocommunication or radio astronomy.
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.
Allocation (of a	Entry in the Table of Frequency Allocations of a given frequency band for the

frequency band):	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.
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
Assignment (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
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.
Radionavigation:	Radiodetermination used for the purposes of navigation, including obstruction warning
Radiolocation:	Radiodetermination used for purposes other than those of radionavigation.
Radio Astronomy:	Astronomy based on the reception of radio waves of cosmic origin.
Radiocommunication service:	A service involving the transmission, emission and/or reception of radio waves for specific telecommunication purposes. Unless otherwise stated, any radiocommunication service relates to terrestrial radiocommunication.
Fixed service:	A radiocommunication service between specified fixed points
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.
Inter-satellite service:	A radiocommunication service providing links between artificial satellites. Space operation service: A radiocommunication service concerned exclusively with the operation of spacecraft, in particular space tracking, space telemetry and space telecommand.
Mobile service:	A radiocommunication service between mobile and land stations, or between mobile stations.
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.
Land mobile service:	A mobile service between base stations and land mobile stations, or between land mobile stations.
Land mobile-satellite service:	A mobile-satellite service in which mobile earth stations are located on land.
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

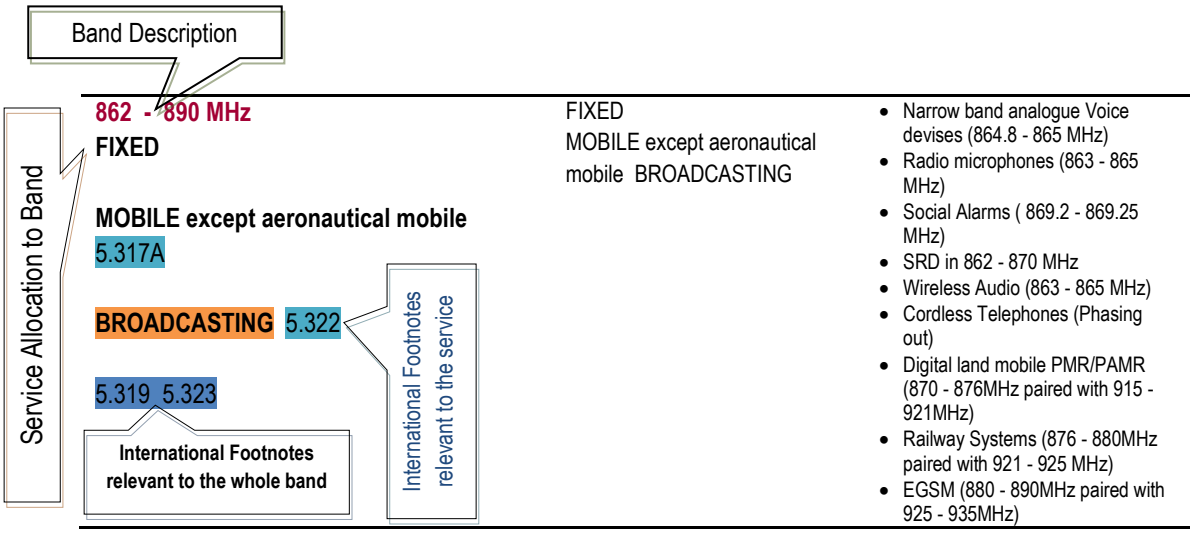
	stations and emergency position-indicating radiobeacon stations may also participate in this service.
Maritime mobile-satellite service:	A mobile-satellite service in which mobile earth stations are located on board ships; survival craft stations and emergency position indicating radiobeacon stations may also participate in this service.
Port operations service:	A maritime mobile service in or near a port, between cost 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.
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.
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.
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.
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.
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.
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.
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.
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.
Radiodetermination service:	A radiocommunication service for the purpose of radiodetermination.
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.
Radionavigation service:	A radiodetermination service for the purpose of radionavigation.

Radionavigation-satellite service:	A radiodetermination-satellite service used for the purpose of radionavigation. This service may also include feeder links necessary for its operation.
Maritime radionavigation service:	A radionavigation service intended for the benefit and for the safe operation of ships.
Maritime radionavigation-satellite service:	A radionavigation-satellite service in which earth stations are located on board ships.
Aeronautical radionavigation service:	A radionavigation service intended for the benefit and for the safe operation of aircraft.
Aeronautical radionavigation-satellite service:	A radionavigation-satellite service in which earth stations are located on board aircraft.
Radiolocation service:	A radiodetermination service for the purpose of radiolocation.
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.
Meteorological aids service:	A radiocommunication service used for meteorological, including hydrological, observations and exploration.
Earth exploration-satellite service:	A radiocommunication service between earth stations and one or more space stations.
Meteorological-satellite service:	An earth exploration-satellite service for meteorological purposes.
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.
Amateur service:	A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs that are, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.
Amateur-satellite service:	A radiocommunication service using space stations on earth satellites for the same purposes as those of the amateur service.
Industrial, Scientific and Medical (ISM) applications:	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.
Citizens' Band radio:	A system of short-distance radio communications between individuals on a selection of 40 channels within the 27 MHz (11 m) band.

Radio astronomy service:	A service involving the use of radio astronomy.
Special service:	A radiocommunication service, not otherwise defined in this Section, carried on exclusively for specified needs of general utility, and not open to public correspondence
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.
Terrestrial station:	A station effecting terrestrial radiocommunication.
Earth station:	A station located either on the Earth's surface or within the major portion of the Earth's atmosphere and intended for communication with space station or other space object.
Space station:	A station located on an object, which is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere.
Fixed station:	A station in the fixed service.
High altitude platform station:	A station located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the Earth.
Mobile station:	A station in the mobile service intended to be used while in motion or during halts at unspecified points.
Mobile earth station:	An earth station in the mobile-satellite service intended to be used while in motion or during halts at unspecified points.
Base station:	A land station in the land mobile service.
Base earth station:	An earth station in the fixed satellite service or, in some cases, in the land mobile satellite service, located at a specified fixed point or within a specified area on land to provide a feeder link for the land mobile-satellite service.
Land mobile station:	A mobile station in the land mobile service capable of surface movement within the geographical limits of a country or continent.
Land mobile earth station:	A mobile earth station in the land mobile-satellite service capable of surface movement within the geographical limits of a country or continent.
Coast station:	A land station in the maritime mobile service.
Port station:	A coast station in the port operations service.

Ship station:	A mobile station in the maritime mobile service located on board a vessel which is not permanently moored, other than a survival craft station.
Aeronautical station:	A land station in the aeronautical mobile service.
Aeronautical earth station:	An earth station in the fixed-satellite service, or, in some cases, in the aeronautical mobile-satellite service, located at a specified fixed point on land to provide a feeder link for the aeronautical mobile-satellite service.
Aircraft earth station:	A mobile earth station in the aeronautical mobile-satellite service located on board an aircraft.
Broadcasting station:	A station in the broadcasting service.
Radiodetermination station:	A station in the radiodetermination service.
Amateur station:	A station in the amateur service.
Radio astronomy station:	A station in the radio astronomy service.
Radar:	A radiodetermination system based on the comparison of reference signals with radio signals reflected, or retransmitted, from the position to be determined.
Satellite system:	A space system using one or more artificial earth satellites.
Satellite network:	A satellite system or a part of a satellite system, consisting of only one satellite and the cooperating earth stations.
Satellite link:	A radio link between a transmitting earth station and a receiving earth station through on satellite. A satellite link comprises one up-link and one downlink.
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.

4. How to read the frequency allocation table



Where, in a box of Table of Frequency Allocations a band is indicated as allocated to more than one service, either on a worldwide or Regional basis, such services are listed in the following order:

a) Services the names of which are printed in “capitals” (example: FIXED); these are called “primary” services.

b) Services the names of which are printed in “normal characters” (example: Mobile); these are called “secondary” services.

c) Additional remarks shall be printed in normal characters (example: MOBILE except aeronautical mobile).

Stations of a secondary service:

a) Shall not cause harmful interference to stations of primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date.

b) Cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date.

c) Can claim protection, however, from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date.

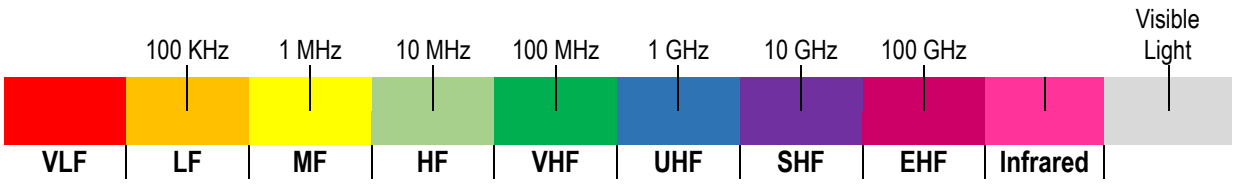
Note:

1. Where a band is indicated in an International footnote of the Table as allocated to a service “on a secondary basis” in an area smaller than a Region, or in a particular country, this is a secondary service.

2. Where a band is indicated in an International footnote of the Table as allocated to a service "on a primary basis", in an area smaller than a Region, or in a particular country, this is a primary service only in that area or country.
3. Where a band is indicated in an International footnote of the Table as "also allocated" to a service in an area smaller than a Region, or in a particular country, this is an "additional" allocation, i.e. an allocation which is added in this area or in this country to the service or services which are indicated in the Table.
4. If the international footnote does not include any restriction on the service or services concerned apart from the restriction to operate only in a particular area or country, stations of this service or these services shall have equality of right to operate with stations of the other primary service or services indicated in the Table.
5. If restrictions are imposed on an additional allocation in addition to the restriction to operate only in a particular area or country, this is indicated in an International footnote of the Table.
6. Where a band is indicated in an International footnote of the Table as "allocated" to one or more services in an area smaller than a Region, or in a particular country, this is an "alternative" allocation, i.e. an allocation which replaces, in this area or in this country, the allocation indicated in the Table.
7. If the footnote does not include any restriction on stations of the service or services concerned, apart from the restriction to operate only in a particular area or country, these stations of such a service or services shall have an equality of right to operate with stations of the primary service or services, indicated in the Table, to which the band is allocated in other areas or countries.
8. If restrictions are imposed on stations of a service to which an alternative allocation is made, in addition to the restriction to operate only in a particular country or area, this is indicated in the International and National footnote.
9. Where it is indicated that a service or stations in a service may operate in a specific frequency band subject to not causing harmful interference to another service or to another station in the same service, this means also that the service which is subject to not causing harmful interference cannot claim protection from harmful interference caused by the other service or other station in the same service.
10. Where it is indicated that a service or stations in a service may operate in a specific frequency band subject to not claiming protection from another service or from another station in the same service, this means also that the service which is subject to not claiming protection shall not cause harmful interference to the other service or other station in the same service.

5. Radio Wave Spectrum

In the below figure the **Radio Wave Frequency** spectrum is shown.



As shown in above diagram, the radio wave band is divided into several different categories. The below chart show different frequencies and their corresponding **Radio Wave Wavelength**.

ITU Band No	Band	Frequency Range	Wavelength Range
	Tremendously Low Frequency (TLF)	< 3 Hz	> 1000 Mm
	Extremely Low Frequency (ELF)	3 – 30 Hz	100 Mm – 10 Mm
	Super Low Frequency (SLF)	30 – 300 Hz	10 Mm – 1Mm
	Ultra Low Frequency (ULF)	300 – 3000 Hz	1000 km – 100 km
4	Very Low Frequency (VLF)	3 - 30 kHz	100 km – 10 km
5	Low Frequency (LF)	30 - 300 kHz	10 km – 1 km
6	Medium Frequency (MF)	300 - 3000 kHz	1 km – 100 m
7	High Frequency (HF)	3 – 30 MHz	100 m – 10 m
8	Very High Frequency (VHF)	30 – 300 MHz	10 m – 1 m
9	Ultra High Frequency (UHF)	300 – 3000 MHz	1 m – 100 mm
10	Super High Frequency (SHF)	3 – 30 GHz	100 mm – 10 mm
11	Extremely High Frequency (EHF)	30 – 300 GHz	10 mm – 1 mm
12	Tremendously High Frequency (THF)	300 – 3000 GHz	1 mm – 100 μm

Table of IEEE bands

Band	Origin of Name	Frequency Range
L Band	**L**ong wave	1 to 2 GHz
S band	**S**hort wave	2 to 4 GHz
C band	**C**ompromise between S and X	4 to 8 GHz
X band	X for cross	8 to 12 GHz
K_u band	**K**urz-**u**nder	12 to 18 GHz
K band	German **K**urz (short)	18 to 27 GHz

K_a band	**K**urz-**a**bove	27 to 40 GHz
V band		40 to 75 GHz
W band	**W** follows V in the alphabet	75 to 110 GHz
G band		110 to 300 GHz

EU, NATO, US ECM Frequency Designations

Band	Frequency Range
A band	0 to 0.25 GHz
B band	0.25 to 0.5 GHz
C band	0.5 to 1.0 GHz
D band	1 to 2 GHz
E band	2 to 3 GHz
F band	3 to 4 GHz
G band	4 to 6 GHz
H band	6 to 8 GHz
I band	8 to 10 GHz
J band	10 to 20 GHz
K band	20 to 40 GHz
L band	40 to 60 GHz
M band	60 to 100 GHz
R band	1.70 to 2.60 GHz
D band	2.20 to 3.30 GHz
S band	2.60 to 3.95 GHz
E band	3.30 to 4.90 GHz
G band	3.95 to 5.85 GHz

F band	4.90 to 7.05 GHz
C band	5.85 to 8.20 GHz
H band	7.05 to 10.10 GHz
X band	8.2 to 12.4 GHz
Ku band	12.4 to 18.0 GHz
K band	15.0 to 26.5 GHz
Ka band	26.5 to 40.0 GHz
Q band	33 to 50 GHz
U band	40 to 60 GHz
V band	50 to 75 GHz
W band	75 to 110 GHz
Y band	325 to 500 GHz

QNFAP - PART 2
FREQUENCY ALLOCATION PLAN

Qatar Frequency Allocation Plan

RR Region 1 Allocation	Qatar's Allocation	Main Use	Notes
Below 8.3 kHz **(Not allocated)** 5.53 5.54	(Not allocated)		
8.3 - 9 kHz **METEOROLOGICAL AIDS** 5.54A 5.54B 5.54C	METEOROLOGICAL AIDS	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices	Also allocated for radionavigation, fixed and mobile services on a primary basis (No. 5.54B)
9 - 11.3 kHz **METEROLOGICAL AIDS 5.54A** **RADIONAVIGATION**	RADIONAVIGATION	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices	
11.3 – 14 kHz **RADIONAVIGATION**	RADIONAVIGATION		
14 - 19.95 kHz **FIXED** **MARITIME MOBILE** 5.57 5.55 5.56	FIXED MARITIME MOBILE	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices – Maritime applications	The use by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only) (No. 5.57)
19.95 - 20.05 kHz **STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)**	STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices	
20.05 - 70 kHz **FIXED** **MARITIME MOBILE** 5.57 5.56 5.58	FIXED MARITIME MOBILE	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices – Maritime applications	The use by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only) (No. 5.57)
70 - 72 kHz	RADIONAVIGATION	– Inductive SRD Applications	

RADIONAVIGATION 5.60		– Wireless Application in Healthcare & Listening Devices	
72 - 84 kHz **FIXED** **MARITIME MOBILE** 5.57 **RADIONAVIGATION** 5.60 5.56	FIXED MARITIME MOBILE RADIONAVIGATION	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices – Maritime applications	The use by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only) (No. 5.57)
84 - 86 kHz **RADIONAVIGATION** 5.60	RADIONAVIGATION	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices	
86 - 90 kHz **FIXED** **MARITIME MOBILE** 5.57 **RADIONAVIGATION** 5.56	FIXED MARITIME MOBILE RADIONAVIGATION	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices – Maritime applications	The use by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only) (No. 5.57)
90 - 110 kHz **RADIONAVIGATION** 5.62 **Fixed** 5.64	RADIONAVIGATION Fixed	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices	
110 - 112 kHz **FIXED** **MARITIME MOBILE** **RADIONAVIGATION** 5.64	FIXED MARITIME MOBILE RADIONAVIGATION	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices – Maritime applications	
112 - 115 kHz **RADIONAVIGATION** 5.60	RADIONAVIGATION	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices – Maritime applications	
115 - 117.6 kHz **RADIONAVIGATION** 5.60	RADIONAVIGATION Fixed Maritime mobile	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices	

Fixed **Maritime mobile** 5.64 5.66		– Maritime applications	
117.6 - 126 kHz **FIXED** **MARITIME MOBILE** **RADIONAVIGATION** 5.60 5.64	FIXED MARITIME MOBILE RADIONAVIGATION	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices – Maritime applications	
126 - 129 kHz **RADIONAVIGATION** 5.60	RADIONAVIGATION	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices – Maritime applications	
129 - 130 kHz **FIXED** **MARITIME MOBILE** **RADIONAVIGATION** 5.60 5.64	FIXED MARITIME MOBILE RADIONAVIGATION	– Inductive SRD Applications – Wireless Application in Healthcare & Listening Devices – Maritime applications	
130 - 135.7 kHz **FIXED** **MARITIME MOBILE** 5.64 5.67	FIXED MARITIME MOBILE	– Inductive SRD Applications /Vehicle Fitted Radio Equipment – Wireless Application in Healthcare & Listening Devices – Maritime applications	
135.7 - 137.8 kHz **FIXED** **MARITIME MOBILE** **Amateur** 5.67A 5.64 5.67 5.67B	FIXED MARITIME MOBILE Amateur	– Amateur applications – Inductive SRD Applications /Vehicle Fitted Radio Equipment – Wireless Application in Healthcare & Listening Devices – Maritime applications	Stations in the amateur service using frequencies in the band 135.7-137.8 kHz shall not exceed a maximum radiated power of 1 W (e.i.r.p.) (No. 5.67A)
137.8 - 148.5 kHz **FIXED** **MARITIME MOBILE**	FIXED MARITIME MOBILE	– Inductive SRD Applications /Vehicle Fitted Radio Equipment – Wireless Application in Healthcare & Listening Devices	

5.64 5.67		– Maritime applications	
148.5 - 255 kHz **BROADCASTING** 5.68 5.69 5.70	BROADCASTING	– Broadcasting GE-75 – Wireless Application in Healthcare & Listening Devices	
255 - 283.5 KHz **BROADCASTING** **AERONAUTICAL RADIONAVIGATION** 5.70 5.71	BROADCASTING AERONAUTICAL RADIONAVIGATION	– Aeronautical Radio Beacons – Broadcasting GE75 – Wireless Application in Healthcare & Listening Devices	
283.5 - 315 kHz **AERONAUTICAL RADIONAVIGATION** **MARITIME RADIONAVIGATION (radiobeacons)** 5.73 5.72 5.74	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons)	– Aeronautical Radio Beacons – Maritime Radio Beacons – IALA GPS – Wireless Application in Healthcare & Listening Devices	The frequency band 285.3-285.7 kHz is also allocated to the maritime radionavigation service (other than radiobeacons) on a primary basis (No. 5.74)
315 - 325 kHz **AERONAUTICAL RADIONAVIGATION** **Maritime radionavigation (radiobeacons)** 5.73 5.72 5.75	AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons)	– Aeronautical Radio Beacons – Maritime Radio Beacons	
325 - 405 kHz **AERONAUTICAL RADIONAVIGATION** 5.72	AERONAUTICAL RADIONAVIGATION	– Aeronautical Radio Beacons	
405 - 415 kHz **RADIONAVIGATION** 5.76 5.72	RADIONAVIGATION	– Aeronautical Radio Beacons – Maritime Radio Beacons	
415 - 435 kHz **MARITIME MOBILE** 5.79	MARITIME MOBILE AERONAUTICAL RADIONAVIGATION	– Aeronautical Radio Beacons – Maritime applications	

AERONAUTICAL RADIONAVIGATION			
435 - 472 kHz **MARITIME MOBILE** 5.79 **Aeronautical radionavigation** 5.77 5.82	MARITIME MOBILE Aeronautical radionavigation	– Maritime applications – Detection of avalanche victims 457kHz – Receiver IF	NAVTEX Transmissions (national language) The use of the frequency band 472-479 kHz is limited to the maritime mobile and aeronautical radionavigation services The amateur service shall not be used in the above-mentioned countries in this frequency band (No. 5.50B) No. 5.82)
472 – 479 kHz **MARITIME MOBILE** 5.79 **Amateur** 5.80 A **Aeronautical radionavigation** 5.77 5.80 5.80B 5.82	MARITIME MOBILE Amateur Aeronautical radionavigation		
479 – 495kHz **MARITIME MOBILE** 5.79 5.79A **Aeronautical radionavigation** 5.77 5.82	MARITIME MOBILE Aeronautical radionavigation		
495 - 505 kHz **MARITIME MOBILE**	MARITIME MOBILE	– Maritime GMDSS	
505 - 526.5 kHz **MARITIME MOBILE** 5.79 5.79A 5.84 **AERONAUTICAL RADIONAVIGATION**	MARITIME MOBILE AERONAUTICAL RADIONAVIGATION	– Aeronautical Radio – Maritime applications – International NAVTEX transmissions at 518 kHz	
526.5 - 1 606.5 kHz **BROADCASTING** 5.87 5.87A	BROADCASTING	– Broadcasting GE-75	

1 606.5 - 1 625 kHz **FIXED** **MARITIME MOBILE** 5.90 **LAND MOBILE** 5.92	FIXED MARITIME MOBILE LAND MOBILE	– Maritime applications – Radio-determination applications	
1 625 - 1 635 kHz **RADIOLOCATION** 5.93	RADIOLOCATION	– Radio-determination applications	
1 635 - 1 800 kHz **FIXED** **MARITIME MOBILE** 5.90 **LAND MOBILE** 5.92 5.96	FIXED MARITIME MOBILE LAND MOBILE	– Maritime applications – Radio-determination applications	
1 800 - 1 810 kHz **RADIOLOCATION** 5.93	RADIOLOCATION	– Radio-determination applications	
1 810 - 1 850 kHz **AMATEUR** 5.98 5.99 5.100 5.101	AMATEUR	– Amateur applications	
1 850 - 2 000 kHz **FIXED** **MOBILE except aeronautical mobile** 5.92 5.96 5.103	FIXED MOBILE except aeronautical mobile	– Radio-determination applications	
2 000 - 2 025 kHz **FIXED** **MOBILE except aeronautical mobile (R)** 5.92 5.103	FIXED MOBILE except aeronautical mobile (R)	– Radio-determination applications	

2 025 - 2 045 kHz **FIXED** **MOBILE except aeronautical mobile (R)** **Meteorological aids** 5.104 5.92 5.103	FIXED MOBILE except aeronautical mobile (R) Meteorological aids	– Radio-determination applications	The use by meteorological aids service is limited to oceanographic buoy stations. (No. 5.104)
2 045 - 2 160 kHz **FIXED** **MARITIME MOBILE** **LAND MOBILE** 5.92	FIXED MARITIME MOBILE LAND MOBILE	– Maritime applications	International telephony frequencies - (Ship TX) in accordance with RR 52.202 - 52.204/ ETSI EN 300 373
2 160 - 2 170 kHz **RADIOLOCATION** 5.93 5.107	RADIOLOCATION	– Radio-determination applications	
2 170 - 2 173.5 kHz **MARITIME MOBILE**	MARITIME MOBILE	– Maritime applications	
2 173.5 - 2 190.5 kHz **MOBILE (distress and calling)** 5.108 5.109 5.110 5.111	MOBILE (distress and calling)	– DSC distress and calling at 2187.5 kHz - Maritime GMDSS (Radiotelephony distress and Calling) at 2182 kHz – Telex distress traffic 2174.5 kHz	
2 190.5 - 2 194 kHz **MARITIME MOBILE**	MARITIME MOBILE	– Maritime applications	
2 194 - 2 300 kHz **FIXED** **MOBILE except aeronautical mobile (R)** 5.92 5.103 5.112	FIXED MOBILE except aeronautical mobile (R)	– Maritime applications	
2 300 - 2 498 kHz **FIXED**	FIXED MOBILE except aeronautical mobile (R) BROADCASTING	– Maritime applications	

MOBILE except aeronautical mobile (R) **BROADCASTING** 5.113 5.103			
2 498 - 2 501 kHz **STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)**	STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)		
2 501 - 2 502 kHz **STANDARD FREQUENCY AND TIME SIGNAL** **Space Research**	STANDARD FREQUENCY AND TIME SIGNAL Space Research		
2 502 - 2 625 kHz **FIXED** **MOBILE except aeronautical mobile (R)** 5.92 5.103 5.114	FIXED MOBILE except aeronautical mobile (R)	– Radio-determination applications	
2 625 - 2 650 kHz **MARITIME MOBILE** **MARITIME RADIONAVIGATION** 5.92	MARITIME MOBILE MARITIME RADIONAVIGATION	– Maritime applications	
2 650 - 2 850 kHz **FIXED** **MOBILE except aeronautical mobile (R)** 5.92 5.103	FIXED MOBILE except aeronautical mobile (R)	– Radio-determination applications	
2 850 - 3 025 kHz **AERONAUTICAL MOBILE (R)** 5.111 5.115	AERONAUTICAL MOBILE (R)	– Aeronautical Mobile (R) applications – SAR (communications)	Appendix 27 Allotment Plan

3 025 - 3 155 kHz **AERONAUTICAL MOBILE (OR)**	AERONAUTICAL MOBILE (OR)	– Aeronautical Mobile (OR) applications – Inductive SRD Applications/ Vehicle Fitted Radio Equipment	Appendix 26 Allotment Plan
3 155 - 3 200 kHz **FIXED** **MOBILE except aeronautical mobile (R)** 5.116 5.117	FIXED MOBILE except aeronautical mobile (R)	– Inductive SRD Applications/ Vehicle Fitted Radio Equipment – Maritime applications	
3 200 - 3 230 kHz **FIXED** **MOBILE except aeronautical mobile (R)** **BROADCASTING** 5.113 5.116	FIXED MOBILE except aeronautical mobile (R) BROADCASTING	– Inductive SRD Applications/ Vehicle Fitted Radio Equipment – Maritime applications	
3 230 - 3 400 kHz **FIXED** **MOBILE except aeronautical mobile** **BROADCASTING** 5.113 5.116 5.118	FIXED MOBILE except aeronautical mobile BROADCASTING	– Inductive SRD Applications/ Vehicle Fitted Radio Equipment – Maritime applications	
3 400 - 3 500 kHz **AERONAUTICAL MOBILE (R)**	AERONAUTICAL MOBILE (R)		Appendix 27 Allotment Plan
3 500 - 3 800 kHz **AMATEUR** **FIXED** **MOBILE except aeronautical mobile** 5.92	AMATEUR FIXED MOBILE except aeronautical mobile	– Amateur applications	
3 800 - 3 900 kHz **FIXED** **AERONAUTICAL MOBILE (OR)** **LAND MOBILE**	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE		

3 900 - 3 950 kHz **AERONAUTICAL MOBILE (OR)** 5.123	AERONAUTICAL MOBILE (OR)	– Aeronautical Mobile (OR) applications	Appendix 26 Allotment Plan
3 950 - 4 000 kHz **FIXED** **BROADCASTING**	FIXED BROADCASTING		
4 000 - 4 063 kHz **FIXED** **MARITIME MOBILE** 5.127 5.126	FIXED MARITIME MOBILE	– Maritime applications	Appendix 17 Channeling Plan Appendix 25 Allotment Plan
4 063 - 4 438 kHz **MARITIME MOBILE** 5.79A 5.109 5.110 5.130 5.131 5.132 5.128	MARITIME MOBILE	– DSC Calling – 4208, 4208.5, 4209, 4219.5, 4220, 4220.5 kHz – DSC distress traffic 4207.5 kHz – Maritime Safety Information (MSI) 4210 kHz – Meteorological and navigational warnings 4209.5 kHz – Telephony distress traffic and calling by rescue centers 4125 kHz – Telex distress traffic 4177.5 kHz	Appendix 17 Channeling Plan Appendix 25 Allotment Plan The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles 31 and 52 (No. 5.130)
4 438 - 4488 kHz **FIXED** **MOBILE except aeronautical mobile (R)** **Radiolocation 5.132A** **5.132B**	FIXED MOBILE except aeronautical mobile (R) Radiolocation		
4488 – 4650 kHz **FIXED** **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R)		
4 650 - 4 700 kHz **AERONAUTICAL MOBILE (R)**	AERONAUTICAL MOBILE (R)		Appendix 27 Allotment Plan Including HF Data Links
4 700 - 4 750 kHz	AERONAUTICAL MOBILE (OR)	– Aeronautical Mobile (OR)	Appendix 26 Allotment Plan

AERONAUTICAL MOBILE (OR)			
4 750 - 4 850 kHz **FIXED** **AERONAUTICAL MOBILE (OR)** **LAND MOBILE** **BROADCASTING** 5.113	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING		
4 850 - 4 995 kHz **FIXED** **LAND MOBILE** **BROADCASTING** 5.113	FIXED LAND MOBILE BROADCASTING		
4 995 - 5 003 kHz **STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)**	STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)		
5 003 - 5 005 kHz **STANDARD FREQUENCY AND TIME SIGNAL** **Space research**	STANDARD FREQUENCY AND TIME SIGNAL Space research		
5 005 - 5 060 kHz **FIXED** **BROADCASTING** 5.113	FIXED BROADCASTING		
5 060 - 5 250 kHz **FIXED** **Mobile except aeronautical mobile** 5.133	FIXED Mobile except aeronautical mobile		
5 250 - 5 275 kHz **FIXED** **MOBILE except aeronautical mobile** **Radiolocation** 5.132A 5.133A	FIXED MOBILE except aeronautical mobile		

5 275-5 351.5 kHz **FIXED** **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile		
5 351.5-5 366.5 kHz **FIXED** **MOBILE except aeronautical mobile** **Amateur** 5.133B	FIXED MOBILE except aeronautical mobile Amateur		Stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 15 W (e.i.r.p.). (see No. 5.133B)
5 366.5-5 450 kHz **FIXED** **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile		
5 450 - 5 480 kHz **FIXED** **AERONAUTICAL MOBILE (OR)** **LAND MOBILE**	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE		
5 480 - 5 680 kHz **AERONAUTICAL MOBILE (R)** 5.111 5.115	AERONAUTICAL MOBILE (R)	- Aeronautical Mobile ® - SAR (communications)	Appendix 27 Allotment Plan Including HF Data Links Telephony distress traffic and calling by rescue centers
5 680 - 5 730 kHz **AERONAUTICAL MOBILE (OR)** 5.111 5.115	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile (OR)	Appendix 26 Allotment Plan
5 730 - 5 900 kHz **FIXED** **LAND MOBILE**	FIXED LAND MOBILE		
5 900 - 5 950 kHz **BROADCASTING** 5.134 5.136	BROADCASTING		WARC92 bands for broadcasting
5 950 - 6 200 kHz	BROADCASTING		Article 12 planning procedure

BROADCASTING			
6 200 - 6 525 kHz **MARITIME MOBILE** 5.109 5.110 5.130 5.132 5.137	MARITIME MOBILE	– DSC Calling – 6312.5, 6313, 6313.5, 6331, 6331.5, 6332kHz – DSC distress traffic 6312 kHz – Maritime Safety Information (MSI) 6314 kHz – Telephony distress traffic and calling by rescue centers 6215 kHz – Telex distress traffic 6268 kHz	Appendix 17 channeling plan. Appendix 25 allotment plan The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles 31 and 52 (No. 5.130)
6 525 - 6 685 kHz **AERONAUTICAL MOBILE (R)**	AERONAUTICAL MOBILE (R)		Appendix 27 Allotment Plan including HF Data Links
6 685 - 6 765 kHz **AERONAUTICAL MOBILE (OR)**	AERONAUTICAL MOBILE (OR)	– Aeronautical Mobile (OR)	Appendix 26 Allotment Plan
6 765 - 7 000 kHz **FIXED** **MOBILE except aeronautical mobile (R)** 5.138	FIXED MOBILE except aeronautical mobile (R)	– Inductive SRD Applications – Non-Specific SRD applications	
7 000 - 7 100 kHz **AMATEUR** **AMATEUR - SATELLITE** 5.140 5.141 5.141A	AMATEUR AMATEUR - SATELLITE	– Amateur Applications	
7 100 - 7 200 kHz **AMATEUR** 5.141A 5.141B	AMATEUR		Also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis (No. 5.141B)
7 200 - 7 300 kHz **BROADCASTING**	BROADCASTING		
7 300 - 7 400 kHz **BROADCASTING** 5.134 5.143 5.143A 5.143B 5.143C 5.143D	BROADCASTING		WARC92 bands for broadcasting

7 400 - 7 450 kHz **BROADCASTING** 5.143B 5.143C	BROADCASTING	- Inductive SRD Applications	
7 450 - 8 100 kHz **FIXED** **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R)	- Inductive SRD Applications	
8 100 - 8 195 kHz **FIXED** **MARITIME MOBILE**	FIXED MARITIME MOBILE	– Inductive SRD Applications – Maritime applications	Appendix 17 channeling plan
8 195 - 8 815 kHz **MARITIME MOBILE** 5.109 5.110 5.132 5.145 5.111	MARITIME MOBILE	– DSC Calling – 8415, 8415.5, 8416, 8436.5, 8437, 8437.5 kHz – DSC distress traffic 8364 kHz and 8414.5 kHz – Maritime Safety Information (MSI) 8416.5 kHz – Telephony distress traffic and calling by rescue centers 8291 kHz – Telex distress traffic 8376.5 kHz – Inductive SRD Applications	Appendix 17 channeling plan. Appendix 25 allotment plan The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles 31 and 52 (No. 5.145)
8 815 - 8 965 kHz **AERONAUTICAL MOBILE (R)**	AERONAUTICAL MOBILE (R)		Appendix 27 Allotment Plan including HF Data Links
8 965 - 9 040 kHz **AERONAUTICAL MOBILE (OR)**	AERONAUTICAL MOBILE (OR)	– Aeronautical Mobile (OR)	Appendix 26 Allotment Plan
9 040 - 9305 kHz **FIXED**	FIXED		
9305 – 9355kHz **FIXED** **Radiolocation** 5.145A 5.145B	FIXED		
9355 – 9400 kHz **FIXED**	FIXED		

9 400 - 9 500 kHz **BROADCASTING** 5.134 5.146	BROADCASTING		WARC92 bands for broadcasting
9 500 - 9 900 kHz **BROADCASTING** 5.147	BROADCASTING		Article 12 planning procedure
9 900 - 9 995 kHz **FIXED**	FIXED		
9 995 - 10 003 kHz **STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz)** 5.111	STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz)		
10 003 - 10 005 kHz **STANDARD FREQUENCY AND TIME SIGNAL** **Space research** 5.111	STANDARD FREQUENCY AND TIME SIGNAL Space research		
10 005 - 10 100 kHz **AERONAUTICAL MOBILE (R)** 5.111	AERONAUTICAL MOBILE (R) 5.111		Appendix 27 Allotment Plan including HF Data Links
10 100 - 10 150 kHz **FIXED** **Amateur**	FIXED Amateur		
10 150 - 11 175 kHz **FIXED** **Mobile except aeronautical mobile (R)**	FIXED Mobile except aeronautical mobile (R)	– Inductive SRD	
11 175 - 11 275 kHz	AERONAUTICAL MOBILE (OR)	– Aeronautical Mobile (OR)	Appendix 26 Allotment Plan

AERONAUTICAL MOBILE (OR)			
11 275 - 11 400 kHz **AERONAUTICAL MOBILE (R)**	AERONAUTICAL MOBILE (R)		Appendix 27 Allotment Plan including HF Data Links
11 400 - 11 600 kHz **FIXED**	FIXED		
11 600 - 11 650 kHz **BROADCASTING** 5.134 5.146	BROADCASTING		WARC92 bands for broadcasting
11 650 - 12 050 kHz **BROADCASTING** 5.147	BROADCASTING		Article 12 planning procedure
12 050 - 12 100 kHz **BROADCASTING** 5.134 5.146	BROADCASTING		WARC92 bands for broadcasting
12 100 - 12 230 kHz **FIXED**	FIXED		
12 230 - 13 200 kHz **MARITIME MOBILE** 5.109 5.110 5.132 5.145	MARITIME MOBILE	– DSC Calling 12577.5, 12578, 12578.5, 12657, 12657.5,12658 kHz – DSC distress traffic 12577 kHz – Maritime Safety Information (MSI) 12579 kHz – Telephony distress traffic and calling by rescue centers 12290 kHz – Telex distress traffic 12520 kHz	Appendix 17 channeling plan. Appendix 25 allotment plan The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles 31 and 52 (No. 5.145)
13 200 - 13 260 kHz **AERONAUTICAL MOBILE (OR)**	AERONAUTICAL MOBILE (OR)	– Aeronautical Mobile (OR)	Appendix 26 Allotment Plan
13 260 - 13 360 kHz **AERONAUTICAL MOBILE (R)**	AERONAUTICAL MOBILE (R)		Appendix 27 Allotment Plan including HF Data Links
13 360 - 13 410 kHz	FIXED RADIO ASTRONOMY	– Radioastronomy	

FIXED **RADIO ASTRONOMY** 5.149			
13 410 - 13450 kHz **FIXED** **Mobile except aeronautical mobile (R)**	FIXED Mobile except aeronautical mobile (R)	– Inductive SRD Applications/ Vehicle Fitted Radio Equipment – Radio Frequency Identification Equipment (RFID) – Non-Specific SRD applications	ISM and Non-specific SRDs within the band 13 553-13 567 kHz
13 450 – 13 550 kHz **FIXED** **Mobile except aeronautical mobile (R)** **Radiolocation** 5.132A **5.149A**	FIXED Mobile except aeronautical mobile (R)		
13 550 – 13 570 kHz **FIXED** **Mobile except aeronautical mobile (R)** 5.150	FIXED Mobile except aeronautical mobile (R)		
13 570 - 13 600 kHz **BROADCASTING** 5.134 5.151	BROADCASTING	– Broadcasting	
13 600 - 13 800 kHz **BROADCASTING**	BROADCASTING	– Broadcasting	Article 12 planning procedure
13 800 - 13 870 kHz **BROADCASTING** 5.134 5.151	BROADCASTING	– Broadcasting	
13 870 - 14 000 kHz **FIXED** **Mobile except aeronautical mobile (R)**	FIXED Mobile except aeronautical mobile (R)		

14 000 - 14 250 kHz **AMATEUR** **AMATEUR - SATELLITE**	AMATEUR AMATEUR - SATELLITE	– Amateur applications	Amateur applications within the band 14 000-143 50 kHz
14 250 - 14 350 kHz **AMATEUR** 5.152	AMATEUR	– Amateur applications	Amateur applications within the band 14 000-143 50 kHz
14 350 - 14 990 kHz **FIXED** **Mobile except aeronautical mobile (R)**	FIXED Mobile except aeronautical mobile (R)		
14 990 - 15 005 kHz **STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz)** 5.111	STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz)		
15 005 - 15 010 kHz **STANDARD FREQUENCY AND TIME SIGNAL** **Space research**	STANDARD FREQUENCY AND TIME SIGNAL Space research		
15 010 - 15 100 kHz **AERONAUTICAL MOBILE (OR)**	AERONAUTICAL MOBILE (OR)	– Aeronautical Mobile (OR) applications	Appendix 26 Allotment Plan
15 100 - 15 600 kHz **BROADCASTING**	BROADCASTING	– Broadcasting	Article 12 planning procedure
15 600 - 15 800 kHz **BROADCASTING** 5.134 5.146	BROADCASTING	– Broadcasting	
15 800 - 16 100 kHz **FIXED** 5.153	FIXED		

16 100 – 16 200 kHz **FIXED** **Radiolocation** 5.145A 5.145B	FIXED		
16 200 – 16 360 kHz **FIXED**	FIXED		
16 360 - 17 410 kHz **MARITIME MOBILE** 5.109 5.110 5.132 5.145	MARITIME MOBILE	– DSC Calling – 16805, 16805.5, 16806,16903, 16903.5, 16904 kHz – DSC distress traffic 16804.5 kHz – Maritime Safety Information (MSI) 16806.5 kHz – Telephony distress traffic and calling by rescue centers 16420 kHz – Telex distress traffic 16695 kHz	Appendix 17 channeling plan. Appendix 25 allotment plan The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles 31 and 52 (No. 5.145)
17 410 - 17 480 kHz **FIXED**	FIXED		
17 480 - 17 550 kHz **BROADCASTING** 5.134 5.146	BROADCASTING 5.134 5.146	– Broadcasting	
17 550 - 17 900 kHz **BROADCASTING**	BROADCASTING	– Broadcasting	Article 12 planning procedure
17 900 - 17 970 kHz **AERONAUTICAL MOBILE (R)**	AERONAUTICAL MOBILE (R)	– Aeronautical Mobile (R) applications	Appendix 27 Allotment Plan including HF Data Links
17 970 - 18 030 kHz **AERONAUTICAL MOBILE (OR)**	AERONAUTICAL MOBILE (OR)	– Aeronautical Mobile (OR) applications	Appendix 26 Allotment Plan
18 030 - 18 052 kHz **FIXED**	FIXED		
18 052 - 18 068 kHz	FIXED		

FIXED **Space research**	Space research		
18 068 - 18 168 kHz **AMATEUR** **AMATEUR - SATELLITE** 5.154	AMATEUR AMATEUR - SATELLITE	– Amateur applications	
18 168 - 18 780 kHz **FIXED** **Mobile except aeronautical mobile**	FIXED Mobile except aeronautical mobile	– DSC Calling 18898.5, 18899, 18899.5 kHz	
18 780 - 18 900 kHz **MARITIME MOBILE**	MARITIME MOBILE	– Maritime applications	Appendix 17 channeling plan
18 900 - 19 020 kHz **BROADCASTING** 5.134 5.146	BROADCASTING	– Broadcasting	
19 020 - 19 680 kHz **FIXED**	FIXED		
19 680 - 19 800 kHz **MARITIME MOBILE** 5.132	MARITIME MOBILE	– DSC Calling 19703.5, 19704, 19704.5 kHz – Maritime applications Maritime Safety Information (MSI) 19680.5 kHz	Appendix 17 channeling plan. Appendix 25 allotment plan
19 800 - 19 990 kHz **FIXED**	FIXED		
19 990 - 19 995 kHz **STANDARD FREQUENCY AND TIME SIGNAL** **Space research** 5.111	STANDARD FREQUENCY AND TIME SIGNAL Space research		
19 995 - 20 010 kHz **STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz)**	STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz)		

5.111			
20 010 - 21 000 kHz **FIXED** **Mobile**	FIXED Mobile		
21 000 - 21 450 kHz **AMATEUR** **AMATEUR - SATELLITE**	AMATEUR AMATEUR - SATELLITE	– Amateur applications	
21 450 - 21 850 kHz **BROADCASTING**	BROADCASTING	– Broadcasting	
21 850 - 21 870 kHz **FIXED** 5.155A 5.155	FIXED		
21 870 - 21 924 kHz **FIXED** 5.155B	FIXED		Used by the fixed service for provision of services related to aircraft flight safety (5.155B)
21 924 - 22 000 kHz **AERONAUTICAL MOBILE (R)**	AERONAUTICAL MOBILE (R)	– Aeronautical Mobile (R) applications	Appendix 27 Allotment Plan. Including HF Data Links
22 000 - 22 855 kHz **MARITIME MOBILE** 5.132 5.156	MARITIME MOBILE	– DSC Calling 22374.5, 22375, 22375.5, 22444, 22444.5, 22445 kHz – Maritime applications Maritime Safety Information (MSI) 22376 kHz	Appendix 17 channeling plan. Appendix 25 allotment plan
22 855 - 23 000 kHz **FIXED** 5.156	FIXED		
23 000 - 23 200 kHz **FIXED** **Mobile except aeronautical mobile (R)** 5.156	FIXED Mobile except aeronautical mobile (R)		

23 200 - 23 350 kHz **FIXED** 5.156A **AERONAUTICAL MOBILE (OR)**	FIXED AERONAUTICAL MOBILE (OR)	– Aeronautical Mobile (OR) applications	
23 350 - 24 000 kHz **FIXED** **MOBILE except aeronautical mobile** 5.157	FIXED MOBILE except aeronautical mobile		
24 000 - 24 450 kHz **FIXED** **LAND MOBILE**	FIXED LAND MOBILE		
24 450 – 24 600 kHz **FIXED** **LAND MOBILE** **Radiolocation** 5.132A 5.158	FIXED LAND MOBILE		
24 600 – 24 890 kHz **FIXED** **LAND MOBILE**	FIXED LAND MOBILE		
24 890 - 24 990 kHz **AMATEUR** **AMATEUR - SATELLITE**	AMATEUR AMATEUR - SATELLITE	– Amateur applications	
24 990 - 25 005 kHz **STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)**	STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)		
25 005 - 25 010 kHz **STANDARD FREQUENCY AND TIME SIGNAL** **Space Research**	STANDARD FREQUENCY AND TIME SIGNAL Space research		
25 010 - 25 070 kHz **FIXED** **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile		

25 070 - 25 210 kHz **MARITIME MOBILE**	MARITIME MOBILE	– DSC Calling 25208.5, 25209, 25209.5 kHz	Appendix 17 channeling plan
25 210 - 25 550 kHz **FIXED** **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile		
25 550 - 25 670 kHz **RADIO ASTRONOMY** 5.149	RADIO ASTRONOMY		
25 670 - 26 100 kHz **BROADCASTING**	BROADCASTING	– Broadcasting	Article 12 Planning procedure
26 100 - 26 175 kHz **MARITIME MOBILE** 5.132	MARITIME MOBILE	– DSC Calling 26121, 26121.5, 16122 kHz – Maritime applications Maritime Safety Information (MSI) 26100.5 kHz	Appendix 17 channeling plan. Appendix 25 allotment plan
26 175 - 26 200 kHz **FIXED** **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile	– CB – Non-Specific SRD applications – Inductive SRD Applications/Remote Control – Wireless Audio Applications – Model Control	CB : ETSI EN 300 135 within the band 26.960 - 27.410 MHz EN 300 433 SRD within the band 26.957-27.283 MHz : ETSI EN 300 330 EN 300 220
26 200 – 26 350 kHz **FIXED** **MOBILE except aeronautical mobile** **Radiolocation** 5.132A 5.133A	FIXED MOBILE except aeronautical mobile		
26 350 – 27 500 kHz **FIXED** **MOBILE except aeronautical mobile** 5.150	FIXED MOBILE except aeronautical mobile		
27.5 - 28 MHz **METEOROLOGICAL AIDS**	METEOROLOGICAL AIDS FIXED MOBILE	- Model Control	

FIXED **MOBILE**			
28 - 29.7 MHz **AMATEUR** **AMATEUR - SATELLITE**	AMATEUR AMATEUR - SATELLITE	– Amateur applications	
29.7 - 30.005 MHz **FIXED** **MOBILE**	FIXED MOBILE	– Wireless Application in Healthcare & Listening Devices	Active medical implants within the band 30.0-37.5 MHz (EN 302 510)
30.005 - 30.01 MHz **SPACE OPERATION (satellite identification)** **FIXED** **MOBILE** **SPACE RESEARCH**	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	– Wireless Application in Healthcare & Listening Devices	Active medical implants within the band 30.0-37.5 MHz (EN 302 510)
30.01 - 37.5 MHz **FIXED** **MOBILE**	FIXED MOBILE	– PMR – Model control – Wireless Application in Healthcare & Listening Devices	Model control within the band 34.995-35.225 MHz (Only for flying models) Active medical implants within the band 30.0-37.5 MHz (EN 302 510)
37.5 - 38.25 MHz **FIXED** **MOBILE** **Radio astronomy** 5.149	FIXED MOBILE Radio astronomy	– PMR	
38.25 - 39MHz **FIXED** **MOBILE**	FIXED MOBILE	– PMR	
39 – 39.5 MHz **FIXED** **MOBILE** **Radiolocation 5.132A** 5.159	FIXED MOBILE		

39.5 – 39.986 MHz **FIXED** **MOBILE**	FIXED MOBILE		
39.986 - 40.02 MHz **FIXED** **MOBILE** **Space research**	FIXED MOBILE Space research	– PMR	
40.02 - 40.98 MHz **FIXED** **MOBILE** 5.150	FIXED MOBILE	– ISM – PMR – Model Control – Non-Specific SRD applications	ISM within the band 40.66-40.70 MHz
40.98 - 41.015 MHz **FIXED** **MOBILE** **Space research** 5.160 5.161	FIXED MOBILE Space research	– PMR	
41.015 - 42 MHz **FIXED** **MOBILE** 5.160 5.161 5.161A	FIXED MOBILE	– PMR	
42 – 42.5 MHz **FIXED** **MOBILE** **Radiolocation** 5.132A 5.161B	FIXED MOBILE		
42.5 – 44 MHz **FIXED** **MOBILE**	FIXED MOBILE		

5.160 5.161 5.161 A			
44 - 47MHz **FIXED** **MOBILE** 5.162 5.162A	FIXED MOBILE	– PMR	
47 - 68 MHz **BROADCASTING** 5.162A 5.163 5.164 5.165 5.169 5.171	BROADCASTING		
68 - 74.8 MHz **FIXED** **MOBILE except aeronautical mobile** 5.149 5.175 5.177 5.179	FIXED MOBILE except aeronautical mobile	– PMR (Single Freq. operation) – Radio Astronomy	
74.8 - 75.2 MHz **AERONAUTICAL RADIONAVIGATION** 5.180 5.181	AERONAUTICAL RADIONAVIGATION	– ILS/Marker beacons	
75.2 - 87.5 MHz **FIXED** **MOBILE except aeronautical mobile** 5.175 5.179 5.187	FIXED MOBILE except aeronautical mobile	– PMR (Single Frequency) – PMR (Duplex Systems)	
87.5 - 100 MHz **BROADCASTING** 5.190	BROADCASTING	– FM sound Broadcasting – Wireless Audio Applications SRD (EN 301 357)	FM broadcasting assignments in accordance with GE - 84 Agreement
100 - 108 MHz **BROADCASTING** 5.192 5.194	BROADCASTING	– FM sound Broadcasting – Wireless Audio Applications SRD (EN 301 357)	FM broadcasting assignments in accordance with GE - 84 Agreement

108 - 117.975 MHz **AERONAUTICAL RADIONAVIGATION** 5.197 5.197A	AERONAUTICAL RADIONAVIGATION	– ILS/Localizer (Within 108 - 112 MHz) – VOR (Within 108 - 117.975 MHz)	Also allocated on a primary basis to the aeronautical mobile (R) service, limited to systems operating in accordance with recognized international aeronautical standards (No. 5.197A)
117.975 - 137 MHz **AERONAUTICAL MOBILE (R)** 5.111 5.200 5.201 5.202	AERONAUTICAL MOBILE (R)	– Aeronautical mobile communications for safety and regularity of flights (117.975–121.45 MHz) – EPIRB (121.45 – 121.55 MHz) – Aeronautical mobile communications for safety and regularity of flights, airline business and airport mobile communications (121.55 – 136 MHz)	121.5 MHz is the aeronautical emergency frequency (5.200)
137 - 137.025 MHz **SPACE OPERATION (space -to- Earth)** **METEOROLOGICAL - SATELLITE (space -to-Earth)** **MOBILE - SATELLITE (space -to- Earth)** 5.208A 5.208B 5.209 **SPACE RESEARCH (space - to - Earth)** **Fixed** **Mobile except aeronautical mobile (R)** 5.204 5.205 5.206 5.207 5.208	FIXED MOBILE except aeronautical mobile (R)	– Mobile applications (Restricted to aeronautical Mobile (OR), including air sport)	Allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (No. 5.204)
137.025 - 137.175 MHz **SPACE OPERATION (space -to- Earth)** **METEOROLOGICAL - SATELLITE (space -to-Earth)** **SPACE RESEARCH (space -to- Earth)** **Fixed** **Mobile - satellite (space -to- Earth)** 5.208A 5.208B 5.209 **Mobile except aeronautical mobile (R)** 5.204 5.205 5.206 5.207 5.208	FIXED MOBILE except aeronautical mobile (R)	– Mobile applications (Restricted to aeronautical Mobile (OR), including air sport)	Allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (No. 5.204)
137.175 - 137.825 MHz	FIXED MOBILE except aeronautical mobile (R)	– Mobile applications (Restricted to aeronautical Mobile (OR), including air sport)	Allocated to the fixed and mobile, except aeronautical mobile (R), services on a

SPACE OPERATION (space - to - Earth) **METEOROLOGICAL - SATELLITE (space -to- Earth)** **MOBILE - SATELLITE (space -to- Earth)** 5.208A 5.208B 5.209 **SPACE RESEARCH (space -to- Earth)** **Fixed** **Mobile except aeronautical mobile (R)** 5.204 5.205 5.206 5.207 5.208			primary basis (No. 5.204)
137.825 - 138 MHz **SPACE OPERATION (space -to- Earth)** **METEOROLOGICAL - SATELLITE (space -to- Earth)** **SPACE RESEARCH (space -to- Earth)** **Fixed** **Mobile - satellite (space -to- Earth)** 5.208A 5.208B 5.209 **Mobile except aeronautical mobile (R)** 5.204 5.205 5.206 5.207 5.208	FIXED MOBILE except aeronautical mobile (R)	– Mobile applications (Restricted to aeronautical Mobile (OR), including air sport)	Allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (No. 5.204)
138 - 143.6 MHz **AERONAUTICAL MOBILE (OR)** 5.210 5.211 5.212 5.214	AERONAUTICAL MOBILE (OR)	– Air operation control	Also allocated to the maritime mobile and land mobile services on a primary basis (No. 5.211)
143.6 - 143.65 MHz **AERONAUTICAL MOBILE (OR)** **SPACE RESEARCH** **(space -to- Earth)** 5.211 5.212 5.214	AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space - to - Earth)	– Air operation	Also allocated to the maritime mobile and land mobile services on a primary basis (No. 5.211)
143.65 - 144 MHz **AERONAUTICAL MOBILE (OR)**	AERONAUTICAL MOBILE (OR)	– Air operation	Also allocated to the maritime mobile and land mobile services on a primary basis (No. 5.211)

5.210 5.211 5.212 5.214			
144 - 146 MHz **AMATEUR** **AMATEUR - SATELLITE** 5.216	AMATEUR AMATEUR - SATELLITE	– Amateur – Amateur Satellite	
146 - 148 MHz **FIXED** **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R)	– PMR (Both Single frequency and Duplex operations)	
148 - 149.9 MHz **FIXED** **MOBILE except aeronautical mobile (R)** **MOBILE – SATELLITE (Earth -to- space)** 5.209 5.218 5.219 5.221	FIXED MOBILE except aeronautical mobile (R) MOBILE – SATELLITE (Earth - to - space)	– LEO Satellite – PMR (Duplex operations)	Stations of the mobile-satellite service shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services (No. 5.221)
149.9 - 150.05 MHz **MOBILE - SATELLITE (Earth -to- space)** 5.209 5.220	MOBILE - SATELLITE (Earth - to - space)	– LEO Satellite – PMR (Single frequency operations)	
150.05 - 153 MHz **FIXED** **MOBILE except aeronautical mobile** **RADIO ASTRONOMY** 5.149	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY	– PMR (Both Single frequency and Duplex operations) – Radio Astronomy	
153 - 154 MHz **FIXED** **MOBILE except aeronautical mobile (R)** **Meteorological Aids**	FIXED MOBILE except aeronautical mobile (R) Meteorological Aids	– PMR (Duplex Operations)	
154 - 156.4875 MHz **FIXED** **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R)	– PMR (Duplex Operations)	Maritime communications as per Appendix 18

5.225A 5.226			
156.4875 - 156.5625 MHz **MARITIME MOBILE (distress and calling via DSC)** 5.111 5.226 5.227	MARITIME MOBILE (distress and calling via DSC)		Maritime communications as per Appendix 18
156.5625 - 156.7625 MHz **FIXED** **MOBILE except aeronautical mobile (R)** 5.226	FIXED MOBILE except aeronautical mobile (R)		Maritime communications as per Appendix 18
156.7625 - 156.7875 MHz **MARITIME MOBILE Mobile-satellite (Earth-to-space)** 5.111 5.226 5.228	MARITIME MOBILE	– International distress, safety and calling frequency (156.8MHz single Frequency)	Maritime communications as per Appendix 18
156.7875 – 156.8125 MHz **MARITIME MOBILE (distress and calling)** 5.111 5.226	MARITIME MOBILE		
156.8125 – 156.8375 MHz **MARITIME MOBILE** **Mobile-satellite (Earth– to-space)** 5.111 5.226 5.228	MARITIME MOBILE		
156.8375 - 161.9375 MHz **FIXED** **MOBILE except aeronautical mobile** 5.226	FIXED MOBILE except aeronautical mobile	- Wireless Application in Healthcare & Listening Devices	Maritime communications as per Appendix 18 VDES within frequency bands 157.200 - 157.325 MHz and 161.800 - 161.925 MHz (corresponding to channels: 24, 84, 25, 85, 26 and 86)
161.9375- 161.9625 MHz **FIXED** **MOBILE except aeronautical mobile** **Maritime mobile-satellite (Earth-tospace)** 5.228AA	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to-space)	- Wireless Application in Healthcare & Listening Devices	The use of maritime mobile-satellite (Earth-to-space) service is limited to the systems which operate in accordance with Appendix 18 (No. 5.228AA)

5.226			
161.9625-161.9875 MHz **FIXED** **MOBILE except aeronautical mobile** **Mobile-satellite (Earth-to-space)** 5.228F 5.226 5.228A 5.228B	FIXED MOBILE except aeronautical mobile	- Wireless Application in Healthcare & Listening Devices	
161.9875- 162.0125 MHz **FIXED** **MOBILE except aeronautical mobile** **Maritime mobile-satellite (Earth-tospace)** 5.228AA 5.226 5.229	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to-space)	- Wireless Application in Healthcare & Listening Devices	The use of maritime mobile-satellite (Earth-to-space) service is limited to the systems which operate in accordance with Appendix 18 (5.228AA)
162.0125 - 162.0375 MHz **FIXED** **MOBILE except aeronautical mobile** **Mobile-satellite(earth-to-space)** 5.228F 5.226 5.228A 5.228B 5.229	FIXED MOBILE except aeronautical mobile	– PMR – Coastal Stations – Aids for Handicapped (Within 173.965 - 174.015 MHz) – ETSI EN 300 422 – Wireless Application in Healthcare & Listening Devices	
162.0375 – 174 MHz **FIXED** **MOBILE except aeronautical mobile** 5.226 5.229	FIXED MOBILE except aeronautical mobile		
174 - 223 MHz **BROADCASTING** 5.235 5.237 5.243	BROADCASTING	– Broadcasting (terrestrial) – Wireless Application in Healthcare & Listening Devices	DAB, DVB and Analog TV assignments in accordance with GE-06 Agreement

223 - 230 MHz **BROADCASTING** **Fixed** **Mobile** 5.243 5.246 5.247	BROADCASTING Fixed Mobile	– Broadcasting	The band 223-235 MHz is also allocated to the aeronautical radionavigation service on a primary basis
230 - 235 MHz **FIXED** **MOBILE** 5.247 5.251 5.252	FIXED MOBILE		The band 223-235 MHz is also allocated to the aeronautical radionavigation service on a primary basis
235 - 267 MHz **FIXED** **MOBILE** 5.111 5.254 5.256 5.256A	FIXED MOBILE	– EPIRB (242.95 – 243.055 MHz)	243 MHz for use by survival craft stations and equipment used for survival purposes (No. 5.256)
267 - 272 MHz **FIXED** **MOBILE** **Space operation (space -to- Earth)** 5.254 5.257	FIXED MOBILE Space operation (space - to - Earth)		
272 - 273 MHz **SPACE OPERATION (space -to- Earth)** **FIXED** **MOBILE** 5.254	SPACE OPERATION (space - to - Earth) FIXED MOBILE		
273 - 312 MHz **FIXED** **MOBILE** 5.254	FIXED MOBILE		

312 - 315 MHz **FIXED** **MOBILE** **Mobile - satellite (Earth -to- space)** 5.254 5.255	FIXED MOBILE Mobile - satellite (Earth - to - space)		
315 - 322 MHz **FIXED** **MOBILE** 5.254	FIXED MOBILE	- Inductive SRD Applications/ Vehicle Fitted Radio Equipment	
322 - 328.6 MHz **FIXED** **MOBILE** **RADIO ASTRONOMY** 5.149	FIXED MOBILE RADIO ASTRONOMY		
328.6 - 335.4 MHz **AERONAUTICAL RADIONAVIGATION** 5.258 5.259	AERONAUTICAL RADIONAVIGATION	– ILS/Glide path	
335.4 - 387 MHz **FIXED** **MOBILE** 5.254	FIXED MOBILE	– Digital Land Mobile PMR/PAMR	
387 - 390 MHz **FIXED** **MOBILE** **Mobile - satellite (space -to- Earth)** 5.208A 5.208B 5.254 5.255	FIXED MOBILE Mobile - satellite (space - to - Earth)	– Digital Land Mobile PMR/PAMR – TETRA – Emergency Services	
390 - 399.9 MHz **FIXED** **MOBILE**	FIXED MOBILE	– TETRA – Emergency Services	

5.254			
399.9 - 400.05 MHz **MOBILE - SATELLITE (Earth -to- space)** 5.209 5.220	MOBILE - SATELLITE (Earth - to - space)		
400.05 - 400.15 MHz **STANDARD FREQUENCY AND TIME SIGNAL - SATELLITE (400.1 MHz)** 5.261 5.262	STANDARD FREQUENCY AND TIME SIGNAL - SATELLITE (400.1 MHz)		Also allocated to the fixed and mobile services on a primary basis (No. 5.262)
400.15 - 401 MHz **METEOROLOGICAL AIDS** **METEOROLOGICAL - SATELLITE (space -to- Earth)** **MOBILE - SATELLITE (space -to- Earth)** 5.208A 5.208B 5.209 **SPACE RESEARCH (space -to- Earth)** 5.263 **Space operation (space -to- Earth)** 5.262 5.264	METEOROLOGICAL AIDS METEOROLOGICAL - SATELLITE (space - to - Earth) MOBILE - SATELLITE (space - to - Earth) SPACE RESEARCH (space - to - Earth) Space operation (space - to - Earth)	– LEO Satellites	Also allocated to the fixed and mobile services on a primary basis (No. 5.262)
401 - 402 MHz **METEOROLOGICAL AIDS** **SPACE OPERATION (space -to- Earth)** **EARTH EXPLORATION - SATELLITE (Earth -to- space)** **METEOROLOGICAL - SATELLITE (Earth -to- space)** **Fixed** **Mobile except aeronautical mobile**	METEOROLOGICAL AIDS SPACE OPERATION (space - to - Earth) EARTH EXPLORATION - SATELLITE (Earth - to - space) METEOROLOGICAL - SATELLITE (Earth - to - space) Fixed Mobile except aeronautical mobile	– Meteorological radio sounds – Medical implants within 401 - 406 MHz	
402 - 403 MHz **METEOROLOGICAL AIDS** **EARTH EXPLORATION - SATELLITE (Earth -to-**	METEOROLOGICAL AIDS EARTH EXPLORATION - SATELLITE (Earth - to - space) METEOROLOGICAL - SATELLITE (Earth	– Meteorological radio sounds – Medical implants within 401 - 406 MHz (EN 302 537)	

space) **METEOROLOGICAL - SATELLITE (Earth -to- space)** **Fixed** **Mobile except aeronautical mobile**	- to - space) Fixed Mobile except aeronautical mobile		
403 - 406 MHz **METEOROLOGICAL AIDS** **Fixed** **Mobile except aeronautical mobile** 5.265	METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	– Meteorological radio sounds – Medical implants within 401 - 406 MHz (EN 302 537)	Resolution 205 (Rev.WRC-15) applies (No. 5.265)
406 - 406.1 MHz **MOBILE - SATELLITE (Earth -to- space)** 5.265 5.266 5.267	MOBILE - SATELLITE (Earth - to - space)	– EPIRB	Low power EPIRBs Resolution 205 (Rev.WRC-15) applies (No. 5.265)
406.1 - 410 MHz **FIXED** **MOBILE except aeronautical mobile** **RADIO ASTRONOMY** 5.149 5.265	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY	– Analogue and digital land mobile PMR/PAMR (Single frequency applications)	Resolution 205 (Rev.WRC-15) applies (No. 5.265)
410 - 420 MHz **FIXED** **MOBILE except aeronautical mobile** **SPACE RESEARCH (space -to- space)** 5.268	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space - to - space)	– TETRA (Duplex applications)	
420 - 430 MHz **FIXED** **MOBILE except aeronautical mobile** **Radiolocation** 5.269 5.270 5.271	FIXED MOBILE except aeronautical mobile Radiolocation	– TETRA (Duplex applications)	
430 - 432 MHz	AMATEUR RADIOLOCATION	– Amateur Applications	Also allocated to the fixed service on a primary basis (No. 5.276)

AMATEUR **RADIOLOCATION** 5.271 5.272 5.273 5.274 5.275 5.276 5.277			
432 - 438 MHz **AMATEUR** **RADIOLOCATION** **Earth exploration - satellite (active)** 5.279A 5.138 5.271 5.272 5.276 5.277 5.280 5.281 5.282	AMATEUR RADIOLOCATION Earth exploration - satellite (active)	– Non-Specific SRD applications – Inductive SRD Applications/ Vehicle Fitted Radio Equipment – Non-Specific SRDs for Falcon or Bird Tracking – Amateur Applications	Also allocated to the fixed service on a primary basis (No. 5.276)
438 - 440 MHz **AMATEUR** **RADIOLOCATION** 5.271 5.273 5.274 5.275 5.276 5.277 5.283	AMATEUR RADIOLOCATION	– Amateur Applications	Also allocated to the fixed service on a primary basis (No. 5.276)
440 - 450 MHz **FIXED** **MOBILE except aeronautical mobile** **Radiolocation** 5.269 5.270 5.271 5.284 5.285 5.286	FIXED MOBILE except aeronautical mobile Radiolocation	– PMR/PAMR – Digital Land Mobile DMO	
450 - 455 MHz **FIXED** **MOBILE** 5.286AA 5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E	FIXED MOBILE	– PMR/PAMR – Digital Land Mobile DMO – Onsite paging	
455 - 456 MHz **FIXED**	FIXED MOBILE	– PMR/PAMR – Onsite paging	

MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E			
456 - 459 MHz **FIXED** **MOBILE** 5.286AA 5.271 5.287 5.288	FIXED MOBILE	– PMR/PAMR – Fixed Telemetry Applications (Simplex/Duplex) – Onsite paging – Maritime on board Communications within 457.525 - 457.575 MHz – Inductive SRD Applications/ Vehicle Fitted Radio Equipment	
459 - 460 MHz **FIXED** **MOBILE** 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	FIXED MOBILE	– PMR/PAMR – Onsite paging	
460 - 470 MHz **FIXED** **MOBILE** 5.286AA **Meteorological - satellite (space -to- Earth)** 5.287 5.288 5.289 5.290	FIXED MOBILE Meteorological - satellite (space - to - Earth)	– PMR/PAMR – Onsite paging – Maritime on board Communications within 467.525 - 467.575 MHz	
470 - 694 MHz **BROADCASTING** 5.149 5.291A 5.294 5.296 5.300 5.304 5.306 5.311A 5.312	BROADCASTING	– Broadcasting – Wireless Audio Applications/Wireless microphone systems (On tuning range basis)	DVB and Analog TV assignments in accordance with GE - 06 Agreement Also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting and programme-making. Also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis (No. 5.300)
694 - 790 MHz **MOBILE except aeronautical mobile** 5.312A 5.317A **BROADCASTING** 5.300 5.311A 5.312	MOBILE except aeronautical mobile	- IMT - Wireless Audio Applications/Wireless microphone systems (On tuning range basis)	Also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis (No. 5.300) The use by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution 760 (WRC-15). See also Resolution 224 (Rev.WRC-15) (No. 5.312A).

790 - 862 MHz **FIXED** **MOBILE except aeronautical mobile** 5.316B 5.317A **BROADCASTING** 5.312 5.319	FIXED MOBILE except aeronautical mobile	– IMT – Wireless Audio Applications/Wireless microphone systems (On tuning range basis)	
862 - 890 MHz **FIXED** **MOBILE except aeronautical mobile** 5.317A **BROADCASTING** 5.322 5.319 5.323	FIXED MOBILE except aeronautical	– Non-Specific SRD applications – Wireless Audio Applications – Radio Frequency Identification Equipment (RFID) – GSM-R Railway Systems (876 – 880 MHz paired with 921 - 925 MHz) – EGSM (880-890MHz paired with 925–935MHz)	
890 - 942 MHz **FIXED** **MOBILE except aeronautical mobile** 5.317A **BROADCASTING** 5.322 **Radiolocation** 5.323	FIXED MOBILE except aeronautical mobile	– GSM – EGSM (880 - 890MHz paired with 925 – 935 MHz) – GSM-R Railway Systems (876 – 880 MHz paired with 921 - 925 MHz) – Non-Specific SRD applications	
942 - 960 MHz **FIXED** **MOBILE except aeronautical mobile** 5.317A **BROADCASTING** 5.322 5.323	FIXED MOBILE except aeronautical mobile	– GSM	
960 - 1 164 MHz **AERONAUTICAL RADIONAVIGATION** 5.328 **AERONAUTICAL MOBILE (R)** 5.327A 5.328AA	AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE (R)	– Flight Safety, Navigation and Information Distribution systems (DME,TACAN,SSR,MIDS) – Ultra-Wide Band Technology Applications	Automatic Dependent Surveillance (ADS-B) within the range 1 087.7-1 092.3 MHz to support global flight tracking of civilian aircraft (No. 5.328AA) The use by aeronautical radionavigation service is reserved on a worldwide basis for the operation and development of airborne electronic aids to air navigation and any directly associated ground-based facilities (No. 5.328)

1 164 - 1 215 MHz **AERONAUTICAL RADIONAVIGATION** 5.328 **RADIONAVIGATION - SATELLITE (space -to-Earth) (space -to- space)** 5.328B 5.328A	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION - SATELLITE (space - to - Earth) (space - to - space)	– Flight Safety, Navigation and Information Distribution systems (DME,TACAN,SSR,MIDS) – Satellite navigation – Ultra-Wide Band Technology Applications	The use by aeronautical radionavigation service is reserved on a worldwide basis for the operation and development of airborne electronic aids to air navigation and any directly associated ground-based facilities (No. 5.328)
1 215 - 1 240 MHz **EARTH EXPLORATION - SATELLITE (active)** **RADIOLOCATION** **RADIONAVIGATION - SATELLITE (space - to - Earth) (space -to- space)** 5.328B 5.329 5.329A **SPACE RESEARCH (active)** 5.330 5.331 5.332	EARTH EXPLORATION - SATELLITE (active) RADIOLOCATION RADIONAVIGATION - SATELLITE (space - to - Earth) (space - to - space) SPACE RESEARCH (active)	– Radar and Navigation systems – Active Sensors – Satellite Navigation – Ultra-Wide Band Technology Applications	Also allocated to the fixed and mobile services on a primary basis (No. 5.330) Also allocated to the radionavigation service on a primary basis (No. 5.331)
1 240 - 1 300 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 5.330 5.331 5.332 5.335 5.335A	EARTH EXPLORATION - SATELLITE (active) RADIOLOCATION RADIONAVIGATION - SATELLITE (space - to - Earth) (space - to - space) SPACE RESEARCH (active) Amateur	– Radar and Navigation systems – Active Sensors – Satellite Navigation – Ultra-Wide Band Technology Applications	Also allocated to the fixed and mobile services on a primary basis (No. 5.330) Also allocated to the radionavigation service on a primary basis (No. 5.331)
1 300 - 1 350 MHz **RADIOLOCATION** **AERONAUTICAL RADIONAVIGATION** 5.337 **RADIONAVIGATION - SATELLITE (Earth -to-space)** 5.149 5.337A	RADIOLOCATION AERONAUTICAL RADIONAVIGATION RADIONAVIGATION - SATELLITE (Earth - to - space)	– Radar and Navigation systems – Satellite Navigation – Radio Astronomy Applications – Ultra-Wide Band Technology Applications	
1 350 - 1 400 MHz **FIXED** **MOBILE**	FIXED MOBILE RADIOLOCATION	– Low capacity fixed links – Ultra-Wide Band Technology Applications	

RADIOLOCATION 5.149 5.338 5.338A 5.339			
1 400 - 1 427 MHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340 5.341	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Passive applications – Radio Astronomy Applications – Ultra-Wide Band Technology Applications	
1 427 - 1 429 MHz **SPACE OPERATION (Earth -to- space)** **FIXED** **MOBILE except aeronautical mobile** 5.341A 5.341B 5.341C 5.338A 5.341	SPACE OPERATION (Earth - to - space) FIXED MOBILE except aeronautical mobile	– IMT – Low capacity fixed links – Ultra-Wide Band Technology Applications	
1 429 - 1 452 MHz **FIXED** **MOBILE except aeronautical mobile** 5.341A 5.338A 5.341 5.342	FIXED MOBILE except aeronautical mobile	– IMT – Low capacity fixed links – Ultra-Wide Band Technology Applications	
1 452 - 1 492 MHz **FIXED** **MOBILE except aeronautical mobile** 5.346 **BROADCASTING** **BROADCASTING - SATELLITE** 5.208B 5.341 5.342 5.345	FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING - SATELLITE	– IMT – Ultra-Wide Band Technology Applications	
1 492 - 1 518 MHz **FIXED** **MOBILE except aeronautical mobile** 5.341A 5.341 5.342	FIXED MOBILE except aeronautical mobile	– IMT – Low capacity fixed links – Ultra-Wide Band Technology Applications	

1 518 - 1 525 MHz **FIXED** **MOBILE except aeronautical mobile** **MOBILE - SATELLITE (space -to- Earth)** 5.348 5.348A 5.348B 5.351A 5.341 5.342	FIXED MOBILE except aeronautical mobile MOBILE - SATELLITE (space - to - Earth)	– Unidirectional fixed links – Ultra-Wide Band Technology Applications	
1 525 - 1 530 MHz **SPACE OPERATION (space -to- Earth)** **FIXED** **MOBILE - SATELLITE** **(space -to- Earth)** 5.208B 5.351A **Earth Exploration Satellite** **Mobile except aeronautical mobile** 5.349 5.341 5.342 5.350 5.351 5.352A 5.354	SPACE OPERATION (space - to - Earth) FIXED MOBILE - SATELLITE (space - to - Earth) Mobile except aeronautical mobile Earth Exploration Satellite	– Mobile satellite applications – Uni - directional fixed links – Ultra-Wide Band Technology Applications	The allocation of the band 1 525- 1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (No. 5.349)
1 530 - 1 535 MHz **SPACE OPERATION** **(space -to- Earth)** **MOBILE - SATELLITE** **(space -to- Earth)** 5.208B 5.351A 5.353A **Earth exploration - satellite** **Fixed** **Mobile except aeronautical mobile** 5.341 5.342 5.351 5.354	SPACE OPERATION (space - to - Earth) MOBILE - SATELLITE (space - to - Earth) Earth exploration - satellite Fixed Mobile except aeronautical mobile	– Mobile satellite applications – Priority for GMDSS Distress and safety communications – Ultra-Wide Band Technology Applications	
1 535 - 1 559 MHz **MOBILE - SATELLITE (space -to- Earth)** 5.208B 5.351A 5.341 5.351 5.353A 5.354 5.355 5.356 5.357 5.357A 5.359 5.362A	MOBILE - SATELLITE (space - to - Earth)	– Mobile satellite applications – 1544 - 1545MHz for Safety, search and Rescue only in band including GMDSS – Ultra-Wide Band Technology Applications	Also allocated to the fixed service on a secondary basis (No. 5.355)

1 559 - 1 610MHz **AERONAUTICAL RADIONAVIGATION** **RADIONAVIGATION - SATELLITE (space -to-Earth) (space -to- space)** 5.208B 5.328B 5.329A 5.341	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION - SATELLITE (space - to - Earth) (space - to - space)	– Satellite Navigation – Vehicle Fitted Radio Equipment /GPS Receiver – Ultra-Wide Band Technology Applications	
1 610 - 1 610.6 MHz **MOBILE - SATELLITE (Earth -to- space)** 5.351A **AERONAUTICAL RADIONAVIGATION** 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372	MOBILE - SATELLITE (Earth - to - space) AERONAUTICAL RADIONAVIGATION	– Mobile satellite applications – Ultra-Wide Band Technology Applications	Also allocated to the fixed service on a secondary basis (No. 5.355) Also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. 9.21 (No. 5.367)
1 610.6 - 1 613.8 MHz **MOBILE - SATELLITE (Earth -to- space)** 5.351A **RADIO ASTRONOMY** **AERONAUTICAL RADIONAVIGATION** 5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372	MOBILE - SATELLITE (Earth - to - space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION	– Mobile satellite applications – Ultra-Wide Band Technology Applications	Also allocated to the fixed service on a secondary basis (No. 5.355) Also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. 9.21 (No. 5.367) (Earth-to-space) is also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. 9.21 (No. 5.371)
1 613.8 - 1 626.5 MHz **MOBILE - SATELLITE (Earth -to- space)** 5.351A **AERONAUTICAL RADIONAVIGATION** **Mobile - satellite (space -to- Earth)** 5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372	MOBILE - SATELLITE (Earth - to - space) AERONAUTICAL RADIONAVIGATION Mobile - satellite (space - to - Earth)	– Mobile satellite applications – Ultra-Wide Band Technology Applications	Also allocated to the fixed service on a secondary basis (No. 5.355) Also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. 9.21 (No. 5.367) (Earth-to-space) is also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. 9.21 (No. 5.371)
1 626.5 - 1 660 MHz **MOBILE - SATELLITE (Earth -to- space)** 5.351A 5.341 5.351 5.353A 5.354 5.355 5.357A 5.359 5.362A 5.374 5.375 5.376	MOBILE - SATELLITE (Earth - to - space)	– Mobile satellite applications – 1645.5 - 1646.5MHz for Safety, search and Rescue only in band including GMDSS – Ultra-Wide Band Technology Applications	Also allocated to the fixed service on a secondary basis (No. 5.355)
1 660 - 1 660.5 MHz	MOBILE - SATELLITE (Earth - to - space) RADIO ASTRONOMY	– Mobile satellite applications – Radio Astronomy Applications	

MOBILE - SATELLITE (Earth -to- space) 5.351A **RADIO ASTRONOMY** 5.149 5.341 5.351 5.354 5.362A 5.376[a]		– Ultra-Wide Band Technology Applications	
1 660.5 - 1 668 MHz **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** **Fixed** **Mobile except aeronautical mobile** 5.149 5.341 5.379 5.379A	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile	– Radio astronomy applications – Ultra-Wide Band Technology Applications	
1 668 - 1 668.4 MHz **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 5.379 5.379A	MOBILE - SATELLITE (Earth - to - space) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile	– Radio astronomy applications – Ultra-Wide Band Technology Applications	
1 668.4 - 1 670 MHz **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 5.379E	METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE - SATELLITE (Earth - to - space) RADIO ASTRONOMY	– Meteorological applications – Radio astronomy applications – Ultra-Wide Band Technology Applications	
1 670 - 1 675 MHz **METEOROLOGICAL AIDS** **FIXED** **METEOROLOGICAL - SATELLITE (space -to-**	METEOROLOGICAL AIDS FIXED METEOROLOGICAL - SATELLITE (space - to - Earth) MOBILE MOBILE - SATELLITE (Earth - to - space)	– Meteorological applications – Ultra-Wide Band Technology Applications	

Earth) **MOBILE** **MOBILE - SATELLITE (Earth -to- space)** 5.351A 5.379B 5.341 5.379D 5.379E 5.380A			
1 675 - 1 690 MHz **METEOROLOGICAL AIDS** **FIXED** **METEOROLOGICAL - SATELLITE (space -to-Earth)** **MOBILE except aeronautical mobile** 5.341	METEOROLOGICAL AIDS FIXED METEOROLOGICAL - SATELLITE (space - to - Earth) MOBILE except aeronautical mobile	– Meteorological applications – Ultra-Wide Band Technology Applications	
1 690 - 1 700 MHz **METEOROLOGICAL AIDS** **METEOROLOGICAL - SATELLITE (space -to-Earth)** **Fixed** **Mobile except aeronautical mobile** 5.289 5.341 5.382	METEOROLOGICAL AIDS METEOROLOGICAL - SATELLITE (space - to - Earth) Fixed Mobile except aeronautical mobile	– Meteorological applications – Ultra-Wide Band Technology Applications	The allocation of the frequency band 1 690-1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (No. 5.382)
1 700 - 1 710 MHz **FIXED** **METEOROLOGICAL - SATELLITE (space -to-Earth)** **MOBILE except aeronautical mobile** 5.289 5.341	FIXED METEOROLOGICAL - SATELLITE (space - to - Earth) MOBILE except aeronautical mobile	– Meteorological applications – Ultra-Wide Band Technology Applications	
1 710 - 1 930 MHz **FIXED** **MOBILE** 5.384A 5.388A 5.388B 5.149 5.341 5.385 5.386 5.387 5.388	FIXED MOBILE	– DCS 1800 – LP GSM (1781.7 – 1785 MHz and 1876.7 – 1880 MHz) – Terrestrial UMTS/IMT – 2000 – DECT – Wireless Audio Applications	The band 1 718.8-1 722.2 MHz is also allocated to the radio astronomy service on a secondary basis for spectral line observations (No. 5.385)

		– Ultra-Wide Band Technology Applications	
1 930 - 1 970 MHz **FIXED** **MOBILE** 5.388A 5.388B 5.388	FIXED MOBILE	– Terrestrial UMTS/IMT – 2000	
1 970 - 1 980 MHz **FIXED** **MOBILE** 5.388A 5.388B 5.388	FIXED MOBILE	– Terrestrial UMTS/IMT – 2000 – Ultra-Wide Band Technology Applications	
1 980 - 2 010 MHz **FIXED** **MOBILE** **MOBILE - SATELLITE (Earth -to- space)** 5.351A 5.388 5.389A 5.389B 5.389F	FIXED MOBILE MOBILE - SATELLITE (Earth - to - space)	– Mobile satellite applications – UMTS/IMT - 2000 satellite component – Ultra-Wide Band Technology Applications	
2 010 - 2 025 MHz **FIXED** **MOBILE 5.388A** 5.388B 5.388	FIXED MOBILE	– Terrestrial UMTS/IMT – 2000 – Ultra-Wide Band Technology Applications	
2 025 - 2 110 MHz **SPACE OPERATION (Earth -to- space) (space -to-space)** **EARTH EXPLORATION - SATELLITE (Earth -to-space) (space -to- space)** **FIXED** **MOBILE** 5.391 **SPACE RESEARCH (Earth -to- space) (space -to-space)** 5.392	SPACE OPERATION (Earth - to - space) (space - to - space) EARTH EXPLORATION - SATELLITE (Earth - to - space) (space - to - space) FIXED MOBILE SPACE RESEARCH (Earth - to - space) (space - to - space)	– Fixed links/ Wireless Camera – Tactical Radio Relay – Ultra-Wide Band Technology Applications	
2 110 - 2 120 MHz	FIXED	– Terrestrial UMTS/IMT – 2000	

FIXED **MOBILE** 5.388A 5.388B **SPACE RESEARCH (deep space) (Earth -to- space)** 5.388	MOBILE SPACE RESEARCH (deep space) (Earth - to - space)	– Ultra-Wide Band Technology Applications	
2 120 - 2 160 MHz **FIXED** **MOBILE** 5.388A 5.388B 5.388	FIXED MOBILE	– Terrestrial UMTS/IMT – 2000 – Ultra-Wide Band Technology Applications	
2 160 - 2 170 MHz **FIXED** **MOBILE** 5.388A 5.388B 5.388	FIXED MOBILE	– Terrestrial UMTS/IMT – 2000 – Ultra-Wide Band Technology Applications	
2 170 - 2 200 MHz **FIXED** **MOBILE** **MOBILE - SATELLITE (space -to- Earth)** 5.351A 5.388 5.389A 5.389F	FIXED MOBILE MOBILE - SATELLITE (space - to - Earth)	– Fixed Link – Mobile satellite applications – UMTS/IMT - 2000 satellite component – Ultra-Wide Band Technology Applications	
2 200 - 2 290 MHz **SPACE OPERATION (space -to- Earth) (space -to- space)** **EARTH EXPLORATION - SATELLITE (space -to- Earth) (space -to- space)** **FIXED** **MOBILE** 5.391 **SPACE RESEARCH (space -to- Earth) (space -to - space)** 5.392	SPACE OPERATION (space - to - Earth) (space - to - space) EARTH EXPLORATION - SATELLITE (space - to - Earth) (space - to - space) FIXED MOBILE SPACE RESEARCH (space - to - Earth) (space - to - space)	– Fixed links – Tactical Radio Relay – Ultra-Wide Band Technology Applications	

2 290 - 2 300 MHz **FIXED** **MOBILE except aeronautical mobile** **SPACE RESEARCH (deep space) (space - to - Earth)**	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space - to - Earth)	– Mobile applications – Ultra-Wide Band Technology Applications	
2 300 - 2 450 MHz **FIXED** **MOBILE** 5.384A **Amateur** **Radiolocation** 5.150 5.282 5.395	FIXED MOBILE Amateur Radiolocation	– Aeronautical Telemetry – Amateur applications – Amateur Satellite applications – Automatic Vehicle Identification (2446 - 2454 MHz) – ISM – RFID within the band 2446-2454 MHz – Cordless Phones – Non-Specific SRD applications /WLAN – Ultra-Wide Band Technology Applications	
2 450 - 2 483.5 MHz **FIXED** **MOBILE** **Radiolocation** 5.150 5.397	FIXED MOBILE Radiolocation	– Automatic Vehicle Identification (2446 - 2454 MHz) – ISM – Motion sensors – RFID within the band 2446-2454 MHz – RLAN – Cordless Phones – Non-Specific SRD applications/WLAN – Ultra-Wide Band Technology Applications	
2 483.5 - 2 500 MHz **FIXED** **MOBILE** **MOBILE – SATELLITE (space -to- Earth)** 5.351A **RADIODETERMINATIONSATELLITE (space-to-Earth)** 5.398 **Radiolocation** 5.398A 5.150 5.399 5.401 5.402	FIXED MOBILE MOBILE – SATELLITE (space - to - Earth) RADIODETERMINATIONSATELLITE (space-to-Earth) Radiolocation	– Fixed links – ISM – Mobile satellite applications – Ultra-Wide Band Technology Applications	
2 500 - 2 520 MHz **FIXED** 5.410 **MOBILE except aeronautical mobile** 5.384A	FIXED MOBILE except aeronautical mobile	– Fixed Links – Terrestrial UMTS/IMT – 2000 – Ultra-Wide Band Technology Applications	

5.405 5.412			
2 520 - 2 655 MHz **FIXED 5.410** **MOBILE except aeronautical mobile** 5.384A **BROADCASTING - SATELLITE** 5.413 5.416 5.339 5.405 5.412 5.418B 5.418C	FIXED MOBILE except aeronautical mobile BROADCASTING - SATELLITE	– Terrestrial UMTS/IMT - 2000 – Ultra-Wide Band Technology Applications	
2 655 - 2 670 MHz **FIXED** 5.410 **MOBILE except aeronautical mobile** 5.384A **BROADCASTING - SATELLITE 5.208B** 5.413 5.416 **Earth exploration - satellite (passive)** **Radio astronomy** **Space research (passive)** 5.149 5.412	FIXED MOBILE except aeronautical mobile BROADCASTING - SATELLITE Earth exploration - satellite (passive) Radio astronomy Space research (passive)	– Fixed links – Terrestrial UMTS/IMT - 2000 – Ultra-Wide Band Technology Applications	
2 670 - 2 690 MHz **FIXED** 5.410 **MOBILE except aeronautical mobile** 5.384A **Earth exploration - satellite (passive)** **Radio astronomy** **Space research (passive)** 5.149 5.412	FIXED MOBILE except aeronautical mobile Earth exploration - satellite (passive) Radio astronomy Space research (passive)	– Fixed Links – Radio astronomy applications – Terrestrial UMTS/IMT - 2000 – Mobile Satellite Applications – Ultra-Wide Band Technology Applications	
2 690 - 2 700 MHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340 5.422	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Fixed Link – Passive applications – Ultra-Wide Band Technology Applications	Also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis (No. 5.422)
2 700 - 2 900 MHz **AERONAUTICAL RADIONAVIGATION** 5.337	AERONAUTICAL RADIONAVIGATION Radiolocation	– Meteorological radars – Radar and Navigation systems – Ultra-Wide Band Technology Applications	

Radiolocation 5.423 5.424			
2 900 - 3 100 MHz **RADIOLOCATION** 5.424A **RADIONAVIGATION** 5.426 5.425 5.427	RADIOLOCATION RADIONAVIGATION	– Radar and Navigation systems – Ultra-Wide Band Technology Applications	
3 100 - 3 300 MHz **RADIOLOCATION** **Earth exploration - satellite (active)** **Space research (active)** 5.149 5.428	RADIOLOCATION Earth exploration - satellite (active) Space research (active)	– Radars and active sensors – Ultra-Wide Band Technology Applications	
3 300 - 3 400 MHz **RADIOLOCATION** 5.149 5.429 5.429A 5.429B 5.430	RADIOLOCATION	– Radars – Fixed / mobile applications – Ultra-Wide Band Technology Applications	Also allocated to the fixed and mobile services on a primary basis (No. 5.429)
3 400 - 3 600 MHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **MOBILE except aeronautical mobile** 5.430A **Radiolocation** 5.431	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE (except Aeronautical Mobile) Radiolocation	– Fixed links (Including point to multipoint) – Fixed wireless access – Radars Upper limit for airborne radars is 3410 MHz – Mobile applications – IMT – Ultra-Wide Band Technology Applications	The allocation of the frequency band 3 400-3 600 MHz to the mobile, except aeronautical mobile, service is subject to agreement obtained under No. **9.21** (No. 5.430A)
3 600 - 4 200 MHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **Mobile**	FIXED FIXED - SATELLITE (space - to - Earth) Mobile	– Coordinated earth stations in FSS – Medium/high capacity fixed links – Ultra-Wide Band Technology Applications	
4 200 - 4 400 MHz **AERONAUTICAL MOBILE (R)** 5.436 **AERONAUTICAL RADIONAVIGATION** 5.438	AERONAUTICAL MOBILE (R) AERONAUTICAL RADIONAVIGATION	– Wireless Avionics Intra-communication Systems – Earth Exploration Satellite systems For sea surface temperature measurements – Radio altimeters	

5.437 5.439 5.440		– Ultra-Wide Band Technology Applications	
4 400 - 4 500 MHz **FIXED** **MOBILE** 5.440A	FIXED MOBILE	– Mobile applications – Transhorizon links – Ultra-Wide Band Technology Applications	
4 500 - 4 800 **FIXED** **FIXED - SATELLITE (space -to- Earth)** 5.441 MOBILE 5.440A	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE	– Coordinated earth stations in FSS Fixed - Satellite service – Fixed - Satellite frequency plan in 4500 - 4800 MHz – Transhorizon links – Ultra-Wide Band Technology Applications	FSS applications within the band 4500 – 4800 MHz in accordance with ITU - R Appendix - 30B
4 800 - 4 990 MHz **FIXED** **MOBILE** 5.440A 4.441A 5.441B 5.442 **Radio astronomy** 5.149 5.339 5.443	FIXED MOBILE Radio astronomy	– Passive applications – Space Research and EES (passive) – Radio astronomy applications – Ultra-Wide Band Technology Applications	
4 990 - 5 000 MHz **FIXED** **MOBILE except aeronautical mobile** **RADIO ASTRONOMY** **Space research (passive)** 5.149	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive)	– Radio astronomy applications – Ultra-Wide Band Technology Applications	
5 000 - 5 010 MHz **AERONAUTICAL MOBILE-SATELLITE (R)** 5.443AA **AERONAUTICAL RADIONAVIGATION** **RADIONAVIGATION - SATELLITE (Earth -to-space)**	AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION RADIONAVIGATION - SATELLITE (Earth - to - space)	– Radio astronomy applications – Satellite Navigation – Ultra-Wide Band Technology Applications –	
5 010 - 5 030 MHz **AERONAUTICAL MOBILE-SATELLITE (R)** 5.443AA **AERONAUTICAL RADIONAVIGATION** **RADIONAVIGATION - SATELLITE (space -to-**	AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION RADIONAVIGATION - SATELLITE (space - to - Earth) (space - to - space)	– Radio astronomy applications – Satellite Navigation – Ultra-Wide Band Technology Applications	

Earth) (space -to- space) 5.328B 5.443B			
5 030 - 5 091 MHz **AERONAUTICAL MOBILE (R)** 5.443C **AERONAUTICAL MOBILE-SATELLITE (R)** 5.443D **AERONAUTICAL RADIONAVIGATION** 5.444	AERONAUTICAL MOBILE (R) AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION	– Aeronautical Radionavigation – Ultra-Wide Band Technology Applications	
5 091 - 5 150 MHz **FIXED-SATELLITE (Earth-to-space)** 5.444A **AERONAUTICAL MOBILE** 5.444B **AERONAUTICAL MOBILE-SATELLITE (R)** 5.443AA **AERONAUTICAL RADIONAVIGATION** 5.444	FIXED-SATELLITE (Earth-to-space) AERONAUTICAL MOBILE AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION	– Aeronautical Radionavigation – FSS – Ultra-Wide Band Technology Applications	FSS with linitations as per 5.444A
5 150 - 5 250 MHz **FIXED - SATELLITE (Earth - to - space)** 5.447A **MOBILE except aeronautical mobile** 5.446A 5.446B **AERONAUTICAL RADIONAVIGATION** 5.446 5.446C 5.447 5.447B 5.447C	FIXED - SATELLITE (Earth - to - space) MOBILE AERONAUTICAL RADIONAVIGATION	– Feeder links for MSS – Wireless Access Systems – Aeronautical telemetry – Ultra-Wide Band Technology Applications	
5 250 - 5 255 MHz **EARTH EXPLORATION - SATELLITE (active)** **MOBILE except aeronautical mobile** 5.446A 5.447F **RADIOLOCATION** **SPACE RESEARCH** 5.447D 5.447E 5.448 5.448A	EARTH EXPLORATION - SATELLITE (active) MOBILE except aeronautical mobile RADIOLOCATION SPACE RESEARCH	– Active Sensors – Position fixing – Shipborne and VTS radar – Weather radars (Ground based and airborne) – Wireless Access Systems – Ultra-Wide Band Technology Applications	
5 255 - 5 350 MHz **EARTH EXPLORATION - SATELLITE (active)** **MOBILE except aeronautical mobile** 5.446A 5.447F	EARTH EXPLORATION - SATELLITE (active) MOBILE except aeronautical mobile RADIOLOCATION SPACE RESEARCH	– Active Sensors – Position fixing – Shipborne and VTS radar – Weather radars (Ground based and airborne) – Wireless Access Systems	

RADIOLOCATION **SPACE RESEARCH (active)** 5.447E 5.448 5.448A		– Ultra-Wide Band Technology Applications	
5 350 - 5 460 MHz **EARTH EXPLORATION - SATELLITE (active)** 5.448B **RADIOLOCATION** 5.448D **AERONAUTICAL RADIONAVIGATION** 5.449 **SPACE RESEARCH (active)** 5.448C	EARTH EXPLORATION - SATELLITE (active) RADIOLOCATION AERONAUTICAL RADIONAVIGATION SPACE RESEARCH (active)	– Active Sensors – Position fixing – Shipborne and VTS radar – Weather radars (Ground based and airborne) – Ultra-Wide Band Technology Applications	The use by aeronautical radionavigation service is limited to airborne radars and associated airborne beacons (No. 5.449)
5 460 - 5 470 MHz **EARTH EXPLORATION-SATELLITE (active)** **RADIOLOCATION** 5.448D **RADIONAVIGATION** 5.449 **SPACE RESEARCH (active)** 5.448B	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active)	– Active Sensors – Position fixing – Shipborne and VTS radar – Weather radars (Ground based and airborne) – Ultra-Wide Band Technology Applications	The use by aeronautical radionavigation service is limited to airborne radars and associated airborne beacons (No. 5.449)
5 470 - 5 570 MHz **EARTH EXPLORATION-SATELLITE (active)** **MOBILE except aeronautical mobile** 5.446A 5.450A **RADIOLOCATION** 5.450B **MARITIME RADIONAVIGATION** **SPACE RESEARCH (active)** 5.448B 5.450 5.451	EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile RADIOLOCATION MARITIME RADIONAVIGATION SPACE RESEARCH (active)	– Active Sensors – Position fixing – Shipborne and VTS radar – Weather radars (Ground based and airborne) – Wireless Access Systems including Radio Local Area Networks – Ultra-Wide Band Technology Applications	
5 570 - 5 650 MHz **MOBILE except aeronautical mobile** 5.446A 5.450A **RADIOLOCATION** 5.450B **MARITIME RADIONAVIGATION** 5.450 5.451 5.452	MOBILE except aeronautical mobile RADIOLOCATION MARITIME RADIONAVIGATION	– Active Sensors – Shipborne and VTS radar – Tactical radars – Wireless Access Systems including Radio Local Area Networks – Ultra-Wide Band Technology Applications	
5 650 - 5 725 MHz **MOBILE except aeronautical mobile** 5.446A 5.450A	MOBILE except aeronautical mobile RADIOLOCATION Amateur	– Amateur applications (5660 - 5670 MHz) – Amateur Satellite applications (5660-5670MHz) – Position fixing	Also allocated to the fixed and mobile services on a primary basis (No. 5.453)

RADIOLOCATION **Amateur** **Space research (deep space)** 5.282 5.451 5.453 5.454 5.455	Space research (deep space)	– Shipborne and VTS radar – Tactical radars – Weather radars (Ground based and airborne) – Wireless Access Systems including Radio Local Area Networks – Ultra-Wide Band Technology Applications	
5 725 - 5 830 MHz **FIXED – SATELLITE (Earth -to- space)** **RADIOLOCATION** **Amateur** 5.150 5.451 5.453 5.455	FIXED – SATELLITE (Earth - to - space) RADIOLOCATION Amateur	– Amateur applications – ISM Within (5725 - 5875 MHz) – Radiolocation Applications – Nonspecific SRD applications/WLAN (5725 - 5875 MHz) – Road Transport and Traffic Telematics Systems (RTTT) (5795 - 5805 MHz) – RTTT in the band (5805 - 5815 MHz) – Weather radars – Ultra-Wide Band Technology Applications	Also allocated to the fixed and mobile services on a primary basis (No. 5.453)
5 830 - 5 850 MHz **FIXED - SATELLITE (Earth -to- space)** **RADIOLOCATION** **Amateur** **Amateur - satellite (space -to- Earth)** 5.150 5.451 5.453 5.455	FIXED - SATELLITE (Earth - to - space) RADIOLOCATION Amateur Amateur - satellite (space - to - Earth)	– Amateur Satellite applications (5830 - 5850 MHz) – ISM (5725 - 5875 MHz) – Radiolocation Applications – Nonspecific SRD applications/ WLAN (5725 - 5875 MHz) – Weather radars – Ultra-Wide Band Technology Applications	Also allocated to the fixed and mobile services on a primary basis (No. 5.453)
5 850 - 5 925 MHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** **MOBILE** 5.150	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE	– Coordinated earth stations in FSS – ISM (5725 - 5875 MHz) – Nonspecific SRD (5725 - 5875 MHz) – ITS Applications – Ultra-Wide Band Technology Applications	
5 925 - 6 700 MHz **FIXED** 5.457 **FIXED - SATELLITE (Earth -to- space)** 5.457A 5.457B **MOBILE** 5.457C 5.149 5.440 5.458	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE Maritime Mobile - Satellite	– Coordinated earth stations in FSS Medium/high capacity fixed links – Earth Exploration Satellite systems – Earth station on vessels Within the band 5925-6425 MHz – Ultra-Wide Band Technology Applications	

6 700 - 7 075 MHz **FIXED** **FIXED - SATELLITE (Earth -to- space) (space -to - Earth)** 5.441 **MOBILE** 5.458 5.458A 5.458B	FIXED FIXED - SATELLITE (Earth - to - space) (space - to - Earth) MOBILE	– Earth Exploration Satellite systems (for sea surface temperature measurements) – Feeder - links for MSS (within the band 6925 - 7075 MHz) – Fixed Satellite applications (within the band 6725 - 7025 MHz), priority for civil networks – Medium/high capacity fixed links – Ultra-Wide Band Technology Applications	FSS applications within the band 6725 – 7025 MHz in accordance with ITU - R Appendix - 30B
7 075 - 7 145 MHz **FIXED** **MOBILE** 5.458 5.459	FIXED MOBILE	– Earth Exploration Satellite systems (For sea surface temperature measurements) – Medium/high capacity fixed links – Ultra-Wide Band Technology Applications	
7 145 - 7 190 MHz **FIXED** **MOBILE** **SPACE RESEARCH (deep space) (Earth-to-space)** 5.458 5.459	FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space)	– Earth Exploration Satellite systems (For sea surface temperature measurements) – Medium/high capacity fixed links – Ultra-Wide Band Technology Applications	
7 190 - 7 235 MHz **EARTH EXPLORATION-SATELLITE (Earth-to-space)** 5.460A 5.460B **FIXED** **MOBILE** **SPACE RESEARCH (Earth -to- space)** 5.460 5.458 5.459	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED MOBILE SPACE RESEARCH (Earth - to - space)	– Earth Exploration Satellite systems For sea surface temperature measurements – Fixed links – Ultra-Wide Band Technology Applications	
7 235 - 7 250 MHz **EARTH EXPLORATION-SATELLITE (Earth-to-space)** 5.460A **FIXED** **MOBILE** 5.458	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED MOBILE	– Earth Exploration Satellite systems For sea surface temperature measurements – Fixed links – Ultra-Wide Band Technology Applications	

7 250 - 7 300 MHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **MOBILE** 5.461	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE	– Fixed links – Mobile satellite applications within the band 7250 - 7375 MHz – Ultra-Wide Band Technology Applications	
7 300 - 7 375 MHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **MOBILE except aeronautical mobile** 5.461	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE except aeronautical mobile	– Fixed links – Mobile satellite applications within the band 7250 - 7375 MHz) – Ultra-Wide Band Technology Applications	
7 375 - 7 450 MHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **MOBILE except aeronautical mobile** **MARITIME MOBILE-SATELLITE (space-to-Earth)** 5.461AA 5.461AB	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth)	– Fixed links – Ultra-Wide Band Technology Applications	
7 450 - 7 550 MHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **METEOROLOGICAL - SATELLITE (space -to-Earth)** **MOBILE except aeronautical mobile** **MARITIME MOBILE-SATELLITE (space-to-Earth)** 5.461AA 5.461AB 5.461A	FIXED FIXED - SATELLITE (space - to - Earth) METEOROLOGICAL - SATELLITE (space - to - Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth)	– Fixed links – Meteorological Satellite – Ultra-Wide Band Technology Applications	
7 550 - 7 750 MHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **MOBILE except aeronautical mobile** **MARITIME MOBILE-SATELLITE (space-to-Earth)**	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth)	– Fixed links – Ultra-Wide Band Technology Applications	

5.461AA 5.461 AB			
7 750 - 7900 MHz **FIXED** **METEOROLOGICAL - SATELLITE (space -to-Earth)** 5.461B **MOBILE except aeronautical mobile**	FIXED METEOROLOGICAL - SATELLITE (space - to - Earth) MOBILE except aeronautical mobile	– Fixed links – Meteorological Satellite – Ultra-Wide Band Technology Applications	
7 900 - 8 025 MHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** **MOBILE** 5.461	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE	– Fixed links – Mobile satellite applications – Ultra-Wide Band Technology Applications	
8 025 - 8 175 MHz **EARTH EXPLORATION - SATELLITE (space -to-Earth)** **FIXED** **FIXED - SATELLITE (Earth -to- space)** **MOBILE** 5.463 5.462A	EARTH EXPLORATION - SATELLITE (space - to - Earth) FIXED FIXED - SATELLITE (Earth - to - space) MOBILE	– Fixed links – Earth Exploration satellite – Mobile satellite applications within the band 8025 - 8200 MHz – Ultra-Wide Band Technology Applications	
8 175 - 8 215 MHz **EARTH EXPLORATION - SATELLITE (space -to-Earth)** **FIXED** **FIXED - SATELLITE (Earth -to- space)** **METEOROLOGICAL - SATELLITE (Earth -to-space)** **MOBILE** 5.463 5.462A	EARTH EXPLORATION - SATELLITE (space - to - Earth) FIXED FIXED - SATELLITE (Earth - to - space) METEOROLOGICAL - SATELLITE (Earth - to - space) MOBILE	– Fixed links – Earth Exploration satellite – Mobile satellite applications within the band 8025 - 8200 MHz – Ultra-Wide Band Technology Applications	
8 215 - 8 400 MHz **EARTH EXPLORATION - SATELLITE (space -to-**	EARTH EXPLORATION - SATELLITE (space - to - Earth) FIXED	– Fixed links – Earth Exploration satellite – Radio Astronomy applications (VLBI observations)	

Earth) **FIXED** **FIXED - SATELLITE (Earth -to- space)** **MOBILE** 5.463 5.462A	FIXED - SATELLITE (Earth - to - space) MOBILE	– Ultra-Wide Band Technology Applications	
8 400 - 8 500 MHz **FIXED** **MOBILE except aeronautical mobile** **SPACE RESEARCH (space -to- Earth)** 5.465 5.466	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space - to - Earth)	– Fixed links – Ultra-Wide Band Technology Applications	
8 500 - 8 550 MHz **RADIOLOCATION** 5.468 5.469	RADIOLOCATION	– Civil aeronautical Radionavigation e.g. airfield approach – Shipborne, land and airborne surveillance and weapon radars – Ultra-Wide Band Technology Applications	Also allocated to the fixed and mobile services on a primary basis (No. 5.468)
8 550 - 8 650 MHz **EARTH EXPLORATION - SATELLITE (active)** **RADIOLOCATION** **SPACE RESEARCH (active)** 5.468 5.469 5.469A	EARTH EXPLORATION - SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active)	– Civil aeronautical Radionavigation e.g. airfield approach – Shipborne, land and airborne surveillance and weapon radars – Spaceborne active sensors – Ultra-Wide Band Technology Applications	Also allocated to the fixed and mobile services on a primary basis (No. 5.468)
8 650 - 8 750 MHz **RADIOLOCATION** 5.468 5.469	RADIOLOCATION	– Civil aeronautical Radionavigation e.g. airfield approach – Shipborne, land and airborne surveillance and weapon radars – Ultra-Wide Band Technology Applications	Also allocated to the fixed and mobile services on a primary basis (No. 5.468)
8 750 - 8 850 MHz **RADIOLOCATION** **AERONAUTICAL RADIONAVIGATION** 5.470 5.471	RADIOLOCATION AERONAUTICAL RADIONAVIGATION	– Civil aeronautical Radionavigation e.g. airfield approach – Shipborne, land and airborne surveillance and weapon radars – Ultra-Wide Band Technology Applications	The frequency bands 8 825-8 850 MHz and 9 000-9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only (No. 5.471)
8 850 - 9 000 MHz **RADIOLOCATION** **MARITIME RADIONAVIGATION** 5.472	RADIOLOCATION MARITIME RADIONAVIGATION	– Civil aeronautical Radionavigation e.g. airfield approach – Shipborne, land and airborne surveillance and weapon radars – Ultra-Wide Band Technology Applications	

5.473			
9 000 - 9 200 MHz **AERONAUTICAL RADIONAVIGATION** 5.337 **RADIOLOCATION** 5.471 5.473A	AERONAUTICAL RADIONAVIGATION RADIOLOCATION	– Civil aeronautical Radionavigation e.g. airfield approach – Shipborne, land and airborne surveillance and weapon radars – Ultra-Wide Band Technology Applications	The frequency bands 8 825-8 850 MHz and 9 000-9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only (No. 5.471)
9 200 - 9 300 MHz **EARTH EXPLORATION-SATELLITE (active)** 5.474A 5.474B 5.474C **RADIOLOCATION** **MARITIME RADIONAVIGATION** 5.472 5.473 5.474 5.474D	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION MARITIME RADIONAVIGATION	– Civil aeronautical Radionavigation e.g. airfield approach – Motion sensors – Shipborne, land and airborne surveillance and weapon radars – Ultra-Wide Band Technology Applications	
9 300 - 9 500 MHz **EARTH EXPLORATION-SATELLITE (active)** **RADIOLOCATION** **RADIONAVIGATION** **SPACE RESEARCH (active)** 5.427 5.474 5.475 5.475A 5.475B 5.476A	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active)	– Civil aeronautical Radionavigation e.g. airfield approach – Motion sensors – Shipborne, land and airborne surveillance and weapon radars – Weather radars – Ultra-Wide Band Technology Applications	
9 500 - 9 800 MHz **EARTH EXPLORATION - SATELLITE (active)** **RADIOLOCATION** **RADIONAVIGATION** **SPACE RESEARCH (active)** 5.476A	EARTH EXPLORATION - SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active)	– Civil aeronautical Radionavigation e.g. airfield approach – Motion sensors – Shipborne, land and airborne surveillance and weapon radars – Spaceborne active sensors – Ultra-Wide Band Technology Applications	
9 800 - 9 900 MHz **RADIOLOCATION** **Earth exploration - satellite (active)** **Fixed** **Space research (active)**	RADIOLOCATION Earth exploration - satellite (active) FixedSpace research (active)	– Civil aeronautical Radionavigation e.g. airfield approach – Motion sensors – Shipborne, land and airborne surveillance and weapon radars – Ultra-Wide Band Technology Applications	The allocation of the frequency band 9 800 10 000 MHz to the fixed services on a primary basis (No. 5.477)

5.477 5.478 5.478A 5.478B			
9 900 - 10 000 MHz **EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C** **RADIOLOCATION** **Fixed** 5.474D 5.477 5.478 5.479	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION Fixed	– Civil aeronautical Radionavigation e.g. airfield approach – Motion sensors – Shipborne, land and airborne surveillance and weapon radars – Ultra-Wide Band Technology Applications	The allocation of the frequency band 9 800 10 000 MHz to the fixed services on a primary basis (No. 5.477)
10 - 10.4 GHz **EARTH EXPLORATION SATELLITE (active) 5.474A 5.474B 5.474C** **FIXED** **MOBILE** **RADIOLOCATION** **Amateur** 5.474D 5.479	EARTH EXPLORATION SATELLITE (active) FIXED MOBILE RADIOLOCATION Amateur	– Amateur applications – Fixed wireless access systems Including point - to - multipoint – Civil radars(Low power radars in certain sub-bands) – Ultra-Wide Band Technology Applications	
10.4 - 10.45 GHz **FIXED** **MOBILE** **RADIOLOCATION** **Amateur**	FIXED MOBILE RADIOLOCATION Amateur	– Amateur applications – Non civil radar – Fixed wireless access systems Including point - to - multipoint – Civil radars(Low power radars in certain sub-bands) – Ultra-Wide Band Technology Applications	
10.45 - 10.5 GHz **RADIOLOCATION** **Amateur** **Amateur - satellite** 5.481	RADIOLOCATION Amateur Amateur – satellite	– Amateur applications – Non civil radar – Civil radars(Low power radars in certain sub-bands) – Ultra-Wide Band Technology Applications	
10.5 - 10.55 GHz **FIXED** **MOBILE** **Radiolocation**	FIXED MOBILE Radiolocation	– Fixed links – Fixed wireless access systems (including point - to - multipoint) – Ultra-Wide Band Technology Applications	

10.55 - 10.6 GHz **FIXED** **MOBILE except aeronautical mobile** **Radiolocation**	FIXED MOBILE except aeronautical mobile Radiolocation	– Fixed links – Fixed wireless access systems (including point - to - multipoint) – Ultra-Wide Band Technology Applications	
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	EARTH EXPLORATION - SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation	– Fixed links – Fixed wireless access systems (including point - to - multipoint) – Ultra-Wide Band Technology Applications	
10.68 - 10.7 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340 5.483	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Fixed links – Passive applications	Also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis (No. 5.483)
10.7 - 10.95 GHz **FIXED** **FIXED-SATELLITE** **(space-to-Earth)** 5.441 **(Earth-to-space)** 5.484 **MOBILE except aeronautical mobile**	FIXED FIXED - SATELLITE (space - to - Earth) (Earth - to - space) MOBILE except aeronautical mobile	– Fixed links (high capacity) – Fixed Satellite Service applications	FSS applications within the band 10.7 - 10.95/11.2 - 11.45 GHz in accordance with ITU - R Appendix - 30B
10.95 - 11.2 GHz **FIXED** **FIXED-SATELLITE** **(space-to-Earth)** 5.484A 5.484B **(Earth-to-space)** 5.484 **MOBILE except aeronautical mobile**	FIXED FIXED - SATELLITE (space - to - Earth) (Earth - to - space) MOBILE except aeronautical mobile	– Fixed links (high capacity) – Fixed Satellite Service applications	

11.2 - 11.45 GHz **FIXED** **FIXED-SATELLITE** **(space-to-Earth)** 5.441 **(Earth-to-space)** 5.484 **MOBILE except aeronautical mobile**	FIXED FIXED - SATELLITE (space - to - Earth) (Earth - to - space) MOBILE except aeronautical mobile	– Fixed links (high capacity) – Fixed Satellite Service applications	FSS applications within the band 10.7 - 10.95/11.2 - 11.45 GHz in accordance with ITU - R Appendix - 30B
11.45 - 11.7 GHz **FIXED** **FIXED-SATELLITE** **(space-to-Earth)** 5.484A 5.484B **(Earth-to-space)** 5.484 **MOBILE except aeronautical mobile**	FIXED FIXED - SATELLITE (space - to - Earth) (Earth - to - space) MOBILE except aeronautical mobile	– Fixed links (high capacity) – Fixed Satellite Service applications	
11.7 - 12.5 GHz **FIXED** **MOBILE except aeronautical mobile** **BROADCASTING** **BROADCASTING - SATELLITE** 5.492 5.487 5.487A	FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING - SATELLITE	– Satellite Broadcasting	BSS applications within the band 11.7 – 12.5 GHz in accordance with ITU - R Appendix - 30
12.5 - 12.75 GHz **FIXED - SATELLITE** **(space -to- Earth)** 5.484A 5.484B **(Earth -to- space)** 5.494 5.495 5.496	FIXED - SATELLITE (space - to - Earth) (Earth - to - space)	– Fixed satellite applications	Also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis (No. 5.494)
12.75 - 13.25 GHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** 5.441 **MOBILE** **Space research (deep space) (space -to- Earth)**	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE Space research (deep space) (space - to - Earth)	– Fixed links (high capacity) – Fixed Satellite Service applications	FSS application in accordance with ITU - R Appendix - 30B
13.25 - 13.4 GHz	EARTH EXPLORATION - SATELLITE (active)	– Doppler Navigation aids – Earth exploration observations	

EARTH EXPLORATION - SATELLITE (active) **AERONAUTICAL RADIONAVIGATION** 5.497 **SPACE RESEARCH (active)** 5.498A 5.499	AERONAUTICAL RADIONAVIGATION SPACE RESEARCH (active)	– Ship berthing radars	
13.4 - 13.65 GHz **EARTH EXPLORATIONSATELLITE (active)** **FIXED-SATELLITE (space-to-Earth)** 5.499A 5.499B **RADIOLOCATION** **SPACE RESEARCH** 5.499C 5.499D **Standard frequency and time signal-satellite (Earth-to-space)** 5.499 5.499E 5.500 5.501 5.501B	EARTH EXPLORATIONSATELLITE (active) FIXED-SATELLITE (space-to-Earth) RADIOLOCATION SPACE RESEARCH Standard frequency and time signal-satellite (Earth-to-space)	– Doppler Navigation aids – Earth exploration observations – Ship berthing radars – Motion Sensors	Also allocated to the fixed and mobile services on a primary basis (No. 5.500)
13.65 - 13.75 GHz **EARTH EXPLORATION - SATELLITE (active)** **RADIOLOCATION** **SPACE RESEARCH** 5.501A **Standard frequency and time signal - satellite (Earth -to- space)** 5.499 5.500 5.501 5.501B	EARTH EXPLORATION - SATELLITE (active) RADIOLOCATION SPACE RESEARCH Standard frequency and time signal - satellite (Earth - to - space)	– Doppler Navigation aids – Earth exploration observations – Ship berthing radars – Motion Sensors	
13.75 - 14 GHz **FIXED - SATELLITE (Earth -to- space)** 5.484A **RADIOLOCATION** **Earth exploration - satellite** **Standard frequency and time signal - satellite (Earth -to- space)** **Space research** 5.499 5.500 5.501 5.502 5.503	FIXED - SATELLITE (Earth - to - space) RADIOLOCATION Earth exploration - satellite Standard frequency and time signal - satellite (Earth - to - space) Space research	– Doppler Navigation aids – Navigation radars – Ship berthing radars – Motion Sensors – Passive applications	
14 - 14.25 GHz **FIXED - SATELLITE (Earth -to- space)** 5.457A	FIXED - SATELLITE (Earth - to - space) RADIONAVIGATION Mobile - satellite (Earth - to - space)	– Mobile satellite systems – VSAT/SNG applications (Low density carriers, including VSATs and digital SNG, are encouraged to use this band)	Also allocated to the fixed service on a primary basis (No. 5.505)

5.457B 5.484A 5.484B 5.506 5.506B **RADIONAVIGATION** 5.504 **Mobile - satellite (Earth -to- space)** 5.504B 5.504C 5.506A **Space research** 5.504A 5.505	Space research		
14.25 - 14.3 GHz **FIXED - SATELLITE (Earth -to- space)** 5.457A 5.457B 5.484A 5.484B 5.506 5.506B **RADIONAVIGATION** 5.504 **Mobile - satellite (Earth -to- space)** 5.504B 5.506A 5.508A **Space research** 5.504A 5.505 5.508	FIXED - SATELLITE (Earth - to - space RADIONAVIGATION Mobile - satellite (Earth - to - space) Space research	– Mobile satellite systems – VSAT/SNG applications (Low density carriers, including VSATs and digital SNG, are encouraged to use this band)	Also allocated to the fixed service on a primary basis (No. 5.505)
14.3 - 14.4 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 5.509A **Radionavigation - satellite** 5.504A	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE except aeronautical mobile Mobile - satellite (Earth - to - space Radionavigation - satellite	– Mobile satellite systems – VSAT/SNG applications (Low density carriers, including VSATs and digital SNG, are encouraged to use this band)	
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 5.509A	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE except aeronautical mobile Mobile - satellite (Earth - to - space Space research (space - to - Earth)	– Mobile satellite systems – VSAT/SNG applications (Low density carriers, including VSATs and digital SNG, are encouraged to use this band)	

Space research (space -to- Earth) 5.504A			
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 5.509A **Radio astronomy** 5.149 5.504A	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE except aeronautical mobile Mobile - satellite (Earth - to - space) Radio astronomy	– Mobile satellite systems – VSAT/SNG applications (Low density carriers, including VSATs and digital SNG, are encouraged to use this band) – Radio Astronomy applications	
14.5 - 14.75 GHz **FIXED** **FIXED-SATELLITE (Earth-to-space)** 5.509B 5.509C 5.509D 5.509E 5.509F 5.510 **MOBILE** **Space research** 5.509G	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE Space research	– Fixed links – Radio astronomy applications	
14.75 - 14.8 GHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** 5.510 **MOBILE** **Space research** 5.509G	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE Space research	– Fixed links – Radio astronomy applications	FSS application in accordance with ITU - R Appendix - 30A
14.8 - 15.35 GHz **FIXED** **MOBILE** **Space research** 5.339	FIXED MOBILE Space research	– Fixed links – Radio astronomy applications	
15.35 - 15.4 GHz **EARTH EXPLORATION - SATELLITE (passive)**	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY	– Passive applications	Also allocated to the fixed and mobile services on a secondary basis (No. 5.511)

RADIO ASTRONOMY **SPACE RESEARCH (passive)** 5.340 5.511	SPACE RESEARCH (passive)		
15.4 - 15.43 GHz **RADIOLOCATION 5.511E 5.511F** **AERONAUTICAL RADIONAVIGATION**	RADIOLOCATION AERONAUTICAL RADIONAVIGATION	– Doppler radar for low power sensing – Ground movement radar	
15.43 - 15.63 GHz **FIXED - SATELLITE (Earth -to- space)** 5.511A RADIOLOCATION 5.511E 5.511F **AERONAUTICAL RADIONAVIGATION** 5.511C	FIXED - SATELLITE (Earth - to - space) RADIOLOCATION AERONAUTICAL RADIONAVIGATION	– Doppler radar for low power sensing – Ground movement radar – MSS feeder links	
15.63 - 15.7 GHz **RADIOLOCATION 5.511E 5.511F** **AERONAUTICAL RADIONAVIGATION**	RADIOLOCATION AERONAUTICAL RADIONAVIGATION	– Doppler radar for low power sensing – Ground movement radar	
15.7 - 16.6 GHz **RADIOLOCATION** 5.512 5.513	RADIOLOCATION		The band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis (No. 5.512)
16.6 - 17.1 GHz **RADIOLOCATION** **Space research (deep space) (Earth -to- space)** 5.512 5.513	RADIOLOCATION Space research (deep space) (Earth - to - space)		The band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis (No. 5.512)
17.1 - 17.2 GHz **RADIOLOCATION** 5.512 5.513	RADIOLOCATION		The band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis (No. 5.512)
17.2 - 17.3 GHz **EARTH EXPLORATION - SATELLITE (active)** **RADIOLOCATION**	EARTH EXPLORATION - SATELLITE (active) RADIOLOCATION	– Wireless Access Systems including Radio Local Area Networks	(Mobile application for HIPERLANs which have priority over space services. HIPERLANs cannot claim protection from radiolocation service)

SPACE RESEARCH (active) 5.512 5.513 5.513A	SPACE RESEARCH (active)		The band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis (No. 5.512)
17.3 - 17.7 GHz **FIXED - SATELLITE** **(Earth -to- space)** 5.516 **(space -to- Earth)** 5.516A 5.516B **Radiolocation** 5.514	FIXED - SATELLITE (Earth - to - space) (space - to - Earth) Radiolocation	– Feeder link plan (Earth - to - space)	ITU - R RR Appendix30A feeder link plans Also allocated to the fixed and mobile services on a secondary basis (No. 5.514)
17.7 - 18.1 GHz **FIXED** **FIXED - SATELLITE** **(space -to- Earth)** 5.484A **(Earth -to- space)** 5.516 **MOBILE**	FIXED FIXED - SATELLITE (space - to - Earth) (Earth - to - space) MOBILE	– Feeder link plan (Earth - to - space) – Fixed links – Fixed Satellite Service applications	ITU - R RR Appendix30A feeder link plans
18.1 - 18.4 GHz **FIXED** **FIXED - SATELLITE** **(space -to- Earth)** 5.484A 5.516B **(Earth -to- space)** 5.520 **MOBILE** 5.519 5.521	FIXED FIXED - SATELLITE (space - to - Earth) (Earth - to - space) MOBILE	– Feeder link band – Fixed links – Fixed Satellite Service applications	The use of the band 18.1-18.4 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links of geostationary-satellite systems in the broadcasting-satellite service
18.4 - 18.6 GHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** 5.484A 5.516B **MOBILE**	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE	– Fixed links – Fixed Satellite Service applications	
18.6 - 18.8 GHz **EARTH EXPLORATION - SATELLITE (passive)** **FIXED**	EARTH EXPLORATION - SATELLITE (passive) FIXED FIXED - SATELLITE	– Fixed links – Fixed Satellite Service applications – Passive Applications	

FIXED - SATELLITE **(space -to- Earth)** 5.522B **MOBILE except aeronautical mobile** **Space research (passive)** 5.522A 5.522C	(space - to - Earth) MOBILE except aeronautical mobile Space research (passive)		
18.8 - 19.3 GHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** 5.516.B 5.523A **MOBILE**	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE	– Fixed links – Fixed Satellite Service applications	
19.3 - 19.7 GHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **(Earth -to- space)** 5.523B 5.523C 5.523D 5.523E **MOBILE**	FIXED FIXED - SATELLITE (space - to - Earth) (Earth - to - space) MOBILE	– Fixed links – Fixed Satellite Service applications	
19.7 - 20.1 GHz **FIXED - SATELLITE** **(space -to- Earth)** 5.484A 5.484B 5.516B 5.527A **Mobile - satellite (space -to- Earth)** 5.524	FIXED - SATELLITE (space - to - Earth) Mobile - satellite (space - to - Earth)	– Fixed and Mobile Satellite Service applications	The band 19.7-21.2 GHz is also allocated to the fixed and mobile services on a primary basis (No. 5.524)
20.1 - 20.2 GHz **FIXED - SATELLITE (space -to- Earth)** 5.484A 5.484B 5.516B 5.527A **MOBILE - SATELLITE (space -to- Earth)** 5.524 5.525 5.526 5.527 5.528	FIXED - SATELLITE (space - to - Earth) MOBILE - SATELLITE (space - to - Earth)	– Fixed and Mobile Satellite Service applications	The band 19.7-21.2 GHz is also allocated to the fixed and mobile services on a primary basis (No. 5.524)
20.2 - 21.2 GHz **FIXED - SATELLITE (space -to- Earth)** **MOBILE - SATELLITE (space -to- Earth)** **Standard frequency and time signal - satellite**	FIXED - SATELLITE (space - to - Earth) MOBILE - SATELLITE (space - to - Earth) Standard frequency and time signal - satellite (space - to - Earth)	– Fixed and Mobile Satellite Service applications	The band 19.7-21.2 GHz is also allocated to the fixed and mobile services on a primary basis (No. 5.524)

(space -to- Earth) 5.524			
21.2 - 21.4 GHz **EARTH EXPLORATION - SATELLITE (passive)** **FIXED** **MOBILE** **SPACE RESEARCH (passive)**	EARTH EXPLORATION - SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	– Passive applications – Unidirectional temporary fixed or mobile links	
21.4 - 22 GHz **FIXED** **MOBILE** **BROADCASTING - SATELLITE** 5.208B 5.530A 5.530B 5.530D	FIXED MOBILE BROADCASTING - SATELLITE	– Wide band high definition television	
22 - 22.21 GHz **FIXED** **MOBILE except aeronautical mobile** 5.149	FIXED MOBILE except aeronautical mobile	– Fixed links – Passive applications	
22.21 - 22.5 GHz **EARTH EXPLORATION - SATELLITE (passive)** **FIXED** **MOBILE except aeronautical mobile** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.149 5.532	EARTH EXPLORATION - SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive)	– Fixed links – Radio astronomy applications	
22.5 - 22.55 GHz **FIXED** **MOBILE**	FIXED MOBILE	– Fixed links – Radio astronomy applications	
22.55 - 23.15GHz **FIXED** **INTER - SATELLITE** 5.338A	FIXED INTER - SATELLITE MOBILE SPACE RESEARCH (Earth-to-space)	– Fixed links – Radio astronomy applications	

MOBILE **SPACE RESEARCH (Earth - to -space) 5.532A** 5.149			
23.15 – 23.55 GHz **FIXED** **INTER – SATELLITE** 5.338A **MOBILE**	FIXED MOBILE		
23.55 - 23.6 GHz **FIXED** **MOBILE**	FIXED MOBILE	– Fixed links	
23.6 - 24 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Passive applications	
24 - 24.05 GHz **AMATEUR** **AMATEUR - SATELLITE** 5.150	AMATEUR AMATEUR – SATELLITE	– Amateur applications – Amateur Satellite applications – ISM Within the band 24-24.25 GHz – Non - specific SRD Within the band 24-24.25 GHz	
24.05 - 24.25 GHz **RADIOLOCATION** **Amateur** **Earth exploration - satellite (active)** 5.150	RADIOLOCATION Amateur Earth exploration - satellite (active)	– Amateur applications – Rain radars from satellites – Motion sensors – ISM Within the band 24-24.25 GHz – Non - specific SRD Within the band 24-24.25 GHz – Road transport and traffic telematics within the band 24.150-24.250 GHz – Automotive Short Range Radar – Radio-determination & Detection Applications	
24.25 - 24.45 GHz **FIXED**	FIXED	– Unidirectional temporary fixed links	

24.45 - 24.65 GHz **FIXED** **INTER - SATELLITE**	FIXED INTER – SATELLITE	– Fixed links	
24.65 - 24.75 GHz **FIXED** **FIXED - SATELLITE (Earth -to- Space)** 5.532B **INTER - SATELLITE**	FIXED FIXED - SATELLITE (Earth - to - Space) INTER – SATELLITE	– Fixed links – Fixed wireless access systems	The use of the band 24.65-25.25 GHz by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5 m (No. 5.532B)
24.75 - 25.25 GHz **FIXED** **FIXED - SATELLITE (Earth -to- Space)** 5.532B	FIXED FIXED - SATELLITE (Earth - to - Space)	– Fixed links – Fixed wireless access systems	The use of the band 24.65-25.25 GHz by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5 m (No. 5.532B)
25.25 - 25.5 GHz **FIXED** **INTER - SATELLITE** 5.536 **MOBILE** **Standard frequency and time signal - satellite (Earth -to- space)**	FIXED INTER - SATELLITE MOBILE Standard frequency and time signal - satellite (Earth - to - space)	– Fixed links – Fixed wireless access systems	
25.5 - 27 GHz **EARTH** **EXPLORATION - SATELLITE (space –to- Earth)** 5.536B **FIXED** **INTER - SATELLITE** 5.536 **MOBILE** **SPACE RESEARCH (space -to- Earth)** 5.536C **Standard frequency and time signal - satellite (Earth -to- space)** 5.536A	EARTH EXPLORATION - SATELLITE (space - to FIXED INTER - SATELLITE MOBILE SPACE RESEARCH (space - to - Earth) Standard frequency and time signal - satellite (Earth - to - space)	– Fixed links – Fixed wireless access systems	Earth stations operating in the space research service shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services (No. 5.536C)
27 - 27.5 GHz **FIXED**	FIXED INTER - SATELLITE MOBILE		

INTER - SATELLITE 5.536 **MOBILE**			
27.5 - 28.5 GHz **FIXED** 5.537A **FIXED - SATELLITE (Earth -to- space)** 5.484A 5.516B 5.539 **MOBILE** 5.538 5.540	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE	– Fixed links – Fixed wireless access systems – Feeder Links – Fixed satellite services	Satellite equipment onboard aircraft within the band 27.5-29.5 GHz (please refer to the Guidelines for Aeronautical Radio Spectrum Licenses)
28.5 - 29.1 GHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** 5.484A 5.516B 5.523A 5.539 **MOBILE** **Earth exploration - satellite (Earth -to- space)** 5.541 5.540	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE Earth exploration - satellite (Earth - to - space)	– Fixed links – Fixed wireless access systems – Feeder Links – Fixed satellite services	Satellite equipment onboard aircraft within the band 27.5-29.5 GHz (please refer to the Guidelines for Aeronautical Radio Spectrum Licenses)
29.1 - 29.5 GHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** 5.516B 5.523C5.523E 5.535A 5.539 5.541A **MOBILE** **Earth exploration - satellite (Earth -to- space)** 5.541 5.540	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE Earth exploration - satellite (Earth - to - space)	– Fixed links – Fixed wireless access systems – Feeder Links – Fixed satellite services	Satellite equipment onboard aircraft within the band 27.5-29.5 GHz (please refer to the Guidelines for Aeronautical Radio Spectrum Licenses)
29.5 - 29.9 GHz **FIXED - SATELLITE (Earth -to- space)** 5.484A 5.484B 5.516B 5.527A 5.539 **Earth exploration - satellite (Earth -to- space)** 5.541	FIXED - SATELLITE (Earth - to - space) Earth exploration - satellite (Earth - to - space) Mobile - satellite (Earth - to - space)	– Fixed and Mobile satellite services	The band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. 21.3 and 21.5 shall apply (No. 5.542)

Mobile - satellite (Earth -to- space) 5.540 5.542			
29.9 - 30 GHz **FIXED - SATELLITE (Earth -to- space)** 5.484A 5.484B 5.516B 5.527A 5.539 **MOBILE - SATELLITE (Earth -to- space)** **Earth exploration - satellite (Earth -to- space)** 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542	FIXED - SATELLITE (Earth - to - space) MOBILE - SATELLITE (Earth - to - space) Earth exploration - satellite (Earth - to - space)	– Fixed and Mobile satellite services	The band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. 21.3 and 21.5 shall apply (No. 5.542)
30 - 31 GHz **FIXED - SATELLITE (Earth -to- space)** 5.338A **MOBILE - SATELLITE (Earth -to- space)** **Standard frequency and time signal - satellite (space -to- Earth)** 5.542	FIXED - SATELLITE (Earth - to - space) MOBILE - SATELLITE (Earth - to - space) Standard frequency and time signal - satellite (space - to - Earth)	– Fixed and Mobile satellite services	The band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. 21.3 and 21.5 shall apply (No. 5.542)
31 - 31.3 GHz **FIXED** 5.338A 5.543A **MOBILE** **Standard frequency and time signal - satellite (space -to- Earth)** **Space research** 5.544 5.545 5.149	FIXED MOBILE Standard frequency and time signal - satellite (space - to - Earth) Space research	– Fixed links – Radio astronomy applications	
31.3 - 31.5 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Passive applications – Surface temperature and emissivity, atmospheric attenuation	
31.5 - 31.8 GHz **EARTH EXPLORATION - SATELLITE (passive)**	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY	– Passive applications – Surface temperature and emissivity, atmospheric attenuation	

RADIO ASTRONOMY **SPACE RESEARCH (passive)** **Fixed** **Mobile except aeronautical mobile** 5.149 5.546	SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile		
31.8 - 32 GHz **FIXED** 5.547A **RADIONAVIGATION** **SPACE RESEARCH (deep space) (space -to-Earth)** 5.547 5.547B 5.548	FIXED RADIONAVIGATION SPACE RESEARCH (deep space) (space - to - Earth)	– High density fixed links (Both Point - to - Point and Point - to - Multipoint) – Airport Surface Detection Equipment	
32 - 32.3 GHz **FIXED 5.547A** **RADIONAVIGATION** **SPACE RESEARCH (deep space) (space -to-Earth)** 5.547 5.547C 5.548	FIXED RADIONAVIGATION SPACE RESEARCH (deep space) (space - to - Earth)	– High density fixed links (Both Point - to - Point and Point - to - Multipoint) – Airport Surface Detection Equipment	
32.3 - 33 GHz **FIXED** 5.547A **INTER - SATELLITE** **RADIONAVIGATION** 5.547 5.547D 5.548	FIXED INTER - SATELLITE RADIONAVIGATION	– High density fixed links (Both Point - to - Point and Point - to - Multipoint) – Airport Surface Detection Equipment	
33 - 33.4 GHz **FIXED** 5.547A **RADIONAVIGATION** 5.547 5.547E	FIXED RADIONAVIGATION	– High density fixed links (Both Point - to - Point and Point - to - Multipoint) – Airport Surface Detection Equipment	
33.4 - 34.2 GHz **RADIOLOCATION**	RADIOLOCATION	– Motion sensors – Short range radar – Surveying and measurement	Also allocated to the fixed and mobile services on a primary basis (No. 5.549)

5.549			
34.2 - 34.7 GHz **RADIOLOCATION** **SPACE RESEARCH (deep space) (Earth -to-space)** 5.549	RADIOLOCATION SPACE RESEARCH (deep space) (Earth - to - space)	– Motion sensors – Short range radar – Surveying and measurement	Also allocated to the fixed and mobile services on a primary basis (No. 5.549)
34.7 - 35.2 GHz **RADIOLOCATION** **Space research** 5.550 5.549	RADIOLOCATION Space research	– Motion sensors – Short range radar – Surveying and measurement	Also allocated to the fixed and mobile services on a primary basis (No. 5.549)
35.2 - 35.5 GHz **METEOROLOGICAL AIDS** **RADIOLOCATION** 5.549	METEOROLOGICAL AIDS RADIOLOCATION	– Rain radar from satellites	Also allocated to the fixed and mobile services on a primary basis (No. 5.549)
35.5 - 36 GHz **METEOROLOGICAL AIDS** **EARTH EXPLORATION - SATELLITE (active)** **RADIOLOCATION** **SPACE RESEARCH (active)** 5.549 5.549A	METEOROLOGICAL AIDS EARTH EXPLORATION - SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active)	– Rain radar from satellites	Also allocated to the fixed and mobile services on a primary basis (No. 5.549)
36 - 37 GHz **EARTH EXPLORATION - SATELLITE (passive)** **FIXED** **MOBILE** **SPACE RESEARCH (passive)** 5.149 5.550A	EARTH EXPLORATION - SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	– Passive applications – Radio astronomy applications	For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution 752 (WRC-07) shall apply (No. 5.550A)
37 - 37.5 GHz	FIXED MOBILE except aeronautical mobile	– High density fixed links – Low and medium capacity fixed links	

FIXED **MOBILE except aeronautical mobile** **SPACE RESEARCH (space -to- Earth)** 5.547	SPACE RESEARCH (space - to - Earth)		
37.5 - 38 GHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **MOBILE except aeronautical mobile** **SPACE RESEARCH (space -to- Earth)** **Earth exploration - satellite (space -to- Earth)** 5.547	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE except aeronautical mobile SPACE RESEARCH (space - to - Earth) Earth exploration - satellite (space - to - Earth)	– Fixed Satellite Service applications – High density fixed links – Low capacity fixed links	
38 - 39.5 GHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **MOBILE** **Earth exploration - satellite (space -to- Earth)** 5.547	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE Earth exploration - satellite (space - to - Earth)	– Fixed Satellite Service applications – High density fixed links – Low capacity fixed links	
39.5 - 40 GHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** 5.516B **MOBILE** **MOBILE - SATELLITE (space -to- Earth)** **Earth exploration - satellite (space -to- Earth)** 5.547	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE MOBILE - SATELLITE (space - to - Earth) Earth exploration - satellite (space - to - Earth)	– Fixed Satellite Service applications	
40 - 40.5 GHz **EARTH EXPLORATION - SATELLITE (Earth -to- space)** **FIXED** **FIXED - SATELLITE (space -to- Earth)** 5.516B **MOBILE**	EARTH EXPLORATION - SATELLITE (Earth - to - space) FIXED FIXED - SATELLITE (space - to - Earth) MOBILE MOBILE - SATELLITE (space - to - Earth) SPACE RESEARCH (Earth - to - space)	– Broadband mobile systems – Fixed Satellite Service applications	

MOBILE - SATELLITE (space -to- Earth) **SPACE RESEARCH (Earth -to- space)** **Earth exploration - satellite (space -to- Earth)**	Earth exploration - satellite (space - to - Earth)		
40.5 - 41 GHz **FIXED** **FIXED-SATELLITE** **(space -to- Earth)** **BROADCASTING** **BROADCASTING - SATELLITE** **Mobile** 5.547	FIXED FIXED - SATELLITE (space - to - Earth) BROADCASTING BROADCASTING - SATELLITE Mobile	– Fixed Satellite Service applications – Multimedia Wireless Systems MWS	
41 - 42.5 GHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** 5.516B **BROADCASTING** **BROADCASTING - SATELLITE** **Mobile** 5.547 5.551F 5.551H 5.551I	FIXED FIXED - SATELLITE (space - to - Earth) BROADCASTING BROADCASTING - SATELLITE Mobile	– Fixed Satellite Service applications – Multimedia Wireless Systems MWS	
42.5 - 43.5 GHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** 5.552 **MOBILE except aeronautical mobile** **RADIO ASTRONOMY** 5.149 5.547	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE except aeronautical mobile RADIO ASTRONOMY	– Broadband mobile systems – Fixed Satellite Service applications – Multimedia Wireless Systems MWS – Radio astronomy applications	
43.5 - 47 GHz **MOBILE** 5.553 **MOBILE - SATELLITE** **RADIONAVIGATION** **RADIONAVIGATION - SATELLITE**	MOBILE MOBILE - SATELLITE RADIONAVIGATION RADIONAVIGATION – SATELLITE		

5.554			
47 - 47.2 GHz **AMATEUR** **AMATEUR - SATELLITE**	AMATEUR AMATEUR - SATELLITE	– Amateur applications – Amateur Satellite applications	
47.2 - 47.5 GHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** 5.552 **MOBILE** 5.552A	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE	– Feeder link band – Fixed Satellite Service applications – HAPS	
47.5 - 47.9 GHz **FIXED** **FIXED - SATELLITE** **(Earth -to- space)** 5.552 **(space -to- Earth)** 5.516B 5.554A **MOBILE**	FIXED FIXED - SATELLITE (Earth - to - Space) (Space - to - Earth) MOBILE	– Feeder link band – Fixed Satellite Service applications	
47.9 - 48.2 GHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** 5.552 **MOBILE** 5.552A	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE	– Feeder link band – Fixed Satellite Service applications	
48.2 - 48.54 GHz **FIXED** **FIXED - SATELLITE** **(Earth -to- space)** 5.552 **(space -to- Earth)** 5.516B 5.554A 5.555B **MOBILE**	FIXED FIXED - SATELLITE (Earth - to - space) (space - to - Earth) MOBILE	– Feeder link band – Fixed Satellite Service applications	
48.54 - 49.44 GHz **FIXED**	FIXED FIXED - SATELLITE (Earth - to - space)	– Feeder link band – Fixed Satellite Service applications – Low and Medium capacity fixed links	

FIXED - SATELLITE **(Earth -to - space)** 5.552 **MOBILE** 5.149 5.340 5.555	MOBILE	– Radio Astronomy applications	
49.44 - 50.2 GHz **FIXED** **FIXED - SATELLITE** **(Earth - to - space)** 5.338A 5.552 **(space -to- Earth)** 5.516B 5.554A 5.555B **MOBILE**	FIXED FIXED - SATELLITE (Earth - to - space) (space - to - Earth) MOBILE	– Fixed Satellite Service applications – Low and Medium capacity fixed links	
50.2 – 50.4 GHz **EARTH EXPLORATION - SATELLITE (passive)** **SPACE RESEARCH (passive)** 5.340	EARTH EXPLORATION - SATELLITE (passive) SPACE RESEARCH (passive)	– Passive applications	
50.4 - 51.4 GHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** 5.338A **MOBILE** **Mobile - satellite (Earth -to- space)**	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE Mobile - satellite (Earth - to - space)		
51.4 - 52.6 GHz **FIXED** 5.338A **MOBILE** 5.547 5.556	FIXED MOBILE	– High density fixed links	
52.6 - 54.25 GHz **EARTH EXPLORATION - SATELLITE (passive)** **SPACE RESEARCH (passive)** 5.340 5.556	EARTH EXPLORATION - SATELLITE (passive) SPACE RESEARCH (passive)	– Passive applications	

54.25 - 55.78 GHz **EARTH EXPLORATION - SATELLITE (passive)** **INTER - SATELLITE** 5.556A **SPACE RESEARCH (passive)** 5.556B	EARTH EXPLORATION - SATELLITE (passive) INTER - SATELLITE SPACE RESEARCH (passive)	– Passive applications	
55.78 - 56.9 GHz **EARTH EXPLORATION - SATELLITE (passive)** **FIXED** 5.557A **INTER - SATELLITE** 5.556A **MOBILE** 5.558 **SPACE RESEARCH (passive)** 5.547 5.557	EARTH EXPLORATION - SATELLITE (passive) FIXED INTER - SATELLITE MOBILE SPACE RESEARCH (passive)	– Passive applications – High density fixed links	
56.9 - 57 GHz **EARTH EXPLORATION - SATELLITE (passive)** **FIXED** **INTER - SATELLITE** 5.558A **MOBILE** 5.558 **SPACE RESEARCH (passive)** 5.547 5.557	EARTH EXPLORATION - SATELLITE (passive) FIXED INTER - SATELLITE MOBILE SPACE RESEARCH (passive)	– Passive applications – High density fixed links	
57 - 58.2 GHz **EARTH EXPLORATION - SATELLITE (passive)** **FIXED** **INTER - SATELLITE** 5.556A **MOBILE** 5.558 **SPACE RESEARCH (passive)** 5.547 5.557	EARTH EXPLORATION - SATELLITE (passive) FIXED INTER - SATELLITE MOBILE SPACE RESEARCH (passive)	– Passive applications – High density fixed links – SRD within the band 57-64 GHz	
58.2 - 59 GHz **EARTH EXPLORATION - SATELLITE (passive)** **FIXED**	EARTH EXPLORATION - SATELLITE (passive) FIXED MOBILE	– Passive applications – High density fixed links – SRD within the band 57-64 GHz	

MOBILE **SPACE RESEARCH (passive)** 5.547 5.556	SPACE RESEARCH (passive)		
59 - 59.3 GHz **EARTH EXPLORATION - SATELLITE (passive)** **FIXED** **INTER - SATELLITE** 5.556A **MOBILE** 5.558 **RADIOLOCATION** 5.559 **SPACE RESEARCH (passive)**	EARTH EXPLORATION - SATELLITE (passive) FIXED INTER - SATELLITE MOBILE RADIOLOCATION SPACE RESEARCH (passive)	– Passive applications – Defense Systems – SRD within the band 57-64 GHz	
59.3 - 64 GHz **FIXED** **INTER - SATELLITE** **MOBILE** 5.558 **RADIOLOCATION** 5.559 5.138	FIXED INTER - SATELLITE MOBILE RADIOLOCATION	– Cordless local area networks – High density fixed links – ISM – SRD within the band 57-64 GHz – Non-specific SRD within the band 61-61.5 GHz – Broadband mobile systems – Short range non civil radiolocation – RTTT (Road Transport and Traffic Telematics Vehicle to road/vehicle to vehicle)	
64 - 65 GHz **FIXED** **INTER - SATELLITE** **MOBILE except aeronautical mobile** 5.547 5.556	FIXED INTER - SATELLITE MOBILE except aeronautical mobile	– High density fixed links – Fixed point-to-point Light License (64 – 66 GHz)	
65 - 66 GHz **EARTH EXPLORATION - SATELLITE** **FIXED** **INTER - SATELLITE** **MOBILE except aeronautical mobile** **SPACE RESEARCH** 5.547	EARTH EXPLORATION - SATELLITE FIXED INTER - SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH	– Broadband Mobile systems – High density fixed links – Fixed point-to-point Light License (64 – 66 GHz)	

66 - 71 GHz **INTER - SATELLITE** **MOBILE** 5.553 5.558 **MOBILE - SATELLITE** **RADIONAVIGATION** **RADIONAVIGATION - SATELLITE** 5.554	INTER – SATELLITE MOBILE MOBILE - SATELLITE RADIONAVIGATION RADIONAVIGATION - SATELLITE		
71 - 74 GHz **FIXED** **FIXED - SATELLITE (space -to-Earth)** **MOBILE** **MOBILE - SATELLITE (space -to- Earth)**	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE MOBILE - SATELLITE (space - to - Earth)	– Fixed point-to-point Light License (71.125 – 75.825 GHz)	
74 - 76 GHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **MOBILE** **BROADCASTING** **BROADCASTING - SATELLITE** **Space research (space -to- Earth)** 5.561	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE BROADCASTING BROADCASTING - SATELLITE Space research (space - to - Earth)	– Future civil systems – Space science services – Fixed point-to-point Light License (71.125 – 75.825 GHz)	
76 - 77.5 GHz **RADIO ASTRONOMY** **RADIOLOCATION** **Amateur** **Amateur - satellite** **Space research (space -to- Earth)** 5.149	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur - satellite Space research (space - to - Earth)	– Amateur applications – Amateur Satellite applications – Civil radio location – Radio astronomy applications – RTTT	
77.5 - 78 GHz **AMATEUR**	AMATEUR AMATEUR – SATELLITE RADIOLOCATION	– Amateur applications – Radio astronomy applications – Short Range Radars	The use by the radiolocation service shall be limited to short-range radar for ground-based applications, including automotive radars. (No. 5.559B)

AMATEUR – SATELLITE **RADIOLOCATION** 5.559B **Radio astronomy** **Space research (space -to- Earth)** 5.149	Radio astronomy Space research (space - to - Earth)		
78 - 79 GHz **RADIOLOCATION** **Amateur** **Amateur - satellite** **Radio astronomy** **Space research (space -to- Earth)** 5.149 5.560	RADIOLOCATION Amateur Amateur - satellite Radio astronomy Space research (space - to - Earth)	– Radio astronomy applications – Radiolocation services	Amateur and Amateur-satellite services on a secondary basis
79 - 81 GHz **RADIO ASTRONOMY** **RADIOLOCATION** **Amateur** **Amateur - satellite** **Space research (space -to- Earth)** 5.149	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur - satellite Space research (space - to - Earth)	– Radio astronomy applications – Radiolocation services	
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	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE MOBILE - SATELLITE (Earth - to - space) RADIO ASTRONOMY Space research (space - to - Earth)	– Radio astronomy applications – Fixed point-to-point Light License (81.125 – 85.825 GHz)	
84 - 86 GHz **FIXED** 5.338A	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE	– Radio astronomy applications – Fixed point-to-point Light License (81.125 – 85.825 GHz)	

FIXED - SATELLITE (Earth -to- space) 5.561B **MOBILE** **RADIO ASTRONOMY** 5.149	RADIO ASTRONOMY		
86 - 92 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Passive applications	
92 - 94 GHz **FIXED** 5.338A **MOBILE** **RADIO ASTRONOMY** **RADIOLOCATION** 5.149	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION	– Radio astronomy applications – Short Range radars	
94 - 94.1 GHz **EARTH EXPLORATION - SATELLITE (active)** **RADIOLOCATION** **SPACE RESEARCH (active)** **Radio astronomy** 5.562 5.562A	EARTH EXPLORATION - SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy	– Cloud profiling Radar – Short Range radars	
94.1 - 95 GHz **FIXED** **MOBILE** **RADIO ASTRONOMY** **RADIOLOCATION** 5.149	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION	– Radio astronomy applications – Short Range radars	
95 - 100 GHz	FIXED MOBILE	– Radio astronomy applications	

FIXED **MOBILE** **RADIO ASTRONOMY** **RADIOLOCATION** **RADIONAVIGATION** **RADIONAVIGATION - SATELLITE** 5.149 5.554	RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION – SATELLITE		
100 - 102 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340 5.341	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Earth Exploration satellite systems – Short Range radars	
102 - 105 GHz **FIXED** **MOBILE** **RADIO ASTRONOMY** 5.149 5.341	FIXED MOBILE RADIO ASTRONOMY	– Radio astronomy applications	
105 - 109.5 GHz **FIXED** **MOBILE** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.562B 5.149 5.341	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive)	- Radio astronomy applications	
109.5 - 111.8 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340 5.341	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Radio astronomy applications	

111.8 - 114.25 GHz **FIXED** **MOBILE** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.562B 5.149 5.341	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive)	- Radio astronomy applications	
114.25 - 116 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340 5.341	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Radio astronomy applications	
116 - 119.98 GHz **EARTH EXPLORATION - SATELLITE (passive)** **INTER - SATELLITE** 5.562C **SPACE RESEARCH (passive)** 5.341	EARTH EXPLORATION - SATELLITE (passive) INTER - SATELLITE SPACE RESEARCH (passive)	– Passive applications	
119.98 - 122.25 GHz **EARTH EXPLORATION - SATELLITE (passive)** **INTER - SATELLITE** 5.562C **SPACE RESEARCH (passive)** 5.138 5.341	EARTH EXPLORATION - SATELLITE (passive) INTER - SATELLITE SPACE RESEARCH (passive)	– Passive applications – Non-specific SRD within 122-123 GHz	
122.25 - 123 GHz **FIXED** **INTER - SATELLITE** **MOBILE** 5.558 **Amateur** 5.138	FIXED INTER - SATELLITE MOBILE Amateur	– Amateur applications – Amateur Satellite applications – Non-specific SRD within 122-123 GHz	
123 - 130 GHz	FIXED - SATELLITE (space - to - Earth) MOBILE - SATELLITE (space - to - Earth)		

FIXED - SATELLITE (space -to- Earth) **MOBILE - SATELLITE (space -to- Earth)** **RADIONAVIGATION** **RADIONAVIGATION - SATELLITE** **Radio astronomy** 5.562D 5.149 5.554	RADIONAVIGATION RADIONAVIGATION - SATELLITE Radio astronomy		
130 - 134 GHz **EARTH EXPLORATION - SATELLITE (active)** 5.562E **FIXED** **INTER - SATELLITE** **MOBILE** 5.558 **RADIO ASTRONOMY** 5.149 5.562A	EARTH EXPLORATION - SATELLITE (active) FIXED INTER - SATELLITE MOBILE RADIO ASTRONOMY	– Radio astronomy applications	
134 - 136 GHz **AMATEUR** **AMATEUR - SATELLITE** **Radio astronomy**	AMATEUR AMATEUR - SATELLITE Radio astronomy	– Amateur applications – Amateur Satellite applications	
136 - 141 GHz **RADIO ASTRONOMY** **RADIOLOCATION** **Amateur** **Amateur - satellite** 5.149	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur - satellite	– Amateur applications – Amateur Satellite applications – Radio Astronomy applications	
141 - 148.5 GHz **FIXED** **MOBILE** **RADIO ASTRONOMY** **RADIOLOCATION**	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION	– Radio astronomy applications	

5.149			
148.5 - 151.5 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Passive applications	
151.5 - 155.5 GHz **FIXED** **MOBILE** **RADIO ASTRONOMY** **RADIOLOCATION** 5.149	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION	– Radio astronomy applications	
155.5 - 158.5 GHz **EARTH EXPLORATION - SATELLITE (passive)** **FIXED** **MOBILE** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.562B 5.149 5.562F 5.562G	EARTH EXPLORATION - SATELLITE (passive) FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive)	– Earth exploration satellite – Radio astronomy applications	
158.5 - 164 GHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **MOBILE** **MOBILE - SATELLITE (space -to- Earth)**	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE MOBILE - SATELLITE (space - to - Earth)	–	
164 - 167 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Passive applications	

5.340			
167 - 174.5 GHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **INTER - SATELLITE** **MOBILE** 5.558 5.149 5.562D	FIXED FIXED - SATELLITE (space - to - Earth) INTER - SATELLITE MOBILE	– Passive applications	
174.5 - 174.8 GHz **FIXED** **INTER - SATELLITE** **MOBILE** 5.558	FIXED INTER - SATELLITE MOBILE	– Passive applications	
174.8 - 182 GHz **EARTH EXPLORATION - SATELLITE (passive)** **INTER - SATELLITE** 5.562H **SPACE RESEARCH (passive)**	EARTH EXPLORATION - SATELLITE (passive) INTER - SATELLITE SPACE RESEARCH (passive)	– Passive applications	
182 - 185 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Passive applications	
185 - 190 GHz **EARTH EXPLORATION - SATELLITE (passive)** **INTER - SATELLITE** 5.562H **SPACE RESEARCH (passive)**	EARTH EXPLORATION - SATELLITE (passive) INTER - SATELLITE SPACE RESEARCH (passive)	– Passive applications	
190 - 191.8 GHz **EARTH EXPLORATION - SATELLITE (passive)** **SPACE RESEARCH (passive)** 5.340	EARTH EXPLORATION - SATELLITE (passive) SPACE RESEARCH (passive)	– Passive applications	

191.8 - 200 GHz **FIXED** **INTER - SATELLITE** **MOBILE** 5.558 **MOBILE - SATELLITE** **RADIONAVIGATION** **RADIONAVIGATION - SATELLITE** 5.149 5.341 5.554	FIXED INTER - SATELLITE MOBILE 5.558 MOBILE - SATELLITE RADIONAVIGATION RADIONAVIGATION - SATELLITE		
200 - 209 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340 5.341 5.563A	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Radio astronomy applications – Earth Exploration observations	
209 - 217 GHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** **MOBILE** **RADIO ASTRONOMY** 5.149 5.341	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE RADIO ASTRONOMY	– Radio astronomy applications	
217 - 226 GHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** **MOBILE** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.562B 5.149 5.341	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive)		
226 - 231.5 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY**	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Radio astronomy applications – Passive applications	

SPACE RESEARCH (passive) 5.340			
231.5 - 232 GHz **FIXED** **MOBILE** **Radiolocation**	FIXED MOBILE Radiolocation		
232 - 235 GHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **MOBILE** **Radiolocation**	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE Radiolocation		
235 - 238 GHz **EARTH EXPLORATION - SATELLITE (passive)** **FIXED - SATELLITE (space -to- Earth)** **SPACE RESEARCH (passive)** 5.563A 5.563B	EARTH EXPLORATION - SATELLITE (passive) FIXED - SATELLITE (space - to - Earth) SPACE RESEARCH (passive)	– Radio astronomy applications – Passive applications	The band 237.9-238 GHz is also allocated to the Earth exploration-satellite service (active) and the space research service (active) for spaceborne cloud radars only (No. -5.563B)
238 - 240 GHz **FIXED** **FIXED - SATELLITE (space -to- Earth)** **MOBILE** **RADIOLOCATION** **RADIONAVIGATION** **RADIONAVIGATION - SATELLITE**	FIXED FIXED - SATELLITE (space - to - Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION - SATELLITE		
240 - 241 GHz **FIXED** **MOBILE** **RADIOLOCATION**	FIXED MOBILE RADIOLOCATION		
241 - 248 GHz **RADIO ASTRONOMY**	RADIO ASTRONOMY RADIOLOCATION Amateur	– Amateur applications – Amateur Satellite applications – Non-specific SRD within 244-246 GHz	

RADIOLOCATION **Amateur** **Amateur - satellite** 5.138 5.149	Amateur - satellite	– Radio astronomy applications	
248 - 250 GHz **AMATEUR** **AMATEUR - SATELLITE** **Radio astronomy** 5.149	AMATEUR AMATEUR - SATELLITE Radio astronomy	– Amateur applications – Amateur Satellite applications	
250 - 252 GHz **EARTH EXPLORATION - SATELLITE (passive)** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** 5.340 5.563A	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	– Earth Exploration observations	
252 - 265 GHz **FIXED** **MOBILE** **MOBILE - SATELLITE (Earth -to- space)** **RADIO ASTRONOMY** **RADIONAVIGATION** **RADIONAVIGATION - SATELLITE** 5.149 5.554	FIXED MOBILE MOBILE - SATELLITE (Earth - to - space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION - SATELLITE	– Radio Astronomy applications	
265 - 275 GHz **FIXED** **FIXED - SATELLITE (Earth -to- space)** **MOBILE** **RADIO ASTRONOMY** 5.149 5.563A	FIXED FIXED - SATELLITE (Earth - to - space) MOBILE RADIO ASTRONOMY		
275 - 3000GHz **(Not allocated)** 5.565	(Not allocated)		

QNFAP - PART 3
QATAR'S FOOTNOTES

Footnotes Relevant to Qatar

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

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

5.57 The use of the bands 14-19.95 kHz, 20.05-70 kHz and 70-90 kHz (72-84 kHz and 86-90 kHz in Region 1) by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only). Exceptionally, the use of class J2B or J7B emissions is authorized subject to the necessary bandwidth not exceeding that normally used for class A1A or F1B emissions in the band concerned.

5.60 In the bands 70-90 kHz (70-86 kHz in Region 1) and 110-130 kHz (112-130 kHz in Region 1), pulsed radionavigation systems may be used on condition that they do not cause harmful interference to other services to which these bands are allocated.

5.64 Only classes A1A or F1B, A2C, A3C, F1C or F3C emissions are authorized for stations of the fixed service in the bands allocated to this service between 90 kHz and 160 kHz (148.5 kHz in Region 1) and for stations of the maritime mobile service in the bands allocated to this service between 110 kHz and 160 kHz (148.5 kHz in Region 1). Exceptionally, class J2B or J7B emissions are also authorized in the bands between 110 kHz and 160 kHz (148.5 kHz in Region 1) for stations of the maritime mobile service.

5.73 The band 285-325 kHz (283.5-325 kHz in Region 1) in the maritime radionavigation service may be used to transmit supplementary navigational information using narrow-band techniques, on condition that no harmful interference is caused to radiobeacon stations operating in the radionavigation service.

5.74 Additional Allocation: in Region 1, the frequency band 285.3-285.7 kHz is also allocated to the maritime radionavigation service (other than radiobeacon) on a primary basis.

5.80A The maximum equivalent isotropically radiated power (e.i.r.p.) of stations in the amateur service using frequencies in the band 472-479 kHz shall not exceed 1 W. Administrations may increase this limit of e.i.r.p. to 5 W in portions of their territory which are at a distance of over 800 km from the borders of Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, China, Comoros, Djibouti, Egypt, United Arab Emirates, the Russian Federation, Iran (Islamic Republic of), Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Oman, Uzbekistan, Qatar, Syrian Arab Republic, Kyrgyzstan, Somalia, Sudan, Tunisia, Ukraine and Yemen. In this frequency band, stations in the amateur service shall not cause harmful interference to, or claim protection from, stations of the aeronautical radionavigation service.

5.80B The use of the frequency band 472-479 kHz in Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, China, Comoros, Djibouti, Egypt, United Arab Emirates, the Russian Federation, Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Mauritania, Oman, Uzbekistan, Qatar, Syrian Arab Republic, Kyrgyzstan, Somalia, Sudan, Tunisia and Yemen is limited to the maritime mobile and aeronautical radionavigation services. The amateur

service shall not be used in the above-mentioned countries in this frequency band, and this should be taken into account by the countries authorizing such use.

5.90 In the band 1 605-1 705 kHz, in cases where a broadcasting station of Region 2 is concerned, the service area of the maritime mobile stations in Region 1 shall be limited to that provided by ground-wave propagation.

5.92 Some countries of Region 1 use radiodetermination systems in the bands 1 606.5-1 625 kHz, 1 635-1 800 kHz, 1 850-2 160 kHz, 2 194-2 300 kHz, 2 502-2 850 kHz and 3 500-3 800 kHz, subject to agreement obtained under No. **9.21**. The radiated mean power of these stations shall not exceed 50 W.

5.100 In Region 1, the authorization to use the band 1 810-1 830 kHz by the amateur service in countries situated totally or partially north of 40° N shall be given only after consultation with the countries mentioned in Nos. **5.98** and **5.99** to define the necessary steps to be taken to prevent harmful interference between amateur stations and stations of other services operating in accordance with Nos. **5.98** and **5.99**.

5.103 In Region 1, in making assignments to stations in the fixed and mobile services in the bands 1 850-2 045 kHz, 2 194-2 498 kHz, 2 502-2 625 kHz and 2 650-2 850 kHz, administrations should bear in mind the special requirements of the maritime mobile service.

5.104 In Region 1, the use of the band 2 025-2 045 kHz by the meteorological aids service is limited to oceanographic buoy stations.

5.113 For the conditions for the use of the bands 2 300-2 495 kHz (2 498 kHz in Region 1), 3 200-3 400 kHz, 4 750-4 995 kHz and 5 005-5 060 kHz by the broadcasting service, see Nos. **5.16** to **5.20**, **5.21** and **23.3** to **23.10**.

5.133B Stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 15 W (e.i.r.p.). However, in Region 2 in Mexico, stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 20 W (e.i.r.p.). In the following Region 2 countries: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Dominica, El Salvador, Ecuador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela, as well as the overseas territories of the Netherlands in Region 2, stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 25 W (e.i.r.p.).

5.136 The band 5 900-5 950 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis, as well as to the following services: in Region 1 to the land mobile service on a primary basis, in Region 2 to the mobile except aeronautical mobile (R) service on a primary basis, and in Region 3 to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution **21 (Rev.WRC-95)**. After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.138 The following bands:

6 765-6 795 kHz (centre frequency 6 780 kHz),

433.05-434.79 MHz (centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. **5.280**,

61-61.5 GHz (centre frequency 61.25 GHz),

122-123 GHz (centre frequency 122.5 GHz), and

244-246 GHz (centre frequency 245 GHz)

are designated for industrial, scientific and medical (ISM) applications. The use of these frequency bands for ISM applications shall be subject to special authorization by the administration concerned, in agreement with other administrations whose radiocommunication services might be affected. In applying this provision, administrations shall have due regard to the latest relevant ITU-R Recommendations.

5.138A Until 29 March 2009, the band 6 765-7 000 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. After this date, this band is allocated to the fixed and the mobile except aeronautical mobile (R) services on a primary basis.

5.141B Additional allocation: in Algeria, Saudi Arabia, Australia, Bahrain, Botswana, Brunei Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United Arab Emirates, Eritrea, Guinea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, Libya, Mali, Morocco, Mauritania, Niger, New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, Singapore, Sudan, South Sudan, Tunisia, Viet Nam and Yemen, the frequency band 7 100-7 200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R),services on a primary basis.

5.141C In Regions 1 and 3, the band 7 100-7 200 kHz is allocated to the broadcasting service until 29 March 2009 on a primary basis.

5.142 Until 29 March 2009, the use of the band 7 100-7 300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. After 29 March 2009 the use of the band 7 200-7 300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.

5.143B In Region 1, the band 7 350-7 450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, on condition that harmful interference is not caused to the broadcasting service, frequencies in the band 7 350-7 450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located, each station using a total radiated power that shall not exceed 24 dBW.

5.143C Additional allocation: in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), Jordan, Kuwait, Libya, Morocco, Mauritania, Niger, Oman, Qatar, the Syrian Arab Republic, Sudan, South Sudan, Tunisia and Yemen, the bands 7 350-7 400 kHz and 7 400-7 450 kHz are also allocated to the fixed service on a primary basis.

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

13 360-13 410 kHz,

25 550-25 670 kHz,

37.5-38.25 MHz,

73-74.6 MHz in Regions 1 and 3,

150.05-153 MHz in Region 1,

322-328.6 MHz,

406.1-410 MHz,

608-614 MHz in Regions 1 and 3,

1 330-1 400 MHz,

1 610.6-1 613.8 MHz,

1 660-1 670 MHz,

1 718.8-1 722.2 MHz,

2 655-2 690 MHz,

3 260-3 267 MHz,

3 332-3 339 MHz,

3 345.8-3 352.5 MHz,

4 825-4 835 MHz,

4 950-4 990 MHz,

4 990-5 000 MHz,

6 650-6 675.2 MHz,

10.6-10.68 GHz,

14.47-14.5 GHz,

22.01-22.21 GHz,

22.21-22.5 GHz,

22.81-22.86 GHz,

23.07-23.12 GHz,

31.2-31.3 GHz,

31.5-31.8 GHz in Regions 1 and 3,

36.43-36.5 GHz,

42.5-43.5 GHz,

42.77-42.87 GHz,

43.07-43.17 GHz,

43.37-43.47 GHz,

48.94-49.04 GHz,

76-86 GHz,

92-94 GHz,

94.1-100 GHz,

102-109.5 GHz,

111.8-114.25 GHz,

128.33-128.59 GHz,

129.23-129.49 GHz,

130-134 GHz,

136-148.5 GHz,

151.5-158.5 GHz,

168.59-168.93 GHz,

171.11-171.45 GHz,

172.31-172.65 GHz,

173.52-173.85 GHz,

195.75-196.15 GHz,

209-226 GHz,

241-250 GHz,

252-275 GHz

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

5.203A Additional allocation: in Israel, Mauritania, Qatar and Zimbabwe, the band 136-137 MHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a secondary basis until 1 January 2005.

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

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

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

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

5.247 Additional allocation: in Saudi Arabia, Bahrain, the United Arab Emirates, Jordan, Oman, Qatar and Syrian Arab Republic, the band 223-235 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

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

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

5.268 Use of the frequency band 410-420 MHz by the space research service is limited to space-to-space communication links with an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from transmitting stations of the space research service (space-to-space) in the frequency band 410-420 MHz shall not exceed −153 dB(W/m2) for $0° \leq \sigma \leq 5°$, $-153 + 0.077 (\sigma - 5)$ dB(W/m2) for $5° \leq \sigma \leq 70°$ and −148 dB(W/m2) for $70° \leq \sigma \leq 90°$, where is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. In this frequency band, stations of the space research service (space-to-space) shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. No. 4.10 does not apply.

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

5.296 Additional allocation: in Albania, Germany, Angola, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Vatican, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Djibouti, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Gabon, Georgia, Ghana, Hungary, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kenya, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malawi, Mali, Malta, Morocco, Mauritius, Mauritania, Moldova, Monaco, Mozambique, Namibia, Niger, Nigeria, Norway, Oman, Uganda, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, the Czech Republic, the United Kingdom, Rwanda, San Marino, Serbia, Sudan, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe, the frequency band 470-694 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting and programme-making. Stations of the land mobile service in the

countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote.

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

5.306 Additional allocation: in Region 1, except in the African Broadcasting Area (see Nos. **5.10** to **5.13**), and in Region 3, the band 608-614 MHz is also allocated to the radio astronomy service on a secondary basis.

5.312A In Region 1, the use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution COM4/4 (WRC-15). See also Resolution 224 (Rev.WRC-15).

5.316A Additional allocation: in Spain, France, Gabon and Malta, the band 790-830 MHz, in Albania, Angola, Bahrain, Benin, Botswana, Burundi, Congo (Rep. of the), Egypt, United Arab Emirates, Estonia, Gambia, Ghana, Guinea, Guinea-Bissau, Hungary, Iraq, Kuwait, Lesotho, Latvia, Lebanon, Lithuania, Luxembourg, Malawi, Morocco, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Poland, Qatar, Slovakia, Czech Rep., Romania, Rwanda, Senegal, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Yemen, Zambia, Zimbabwe and French overseas departments and communities of Region 1, the band 790-862 MHz and in Georgia, the band 806- 862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis subject to the agreement by the administrations concerned obtained under No. 9.21 and under the GE06 Agreement, as appropriate, including those administrations mentioned in No. 5.312, where appropriate. See Resolutions 224 (Rev.WRC-12) and 749 (Rev.WRC-12). This allocation is effective until 16 June 2015.

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

5.317A The parts of the frequency band 698-960 MHz in Region 2 and the frequency bands 694-790 MHz in Region 1 and 790-960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolutions 224 (Rev.WRC-15), COM4/4 (WRC-15) and 749 (Rev.WRC-15), where applicable. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations.

5.322 In Region 1, in the band 862-960 MHz, stations of the broadcasting service shall be operated only in the African Broadcasting Area (see Nos. **5.10** to **5.13**) excluding Algeria, Egypt, Spain, the Libyan Arab Jamahiriya, Morocco, Namibia, Nigeria, South Africa, Tanzania, Zimbabwe and Zambia, subject to agreement obtained under No. **9.21**.

5.327A The use of the frequency band 960-1 164 MHz by the aeronautical mobile (R) service is limited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution 417 (Rev.WRC-15).

5.328AA The frequency band 1 087.7-1 092.3 MHz is also allocated to the aeronautical mobile-satellite (R) service (Earth-to-space) on a primary basis, limited to the space station reception of Automatic Dependent Surveillance-Broadcast (ADS-B) emissions from aircraft transmitters that operate in accordance with recognized international aeronautical standards. Stations operating in the aeronautical mobile-satellite (R) service shall not claim protection from stations operating in the aeronautical radionavigation service. Resolution 425 (WRC-15) shall apply.**5.341A** In Region 1, the frequency bands 1 427-1 452 MHz and 1 492-1 518 MHz are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC-15). This identification does not preclude the use of these frequency bands by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of IMT stations is subject to agreement obtained under No. 9.21 with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. 5.342.

5.346 In Angola, Botswana, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Gambia, Liberia, Madagascar, Malawi, Mali, Mozambique, Senegal, Zambia, Mauritius, Seychelles, Burundi, Kenya, Rwanda, Tanzania, Uganda, Gabon, Guinea, Burkina Faso, Ghana, Benin, Cameroon, South Africa, Jordan, Kuwait, Lesotho, Lebanon, Niger, Nigeria, Oman, Sudan, South Sudan, Zimbabwe, Togo, Palestine*, Qatar, Morocco, Swaziland, Namibia, Mauritania, Bahrain, Djibouti, Egypt, Algeria, Saudi Arabia, United Arab Emirates and Iraq, the frequency band 1 452-1 492 MHz is identified for use by administrations listed above wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC-15). This identification does not preclude the use of this frequency band by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained under No. 9.21 with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. 5.342.

5.330 Additional allocation: in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Japan, Jordan, Kuwait, Lebanon, Mozambique, Nepal, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the band 1 215-1 300 MHz is also allocated to the fixed and mobile services on a primary basis.

5.331 Additional allocation: in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, Pakistan, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea,

Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sudan, South Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the band 1 215-1 300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the band 1 240-1 300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service.

5.338A In the frequency bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz, 51.4-52.6 GHz, 81-86 GHz and 92-94 GHz, Resolution 750 (Rev.WRC-15) applies.

5.349 Different category of service: in Saudi Arabia, Azerbaijan, Bahrain, Bosnia and Herzegovina, Cameroon, Egypt, France, Iran (Islamic Republic of), Iraq, Israel, Kazakhstan, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Morocco, Qatar, Syrian Arab Republic, Kyrgyzstan, Romania, Serbia and Montenegro, Turkmenistan and Yemen, the allocation of the band 1 525-1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**).

5.352A In the frequency band 1 525-1 530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in Algeria, Saudi Arabia, Egypt, France and French overseas communities of Region 3, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Viet Nam and Yemen notified prior to 1 April 1998.

5.355 Additional allocation: in Bahrain, Bangladesh, Congo (Rep. of the), Egypt, Eritrea, Iraq, Israel, Kuwait, Lebanon, Malta, Qatar, Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the bands 1 540-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a secondary basis.

5.362C Additional allocation: in Bahrain, Bangladesh, Congo (Rep. of the), Egypt, Eritrea, Iraq, Israel, Jordan, Kuwait, Lebanon, Malta, Morocco, Qatar, the Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the band 1 559-1 610 MHz is also allocated to the fixed service on a secondary basis until 1 January 2015, at which time this allocation shall no longer be valid. Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and not authorize new frequency assignments to fixed-service systems in this band.

5.371 Additional allocation: in Region 1, the bands 1 610-1 626.5 MHz (Earth-to-space) and 2 483.5-2 500 MHz (space-to-Earth) are also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. **9.21**.

5.382 Different category of service: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Iraq, Israel, Jordan, Kazakhstan, Kuwait, the Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Turkmenistan, Ukraine and Yemen, the allocation of the frequency band 1 690-1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33), and in the Dem. People's Rep. of Korea,

the allocation of the frequency band 1 690-1 700 MHz to the fixed service is on a primary basis (see No. 5.33) and to the mobile, except aeronautical mobile, service on a secondary basis.

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

5.391 In making assignments to the mobile service in the frequency bands 2 025-2 110 MHz and 2 200-2 290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154-0, and shall take that Recommendation into account for the introduction of any other type of mobile system.

5.399 In Region 1, in countries other than those listed in No. **5.400**, harmful interference shall not be caused to, or protection shall not be claimed from, stations of the radiolocation service by stations of the radiodetermination satellite service.

5.410 The band 2 500-2 690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. **9.21**.

5.415 The use of the bands 2 500-2 690 MHz in Region 2 and 2 500-2 535 MHz and 2 655-2 690 MHz in Region 3 by the fixed-satellite service is limited to national and regional systems, subject to agreement obtained under No. **9.21**, giving particular attention to the broadcasting-satellite service in Region 1. In the direction space-to-Earth, the power flux-density at the Earth's surface shall not exceed the values given in Article **21**, Table **21-4**.

5.422 Additional allocation: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Brunei Darussalam, Congo (Rep. of the), Côte d'Ivoire, Cuba, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Mauritania, Mongolia, Montenegro, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, the Dem. Rep. of the Congo, Romania, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine and Yemen, the band 2 690-2 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985..

5.429 Additional allocation: in Saudi Arabia, Bahrain, Bangladesh, Benin, Brunei Darussalam, Cambodia, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Egypt, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Sudan and Yemen, the frequency band 3 300-3 400 MHz is also allocated to the

fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service.

5.430A Different category of service: in Albania, Algeria, Germany, Andorra, Saudi Arabia, Austria, Azerbaijan, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cameroon, Cyprus, Vatican, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Egypt, Spain, Estonia, Finland, France and French overseas departments and communities in Region 1, Gabon, Georgia, Greece, Guinea, Hungary, Ireland, Iceland, Israel, Italy, Jordan, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Malawi, Mali, Malta, Morocco, Mauritania, Moldova, Monaco, Mongolia, Montenegro, Mozambique, Namibia, Niger, Norway, Oman, Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Senegal, Serbia, Sierra Leone, Slovenia, South Africa, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe, the band 3 400-3 600 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis subject to agreement obtained under No. 9.21 with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m2 · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). This allocation is effective from 17 November 2010.

5.436 Use of the frequency band 4 200-4 400 MHz by stations in the aeronautical mobile (R) service is reserved exclusively for wireless avionics intra-communication systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution 424 (WRC-15).

5.438 Use of the frequency band 4 200-4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground.

5.444A The use of the allocation to the fixed-satellite service (Earth-to-space) in the frequency band 5 091-5 150 MHz is limited to feeder links of non-geostationary satellite systems in the mobile-satellite service and is subject to coordination under No. 9.11A. The use of the frequency band 5 091-5 150 MHz by feeder links of non-geostationary satellite systems in the mobile-satellite service shall be subject to application of Resolution 114 (Rev.WRC-15). Moreover, to ensure that the aeronautical radionavigation service is protected from harmful interference, coordination is required for feeder-link earth stations of the non-geostationary satellite

systems in the mobile-satellite service which are separated by less than 450 km from the territory of an administration operating ground stations in the aeronautical radionavigation service.

5.444B The use of the frequency band 5 091-5 150 MHz by the aeronautical mobile service is limited to: – systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution 748 (Rev.WRC-15); – aeronautical telemetry transmissions from aircraft stations (see No. 1.83) in accordance with Resolution 418 (Rev.WRC-15).

5.446 Additional allocation: in the countries listed in Nos. **5.369** and **5.400**, the band 5 150-5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **9.21**. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. **5.369** and **5.400**, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1 610-1 626.5 MHz and/or 2 483.5-2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed –159 dB (W/m^2) in any 4 kHz band for all angles of arrival.

5.446C Additional allocation: in Region 1 (except in Algeria, Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan, South Sudan and Tunisia) and in Brazil, the band 5 150-5 250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations (see No. 1.83), in accordance with Resolution 418 (Rev.WRC-12). These stations shall not claim protection from other stations operating in accordance with Article 5. No. 5.43A does not apply.

5.447F In the frequency band 5 250-5 350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU-R M.1638-0 and ITU-R RS.1632-0. (WRC-15)

5.450A In the frequency band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU-R M.1638-0.

5.453 Additional allocation: in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Niger, Nigeria, Oman, Uganda, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Swaziland, Tanzania, Chad,

Thailand, Togo, Viet Nam and Yemen, the band 5 650-5 850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution 229 (Rev.WRC-12) do not apply.

5.457B In the frequency bands 5 925-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution 902 (WRC-03) in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Jordan, Kuwait, Libya, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Sudan, Tunisia and Yemen, in the maritime mobile-satellite service on a secondary basis. Such use shall be in accordance with Resolution 902 (WRC-03).

5.461AA The use of the frequency band 7 375-7 750 MHz by the maritime mobile-satellite service is limited to geostationary-satellite networks.

5.461AB In the frequency band 7 375-7 750 MHz, earth stations in the maritime mobile-satellite service shall not claim protection from, nor constrain the use and development of, stations in the fixed and mobile, except aeronautical mobile, services. No. 5.43A does not apply.

5.462A In Regions 1 and 3 (except for Japan), in the band 8 025-8 400 MHz, the Earth exploration-satellite service using geostationary satellites shall not produce a power flux-density in excess of the following provisional values for angles of arrival (θ), without the consent of the affected administration:

-174 dB (W/m^2) in a 4 kHz band	for	$0^\circ \leq \theta < 5^\circ$
$-174 + 0.5\,(\theta - 5)$ dB (W/m^2) in a 4 kHz band	for	$5^\circ \leq \theta < 25^\circ$
-164 dB (W/m^2) in a 4 kHz band	for	$25^\circ \leq \theta \leq 90^\circ$

These values are subject to study under Resolution **124**

5.468 In Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Djibouti, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Sudan, Swaziland, Chad, Togo, Tunisia and Yemen, the frequency band 8 500-8 750 MHz is also allocated to the fixed and mobile services on a primary basis.

5.471 Additional allocation: in Algeria, Germany, Bahrain, Belgium, China, Egypt, the United Arab Emirates, France, Greece, Indonesia, Iran (Islamic Republic of), Libya, the Netherlands, Qatar and Sudan, the frequency bands 8 825-8 850 MHz and 9 000-9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only.

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

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

5.474D Stations in the Earth exploration-satellite service (active) shall not cause harmful interference to, or claim protection from, stations of the maritime radionavigation and radiolocation services in the frequency band 9 200-9 300 MHz, the radionavigation and radiolocation services in the frequency band 9 900-10 000 MHz and the radiolocation service in the frequency band 10.0-10.4 GHz.

5.477 Different category of service: in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Trinidad and Tobago, and Yemen, the allocation of the frequency band 9 800-10 000 MHz to the fixed service is on a primary basis (see No. 5.33).

5.482 In the band 10.6-10.68 GHz, the power delivered to the antenna of stations of the fixed and mobile, except aeronautical mobile, services shall not exceed -3 dBW. This limit may be exceeded, subject to agreement obtained under No. 9.21. However, in Algeria, Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, Egypt, United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Moldova, Nigeria, Oman, Uzbekistan, Pakistan, Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, Singapore, Tajikistan, Tunisia, Turkmenistan and Viet Nam, this restriction on the fixed and mobile, except aeronautical mobile, services is not applicable.

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

5.484 In Region 1, the use of the band 10.7-11.7 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.

5.484A The use of the bands 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 13.75-14.5 GHz (Earth-to-space), 17.8-18.6 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), 29.5-30 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as

appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

5.484B Resolution **155 (WRC-15)** shall apply.

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

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

5.492 Assignments to stations of the broadcasting-satellite service which are in conformity with the appropriate regional Plan or included in the Regions 1 and 3 List in Appendix **30** may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference, or require more protection from interference, than the broadcasting-satellite service transmissions operating in conformity with the Plan or the List, as appropriate.

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

5.496 Additional allocation: in Austria, Azerbaijan, Kyrgyzstan and Turkmenistan, the band 12.5-12.75 GHz is also allocated to the fixed service and the mobile, except aeronautical mobile, service on a primary basis. However, stations in these services shall not cause harmful interference to fixed-satellite service earth stations of countries in Region 1 other than those listed in this footnote. Coordination of these earth stations is not required with stations of the fixed and mobile services of the countries listed in this footnote. The power

flux-density limit at the Earth's surface given in Table **21-4** of Article **21**, for the fixed-satellite service shall apply on the territory of the countries listed in this footnote.

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

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

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

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

– active spaceborne sensors,

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

Other uses of the frequency band by the space research service are on a secondary basis.

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

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

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

5.501A The allocation of the frequency band 13.65-13.75 GHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the frequency band by the space research service are on a secondary basis.

5.505 Additional allocation: in Algeria, Saudi Arabia, Bahrain, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Djibouti, Egypt, the United Arab Emirates, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, 50 Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Swaziland, Chad, Viet Nam and Yemen, the frequency band 14-14.3 GHz is also allocated to the fixed service on a primary basis.

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

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

5.509D Before an administration brings into use an earth station in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service in the frequency bands 14.5-14.75 GHz (in countries listed in Resolution 163 (WRC-15)) and 14.5-14.8 GHz (in countries listed in Resolution 164 (WRC-15)), it shall ensure that the power flux-density produced by this earth station does not exceed −151.5dB(W/(m2·4 kHz)) produced at all altitudes from 0 m to 19 000 m above sea level at 22 km seaward from all coasts, defined as the low-water mark, as officially recognized by each coastal State.

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

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

5.510 Except for use in accordance with Resolution 163 (WRC-15) and Resolution 164 (WRC-15), the use of the frequency band 14.5-14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the

broadcasting-satellite service. This use is reserved for countries outside Europe. Uses other than feeder links for the broadcasting-satellite service are not authorized in Regions 1 and 2 in the frequency band 14.75-14.8 GHz.

5.511 Additional allocation: in Saudi Arabia, Bahrain, Cameroon, Egypt, the United Arab Emirates, Guinea, Iran (Islamic Republic of), Iraq, Israel, Kuwait, Lebanon, Oman, Pakistan, Qatar, the Syrian Arab Republic and Somalia, the band 15.35-15.4 GHz is also allocated to the fixed and mobile services on a secondary basis.

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

5.514 5.514 Additional allocation: in Algeria, Saudi Arabia, Bahrain, Bangladesh, Cameroon, El Salvador, the United Arab Emirates, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kuwait, Libya, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, 52 Pakistan, Qatar, Kyrgyzstan, Sudan and South Sudan, the frequency band 17.3-17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. 21.3 and 21.5 shall apply.

5.516 The use of the band 17.3-18.1 GHz by geostationary-satellite systems in the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. The use of the band 17.3-17.8 GHz in Region 2 by systems in the fixed-satellite service (Earth-to-space) is limited to geostationary satellites. For the use of the band 17.3-17.8 GHz in Region 2 by feeder links for the broadcasting-satellite service in the band 12.2-12.7 GHz, see Article **11**. The use of the bands 17.3-18.1 GHz (Earth-to-space) in Regions 1 and 3 and 17.8-18.1 GHz (Earth-to-space) in Region 2 by non-geostationary-satellite systems in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

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

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

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

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

5.522C In the band 18.6-18.8 GHz, in Algeria, Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, the Libyan Arab Jamahiriya, Jordan, Lebanon, Morocco, Oman, Qatar, the Syrian Arab Republic, Tunisia and Yemen, fixed-service systems in operation at the date of entry into force of the Final Acts of WRC-2000 are not subject to the limits of No. **21.5A**.

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

5.527A The operation of earth stations in motion communicating with the FSS is subject to Resolution156 (WRC-15).

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

5.542 Additional allocation: in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **21.3** and **21.5** shall apply.

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

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

QNFAP - PART 4
Appendices and Annexes

Appendix 1: List of Specific Assignments

Frequency Range (MHz)	Uplink (Terminal-Bas) (MHz)	Downlink (Bas-Terminal) (MHz)	Applications
87.5 – 108			Broadcast / FM
118 – 136			Aeronautical
156 – 163			Maritime
174 – 230			DVB-T
330 – 350	330 – 340	340 – 350	TMR / PMR
350 – 370	350 – 360	360 – 370	PMR / TETRA
380 – 400	380 – 390	390 – 400	PMR / TETRA
410 – 430	410 – 420	420 – 430	PMR / DMR / TETRA
450 – 470	450 – 460	460 – 470	PMR / Telemetry
457.5375 & 467.5375			UHF on-board vessel communications
470 – 694			DVB
790 – 862	790 – 821	832 – 862	Mobile / LTE
876 – 925	876 – 880	921 – 925	GSM-R
880 – 960	880 – 915	925 – 960	Mobile / E-GSM
960 – 1215			DME
1350 – 1530	1375 – 1400	1427 – 1452	Fixed Links
1710 – 1880	1710 – 1785	1805 – 1880	Mobile / DCS
1900 – 2700			Wireless Cameras
1920 – 2170	1920 – 1980	2110 – 2170	Mobile / UMTS
2400 – 24835			Fixed links (Light Licensed)

2500 – 2690	2500 – 2570	2620 – 2690	Mobile / LTE
3400 – 3600	3400 – 3500	3500 – 3600	WiMAX
5725 – 5875			Fixed Links (Light Licensed)
5875 - 5925			Intelligent Transport Systems (ITS)
5925 – 6425	5925 – 6175	6175 – 6425	Fixed Links
6425 – 7125	6425 – 6770	6770 – 7125	Fixed Links
7110 – 7750	7110 – 7275 & 7597 – 7750	7275 – 7597	Fixed Links
7125 – 7425	7125 – 7268	7282 – 7425	Fixed Links
7425 - 7725	7425 – 7568	7582 – 7725	Fixed Links
7725 – 8275	7725 – 8000	8000 – 8275	Fixed Links
7900 – 8400	7900 – 8157	8157 – 8400	Fixed Links
8275 – 8500	8275 – 8387.5	8387.5 – 8500	Fixed Links
10150 – 10300 / 10500 – 10650	10150 – 10300	10500 – 10650	Fixed Links
10700 – 11700	10700 – 11200	11200 – 11700	Fixed Links
11700 – 12500	11700 – 12100	12100 – 12500	Fixed Links
12750 – 13250	12750 – 12996	12996 – 13250	Fixed Links
14400 – 15350	14400 – 14875	14875 – 15350	Fixed Links
17700 – 19700	17700 – 18700	18700 – 19700	Fixed Links
21200 – 23600	22000 – 22600	23000 – 23600	Fixed Links
24500 – 26500	24500 – 25445	25557 – 26500	Fixed Links
31000 – 31300	31000 – 31150	31150 – 31300	Fixed Links
37000 – 39500	37000 – 38248	38248 – 39500	Fixed Links

Appendix 2: List of frequency bands for SRD applications

Frequency Range	Applications	Standard Reference
9 – 148.5 kHz	Inductive SRD Applications	EN 300 330-2
9 – 315 kHz	Healthcare and Listening Devices	EN 302 195-1
133 kHz	Inductive SRD Vehicle Fitted Radio Equipment	EN 300 220-1
134 kHz	Inductive SRD Vehicle Fitted Radio Equipment	EN 300 220-1
3155 kHz – 3400 kHz	Inductive Applications Vehicle Fitted Radio Equipment	EN 300 330
6765 kHz – 6795 kHz	Non-Specific Short Range Devices	EN 300 330
6765 kHz – 6795 kHz	Inductive SRD Applications	EN 300 330
7400 kHz – 8800 kHz	Inductive SRD Applications	EN 300 330
13 533 kHz – 13 567 kHz	Non-Specific Short Range Devices	EN 300 330-2
13 533 kHz – 13 567 kHz	Inductive SRD Vehicle Fitted Radio Equipment	EN 300 330-2
13 533 kHz – 13 567 kHz	Radio Frequency Identification Equipment (RFID)	EN 302 291
26 957 kHz – 27 283 kHz	Non-Specific Short Range Devices	EN 300 330
26 957 kHz – 27 283 kHz	Inductive SRD Applications Remote Control	EN 300 220-1
26 957 kHz – 27 283 kHz	Wireless Audio Applications	EN 301 357-1
27 995 kHz	Model Control	EN 300 330-2
27 045 kHz	Model Control	EN 300 330-2
27 095 kHz	Model Control	EN 300 330-2 EN 300 220-1

30 MHz – 37.5 MHz	Healthcare and Listening Devices	EN 302 510-2
34.995 MHz – 35.225 MHz	Model Control	EN 300 330-2
40.66 MHz – 40.7 MHz	Non-Specific Short Range Devices	EN 300 220-1
87.5 MHz – 108 MHz	Audio Applications	EN 301 357-1
173.965 MHz – 174.015 MHz	Healthcare and Listening Devices	EN 300 422-1
315 MHz	Inductive SRD Vehicle Fitted Radio Equipment	EN 300 220-1
401 MHz – 406 MHz	Healthcare and Listening Devices	EN 301 839 EN 302 537
433.05 MHz – 434.79 MHz	Non-Specific Short Range Devices	EN 300 220-1
433.05 MHz – 434.79 MHz	Inductive SRD Vehicle Fitted Radio Equipment	EN 300 220-1
433.05 MHz – 434.79 MHz	Non-Specific Short Range Devices Falcon or Bird Tracking	EN 300 220-1
458.95 MHz	Inductive SRD Vehicle Fitted Radio Equipment	EN 300 220-1
470 MHz – 786 MHz	Wireless Audio Applications Wireless microphone systems	EN 300 422-1
786 MHz – 789 MHz	Wireless Audio Applications Wireless microphone systems	EN 300 422-1
786 MHz – 862 MHz	Wireless Audio Applications Wireless microphone systems	EN 300 422-1
823 MHz – 826 MHz	Wireless Audio Applications Wireless microphone systems	EN 300 422-1
826 MHz – 832 MHz	Wireless Audio Applications Wireless microphone systems	EN 300 422-1

863 MHz – 865 MHz	Wireless Audio Applications	EN 301 357-1
865.6 MHz – 867.6 MHz	Radio Frequency Identification Equipment (RFID)	EN 302 208
868 MHz – 868.6 MHz	Non-Specific Short Range Devices	EN 300 220-1
868.7 MHz – 869.2 MHz	Non-Specific Short Range Devices	EN 300 220-1
869.4 MHz – 869.65 MHz	Non-Specific Short Range Devices	EN 300 220-1
869.7 MHz – 870 MHz	Non-Specific Short Range Devices	EN 300 220-1
1575.42 MHz	Vehicle Fitted Radio Equipment GPS Receiver	EN 301 489-1
Below 1000 MHz-1600 MHz	Ultra-Wide Band Technology Applications	EN 302 065
1600 MHz – 2700 MHz	Ultra-Wide Band Technology Applications	EN 302 065
1795 MHz – 1800 MHz	Wireless Audio Applications	EN 301 357-1
1880 MHz – 1900 MHz	Digital Enhanced Cordless Telecommunications (DECT)	EN 300 175
2400 MHz – 2483.5 MH	Non-Specific Short Range Devices WLAN	EN 300 228
2400 MHz – 2483.5 MHz	ISM Cordless Phones	EN 300 440
2446 MHz – 2454 MHz	Radio Frequency Identification Equipment (RFID)	EN 300 440
2700 MHz – 3400 MHz	Ultra-Wide Band Technology Applications	EN 302 065
3100 MHz – 4800 MHz	Ultra-Wide Band Technology Applications	EN 302 065
4800 MHz – 6000 MHz	Ultra-Wide Band Technology Applications	EN 302 065
5725 MHz – 5875 MHz	Non-Specific Short Range Devices WLAN	EN 300 440
5795 MHz – 5805 MHz	Road Transport & Traffic Telematics	EN 300 674
5805 MHz – 5815 MHz	Road Transport & Traffic Telematics	EN 200 674

6000 MHz – 8500 MHz	Ultra-Wide Band Technology Applications	EN 302 065
8500 MHz – 10600 MHz	Ultra-Wide Band Technology Applications	EN 302 065
Above 10600 MHz	Ultra-Wide Band Technology Applications	EN 302 065
24 GHz – 24.25 GHz	Automotive Short Range Radar	EN 300 440
24.05 GHz – 24.25 GHz	Radio-determination & Detection Applications	EN 302 288-1
24.150 GHz – 24.250 GHz	Road Transport & Traffic Telematics	EN 302 858-1
57 GHz – 64 GHz	Radio-determination & Detection Applications	EN 302 372
61 GHz – 61.5 GHz	Non-Specific Short Range Devices Radio-determination & Detection Applications	EN 305 550
75 GHz – 85 GHz	Radio-determination & Detection Applications	EN 302 372
76 GHz – 77 GHz	Road Transport & Traffic Telematics	EN 301 091
76 GHz – 77 GHz	Road Transport & Traffic Telematics Vehicle Fitted Radio Equipment	EN 301 091
122 GHz – 123 GHz	Non-Specific Short Range Devices	EN 305 550
244 GHz – 246 GHz	Non-Specific Short Range Devices	EN 305 550

Appendix 3: Harmonized frequency ranges / frequency spots

Maritime Service

Frequency	Applications	Notes
415 kHz –27.5 MHz	MF and HF Maritime mobile communications (including DSC)	Ship Radio Station (SOLAS)
156 – 163 MHz	VHF maritime mobile communications (including DSC)	Ship Radio Station (SOLAS) Ship Radio Station (non-SOLAS)
2900-3100 MHz 5460-5650 MHz 9200-9500 MHz	Radar for Radionavigation	Ship Radio Station (SOLAS) Ship Radio Station (non-SOLAS) (Only in sea Area A1)
156 – 163 MHz	VHF Portable mobile communications (including optional associated equipment for class D DSC)	Ship Radio Station (SOLAS) Ship Radio Station (non-SOLAS)
156 – 163 MHz	AIS in VHF band	Ship Radio Station (SOLAS) Ship Radio Station (non-SOLAS)
457.5375 –467.5375 MHz	UHF on-board mobile communications	Ship Radio Station (SOLAS) Ship Radio Station (non-SOLAS)
14.00-14.5 GHz (Uplink) 29.5-30 GHz (Uplink)	Earth Station on board vessels (ESoV)	Ship Radio Station (SOLAS)
1626.5 -1645.5 MHz (Uplink)	Mobile Satellite Terminals (used for GMDSS)	Ship Radio Station (SOLAS)
1 644.3-1 644.5 MHz & 1 645.5-1 646.5 MHz	Satellite EPIRB	Ship Radio Station (SOLAS)
157.200-157.325 MHz 161.800-161.925 MHz	VHF Data Exchange System (VDES)	Ship Radio Station (SOLAS) Ship Radio Station (non-SOLAS)

Aeronautical Service

Frequency	Applications	Notes
255 – 283.5, 283.5 – 315, 315 – 325, 325 – 405, 415 – 435, 435 – 495, 505 – 526.5, 53.5, 579.5, 850, 897, 949 kHz.	Non-directional beacons	Beacons for radionavigation
75 MHz	VHF marker beacons	Beacons for radionavigation
328.6 – 335.4 MHz	ILS glide path transmitter	Instrument landing systems for radionavigation
108 – 111.975 MHz	ILS localiser radio equipment	Instrument landing systems for radionavigation
5000 – 5150 MHz	Microwave landing system (MLS)	Instrument landing systems for radionavigation
108 – 117.975 MHz	VHF Omni directional radio range equipment and Doppler VHF Omni directional radio range equipment (VOR/DVOR)	Instrument landing systems for radionavigation
960 – 1215 MHz	Ground based distance measuring equipment (DME)	Instrument landing systems for radionavigation
2850 – 3025 kHz 3400 – 3500 kHz 4650 – 4700 kHz 5480 – 5680 kHz 6525 – 6685 kHz 8815 – 8965 kHz 8965 – 10100 kHz 11175 – 11400 kHz 13200 – 13360 kHz 17900 – 17970 kHz 21924 – 22000 kHz	Fixed HF Stations	Ground based HF SSB for voice and data link communications for AGA civil and SAR (Search and Rescue) applications

118 – 137 MHz	Air-ground / Ground-air communications	AGA civil communications for Mode 2 and / or Mode 4 data links
1215 – 1350 MHz 2700 – 3100 MHz	Primary Radars	Air traffic control primary radar
960 – 1215 MHz	Secondary Surveillance Radar	Air traffic control secondary surveillance radar monitoring

Appendix 4: Frequency Allotment Plan

Exclusive Frequency Allotment Plan for the Aeronautical Mobile (OR) Service

APPENDIX 26 (REV.WRC-15)

Following carrier frequencies would be exclusively used in Qatar for Aeronautical mobile (OR) service:

S. No.	Frequencies (kHz)
1	3083
2	3933
3	4727
4	5705
5	6703
6	9028
7	11232
8	13227
9	15040
10	18027
The carrier (reference) frequencies 3 023 kHz and 5 680 kHz are intended for worldwide common use	

Note:

i. A bandwidth of up to a maximum of 2.8 kHz, situated wholly within the frequency channel concerned should be utilizable.

ii. Power limits, class of emission and limits to unwanted emission shall be in accordance with the Appendix 26 and Appendix 27 of the Radio Regulations 2012.

iii. The frequencies should only be used for Telephony {J3E (SSB, suppressed carrier) } and Telegraphy (including Automatic Data transmission) {A1A, A1B, F1B; (A,H)2(A,B); (R,J)2(A,B,D); J(7,9)(B,D,X)}.

Frequency Allotment Plan for the Aeronautical Mobile (R) Service

National Plan is in strict accordance with the **Appendix 27** of the RR-2012. The Maps, region marking, class of emission, Frequencies, spurious emission limits, and Bandwidth limitations remain the same.

Frequencies for distress and safety communications for the Global Maritime Distress and Safety System (GMDSS)

APPENDIX 15 (REV.WRC-15)

The frequencies to be used exclusively for Global Maritime Distress and Safety System (GMDSS) communications are given below:

A. Frequencies below 30 MHz

Frequency (kHz)	Description of Usage	Notes
490	MSI	The frequency 490 kHz is used exclusively for maritime safety information (MSI). (WRC-03)
518	MSI	The frequency 518 kHz is used exclusively by the international NAVTEX system.
***2 174.5**	NBDP-COM	
***2 182**	RTP-COM	The frequency 2 182 kHz uses class of emission J3E. See also No. 52.190.
***2 187.5**	DSC	
3 023	AERO-SAR	The aeronautical carrier (reference) frequencies 3 023 kHz and 5 680 kHz may be used for intercommunication between mobile stations engaged in coordinated search and rescue operations, and for communication between these stations and participating land stations, in accordance with the provisions of Appendix **27** (see Nos. 5.111 and 5.115).
***4 125**	RTP-COM	See also No. 52.221. The carrier frequency 4 125 kHz may be used by aircraft stations to communicate with stations of the maritime mobile service for distress and safety purposes, including search and rescue (see No. 30.11).
***4 177.5**	NBDP-COM	
***4 207.5**	DSC	
4 209.5	MSI	The frequency 4 209.5 kHz is exclusively used for NAVTEX-type transmissions (see Resolution **339 (Rev.WRC-07)**).
4 210	MSI-HF	
5 680	AERO-SAR	See note under 3 023 kHz above.
***6 215**	RTP-COM	See also No. 52.221.

***6 268**	NBDP-COM	
***6 312**	DSC	
6 314	MSI-HF	
***8 291**	RTP-COM	
***8 376.5**	NBDP-COM	
***8 414.5**	DSC	
8 416.5	MSI-HF	
***12 290**	RTP-COM	
***12 520**	NBDP-COM	
***12 577**	DSC	
12 579	MSI-HF	
***16 420**	RTP-COM	
***16 695**	NBDP-COM	
***16 804.5**	DSC	
16 806.5	MSI-HF	
19 680.5	MSI-HF	
22 376	MSI-HF	
26 100.5	MSI-HF	

B. Frequencies above 30 MHz (VHF/UHF)

Frequency (MHz)	Description of usage	Notes
***121.5**	AERO-SAR	The aeronautical emergency frequency 121.5 MHz is used for the purposes of distress and urgency for radiotelephony by stations of the aeronautical mobile service using frequencies in the frequency band between 117.975 MHz and 137 MHz. This frequency may also be used for these purposes by survival craft stations. Use of the frequency 121.5 MHz by emergency position-indicatingradio beacons shall be in accordance with Recommendation ITU-R M.690-3. Mobile stations of the maritime mobile service may communicate with stations of the aeronautical mobile service on the aeronautical emergency frequency 121.5 MHz for the purposes of distress and urgency only, and

		on the aeronautical auxiliary frequency 123.1 MHz for coordinated search and rescue operations, using class A3E emissions for both frequencies (see also Nos. **5.111** and **5.200**). They shall then comply with any special arrangement between governments concerned by which the aeronautical mobile service is regulated.
123.1	AERO-SAR	The aeronautical auxiliary frequency 123.1 MHz, which is auxiliary to the aeronautical emergency frequency 121.5 MHz, is for use by stations of the aeronautical mobile service and by other mobile and land stations engaged in coordinated search and rescue operations (see also No. 5.200). Mobile stations of the maritime mobile service may communicate with stations of the aeronautical mobile service on the aeronautical emergency frequency 121.5 MHz for the purposes of distress and urgency only, and on the aeronautical auxiliary frequency 123.1 MHz for coordinated search and rescue operations, using class A3E emissions for both frequencies (see also Nos. 5.111 and 5.200). They shall then comply with any special arrangement between governments concerned by which the aeronautical mobile service is regulated.
156.3	VHF-CH06	The frequency 156.3 MHz may be used for communication between ship stations and aircraft stations engaged in coordinated search and rescue operations. It may also be used by aircraft stations to communicate with ship stations for other safety purposes (see also Note *f*) in Appendix **18**).
***156.525**	VHF-CH70	The frequency 156.525 MHz is used in the maritime mobile service for distress and safety calls using digital selective calling (see also Nos. 4.9, 5.227, 30.2 and 30.3).
156.650	VHF-CH13	The frequency 156.650 MHz is used for ship-to-ship communications relating to the safety of navigation in accordance with Note *k*) in Appendix **18**.
***156.8**	VHF-CH16	The frequency 156.8 MHz is used for distress and safety communications by radiotelephony. Additionally, the frequency 156.8 MHz may be used by aircraft stations for safety purposes only.
***161.975**	AIS-SART VHF CH AIS 1	AIS 1 is used for AIS search and rescue transmitters (AIS-SART) for use in search and rescue operations.
***162.025**	AIS-SART VHF CH AIS 2	AIS 2 is used for AIS search and rescue transmitters (AIS-SART) for use in search and rescue operations.
***406-406.1**	406-EPIRB	This frequency band is used exclusively by satellite emergency position-indicating radio beacons in the Earth-to-space direction (see No. 5.266).
1 530-1 544	SAT-COM	In addition to its availability for routine non-safety purposes, the band 1 530-1 544 MHz is used for distress and safety purposes in the space-to-Earth direction in the maritime mobile-satellite service. GMDSS

		distress, urgency and safety communications have priority in this band (see No. 5.353A).
***1 544-1 545**	D&S-OPS	Use of the band 1 544-1 545 MHz (space-to-Earth) is limited to distress and safety operations (see No. 5.356), including feeder links of satellites needed to relay the emissions of satellite emergency position-indicating radio beacons to earth stations and narrow-band (space-to-Earth) links from space stations to mobile stations.
1 626.5-1 645.5	SAT-COM	In addition to its availability for routine non-safety purposes, the band 1 626.5-1 645.5 MHz is used for distress and safety purposes in the Earth-to-space direction in the maritime mobile-satellite service. GMDSS distress, urgency and safety communications have priority in this band (see No. 5.353A).
***1 645.5-1 646.5**	D&S-OPS	Use of the band 1 645.5-1 646.5 MHz (Earth-to-space) is limited to distress and safety operations (see No. 5.375).
9 200-9 500	SARTS	This frequency band is used by radar transponders to facilitate search and rescue.

* Except as provided in these Regulations, any emission capable of causing harmful interference to distress, alarm, urgency or safety communications on the frequencies denoted by an asterisk (*) is prohibited. Any emission causing harmful interference to distress and safety communications on any of the discrete frequencies identified in this Appendix is prohibited. (WRC-07)

Legend:

- **AERO-SAR** These aeronautical carrier (reference) frequencies may be used for distress and safety purposes by mobile stations engaged in coordinated search and rescue operations.
- **D&S-OPS** The use of these bands is limited to distress and safety operations of satellite emergency position-indicating radio beacons (EPIRBs).
- **SAT-COM** These frequency bands are available for distress and safety purposes in the maritime mobile-satellite service (see Notes).
- **VHF-CH#** These VHF frequencies are used for distress and safety purposes. The channel number (CH#) refers to the VHF channel as listed in Appendix 18 of RR-2008, which should also be consulted.
- **AIS** These frequencies are used by automatic identification systems (AIS), which should operate in accordance with the most recent version of Recommendation ITU-R M.1371. (WRC-07)
- **DSC** These frequencies are used exclusively for distress and safety calls using digital selective calling.
- **MSI** In the maritime mobile service, these frequencies are used exclusively for the transmission of maritime safety information (MSI) (including meteorological and navigational warnings and urgent information) by coast stations to ships, by means of narrow-band direct-printing telegraphy.

- **MSI-HF** In the maritime mobile service, these frequencies are used exclusively for the transmission of high seas MSI by coast stations to ships, by means of narrow-band direct-printing telegraphy.
- **NBDP-COM** These frequencies are used exclusively for distress and safety communications (traffic) using narrow-band direct-printing telegraphy.
- **RTP-COM** These carrier frequencies are used for distress and safety communications (traffic) by radiotelephony.

Frequency allotment Plan for coast radiotelephone Stations operating in the maritime mobile bands between 4 000 kHz and 27 500 kHz

(Appendix 25 (Rev.WRC-03))

S. No.	Channel number	Assigned Frequency (in kHz)	Carrier Frequency (in kHz)
1	409	4 382.4	4381
2	432	4 424.4	4423
3	804	8 729.4	8728
4	826	8 795.4	8794
5	832	8 813.4	8812
6	1201	13 078.4	13077
7	1229	13 162.4	13161
8	1239	13 192.4	13191
9	1626	17 318.4	17317
10	1643	17 369.4	17368
11	2228	22 778.4	22777
12	2235	22 799.4	22798

BSS Plans/List allotment in Downlink

(Appendix 30 (Rev.WRC-15))

General Details

Allotment Name: **QAT24700**	
Nominal Orbital Position	20.00°E
Longitude of Boresight	51.38°
Latitude of Boresight	25.26°
Major axis (Space Station)	0.60°
Minor axis (Space Station)	0.60°

Orientation	90.00
Space station: antenna gain / code	48.88 (co-polar) / R13TSS
Earth station: antenna gain / code	35.50 / MODRES
E.I.R.P	54.5
Designation of Emission	27M0G7W
Polarization	CL

Note:

Minimum Equivalent Protection Margin (EPM)

- Channels 2, 4, 6, 8, 10, 12 and 14 5.9
- Channels 16 and 18 5.8
- Channel 20 6.2 (in accordance with note 1of §11.2 of AP30-RR-2012)

BSS Uplink Feeder Allotment

(Appendix 30A (Rev.WRC-15) Plans/List)

Allotment Name: **QAT24700**	
Nominal Orbital Position	20.00°E
Longitude of Boresight	51.59°
Latitude of Boresight	25.35°
Major axis (Space Station)	0.60°
Minor axis (Space Station)	0.60°
Orientation	90.00
Space station: antenna gain / code	48.88 (co-polar) / MODRSS
Earth station: antenna gain / code	57.00 / MODTES
E.I.R.P	84.0
Designation of Emission	27M0G7W
Polarization	CL

Note:

Minimum Equivalent Protection Margin (EPM)

- Channels 2, 4, 6, 8, 10, 12, 14, 16 and 18 13.7

- Channel 20 15.5

FSS Allotment Plan/List

(Appendix 30B (Rev.WRC-15))
Allotment Name: QAT00000

Frequency Bands:	**4500 – 4800 MHz (Space to Earth)** **6725 – 7025 MHz (Earth to Space)**
Nominal Orbital Position	0.90°E
Longitude of Boresight	51.60°
Latitude of Boresight	25.40°
Major axis of the elliptical cross-section half-power beam	1.60°
Minor axis of the elliptical cross-section half-power beam	1.60°
Orientation of the ellipse	90.00
Earth station E.I.R.P. density	-9.6 dB (W/Hz)
Satellite E.I.R.P. density	-41.6 dB (W/Hz)

Frequency Bands:	**10.70 – 10.95 GHz (Space to Earth)** **11.20 – 11.45 GHz (Space to Earth)** **12.75 – 13.25 GHz (Earth to Space)**
Nominal Orbital Position	0.90°E
Longitude of Boresight	51.60°
Latitude of Boresight	25.40°
Major axis of the elliptical cross-section half-power beam	0.80°
Minor axis of the elliptical cross-section half-power beam	0.80°
Orientation of the ellipse	90.00
Earth station E.I.R.P. density	-10.2 dB (W/Hz)
Satellite E.I.R.P. density	-31.5 dB (W/Hz)

Annex 1: List of Spectrum Regulations

Service	Applicable regulations	Link
Fixed	Point to point	http://www.cra.gov.qa/en/document/guidelines-fixed-radio-spectrum-licenses
	Point –to-multipoint	
	Point –to-multipoint / multipoint –to-multipoint	
	Point –to-multipoint / multipoint –to-multipoint	
	Point–to–point / Point-to-multipoint/ multipoint –to-multipoint	
Aeronautical	Aircraft radio station	http://www.cra.gov.qa/en/document/guidelines-aeronautical-radio-spectrum-licenses
	Aircraft portable radio Equipment	
	Aeronautical ground stations	
	Aeronautical navigational aids	
	Aeronautical ground based radar	
Broadcasting	Commercial Radio broadcasting Station	http://www.cra.gov.qa/en/document/guidelines-broadcasting-radio-spectrum-licenses
	Community Radio Broadcasting Station	
	Digital Terrestrial TV Multiplexer Network	
	Digital Terrestrial Audio Multiplexer Network	
	Digital Video Broadcasting – Handheld Multiplexer Network	
Maritime	Ship Radio station (SOLAS)	http://www.cra.gov.qa/en/document/guidelines-maritime-radio-spectrum-licenses
	Ship Radio station (non-SOLAS)	
	Maritime portable radio equipment	
	Maritime navigational aids and radar	
	Coastal station	
Private Mobile	Frequency Assigned Network	http://www.cra.gov.qa/en/document/

Radio (PMR)	Frequency Assigned Area	guidelines-private-mobile-radio-spectrum-licenses
	Band Assigned	
Amateur	Basic	http://www.cra.gov.qa/en/document/guidelines-amateur-radio-station-licenses
	General	
	Advanced	
	Extra	
	Visitor / Resident	
	Club	
	Repeater	
	Beacon	
Citizen's Band	Citizen's Band Radio Station	http://www.cra.gov.qa/en/document/guidelines-citizen%E2%80%99s-band-radio-station-license
Satellite	Fixed Earth Station	http://www.cra.gov.qa/en/document/guidelines-satellite-radio-spectrum-licenses
	Satellite Earth Station Network Link	
	Transportable Earth Station	
Test & Development	Research	http://www.cra.gov.qa/en/document/guidelines-test-development-radio-spectrum-licenses
	Trial or demonstration	
Temporary	Temporary Radio Spectrum	http://www.cra.gov.qa/en/document/guidelines-temporary-radio-spectrum-licenses

Annex 2: International Agreement

Terrestrial Broadcasting Plans

Qatar is signatory of number of ITU-R regional agreements and assigns the frequencies according to associated plans. Current recorded/coordinated Broadcasting plan/frequencies with respect to their associated agreements are given below.

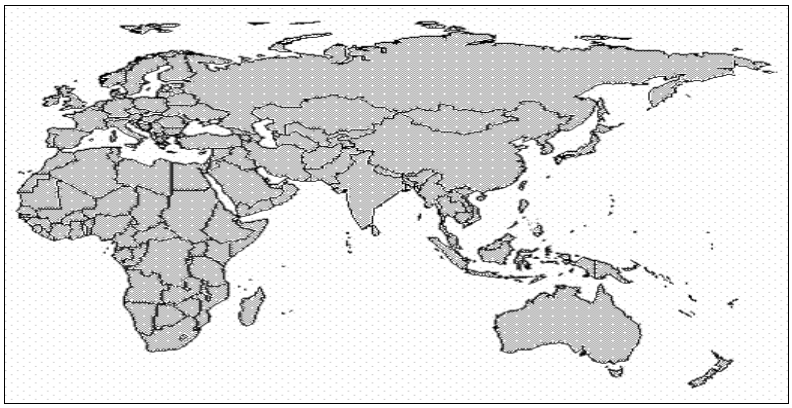
GE-75 Agreement

Regional Agreement concerning the Use by the Broadcasting Service of Frequencies in the **Medium Frequency** Bands in ITU-R Regions 1 and 3 and in the **Low Frequency Bands** in ITU-R Region 1.

LF: 150-285 kHz

MF: 525-1605 kHz

GE-75 planning area is shown in the below map.

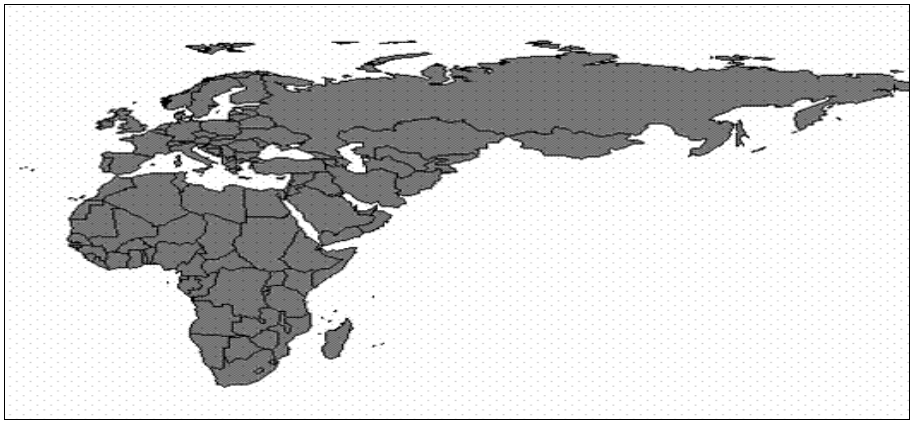


GE-75 Recorded Assignments

Site Name	Freq. Assignment (kHz)
DOHA	675
AL KHAISAH	936
AL ARISH	954
AL KHAISAH	999
AL KHAISAH	1233
ALKHAISAH	1485
DOHA	1602

GE-84 Agreement

It is relating to the Use of the Band 87.5 - 108 MHz for FM Sound Broadcasting and include the countries of Region 1 as defined in No. 393 of the Radio Regulations together with the Democratic Republic of Afghanistan and the Islamic Republic of Iran. The plan includes assignment in VHF-FM band i.e. Band II: 87.5-108 MHz



GE-84 Recorded FM Assignments

Site Name	Freq. Assignment (MHz)	ERP Horizontal (dBW)	ERP Vertical (dBW)
AL KHOR	88	24	
JUMALIYAH (DUKHAN)	90.8	50	
DOHA (MARKHIYAH)	92	50	
ABU SAMRAH	92.6	50	
UMM SAID (UDAYD)	93.4	27	
AL KHOR	97.6	24	
JUMALIYAH (DUKHAN)	100.8	50	
DOHA (MARKHIYAH)	102	50	
ABU SAMRAH	102.6	50	
UMM SAID (UDAYD)	103.4	27	
AL RUWAIS	104	20	
AL RUWAIS	107.4	20	
HALUL	107.5	20	
HALUL	107.7	20	

GE-06 Agreement

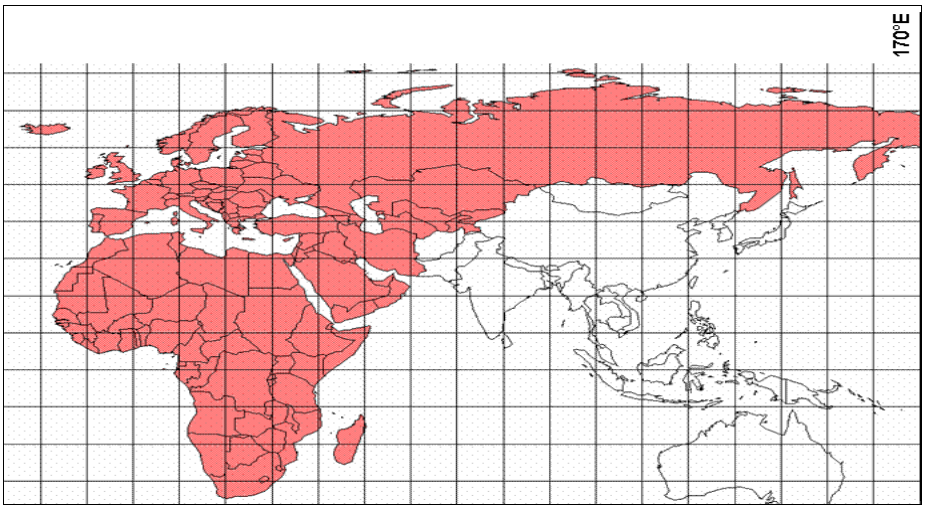
Covers

Band III: 174-230 MHz

Band IV: 470-582 MHz

Band V: 582-862 MHz

in ITU-R Region 1 (those parts of Region 1, as defined in No. **5.3** of the *Radio Regulations*, situated to the west of meridian 170° E and to the north of parallel 40° S, except the territories of Mongolia) and the Islamic Republic of Iran.



GE-06 Recorded Digital Assignments

Site Name	Frequency MHz	Frequency Block	TV Channel	Service	ERP Horizontal (dBW)	ERP Vertical (dBW)
AL RUWAIS	216.928	11A		DAB	20	
AL UDAID	216.928	11A		DAB	20	
MARKHIYAH	216.928	11A		DAB	20	
MARKHIYAH	218.64	11B		DAB	17	
AL ARISH	218.64	11B		DAB	17	
JUMAILIYAH	218.64	11B		DAB	17	
DUKHAN	220.352	11C		DAB	17	
MARKHIYAH	220.352	11C		DAB	17	
ABU SAMRA	220.352	11C		DAB	17	

SHAHANIYAH	222.064	11D		DAB	17	
ABU SAMRA	222.064	11D		DAB		17
AL KHOR	222.064	11D		DAB	17	
AL WAKRA	223.936	12A		DAB	17	
AL ARISH	223.936	12A		DAB	17	
JUMAILIYAH	223.936	12A		DAB	17	
AL HUWAILAH	225.684	12B		DAB		17
AL WAKRA	225.684	12B		DAB	17	
MARKHIYAH	225.684	12B		DAB		17
AL RUWAIS	227.360	12C		DAB	17	
AL KHOR	227.360	12C		DAB		17
HALUL	227.360	12C		DAB	17	
JELIHA	229.072	12D		DAB	17	
MUKAINISS	229.072	12D		DAB		17
SUDANTHEEL	229.072	12D		DAB	17	
SHAHANIYAH	205.5		9	DVB	17	
ABU SAMRA	666		45	DVB	24	
MARKHIYAH	474		21	DVB	24	
ABU SAMRA	642		42	DVB	24	
AL RUWAIS	474		21	DVB	24	
MARKHIYAH	642		42	DVB	24	
MARKHIYAH	602		37	DVB	24	
AL UDAID	490		23	DVB	24	
DUKHAN	506		25	DVB	24	
MUFAIDH	522		27	DVB	24	
AL WAKRA	538		29	DVB	24	
MUKAINISS	554		31	DVB	24	
AL ARISH	618		39	DVB		24
AL KHOR	666		45	DVB	24	
AL WAKRA	522		27	DVB	24	
AL AMIRIYAH	618		39	DVB	24	
SHAHANIYAH	177.5		5	DVB	17	

SHAHANIYAH	191.5		7	DVB	17	
AL ARISH	498		24	DVB	24	
JULAIHA	498		24	DVB	24	

Annex 3: Useful Abbreviations

ACLR	Adjacent Channel Leakage Ratio
ACP	Adjacent Channel Power
ACRR	Adjacent Channel Rejection Ratio
ADS	Automatic Dependant Surveillance (Aeronautical)
Aer Mob (OR)	Aeronautical Radiocommunication
Aer Mob (R)	Aeronautical Mobile (off route)
Aer Nav	Aeronautical Radionavigation
AES	Aircraft Earth Stations
AF	Air Forces
AFA	Adaptive Frequency Agility
AGA	Air-Ground-Air
AIS	"Automatic Identification and Surveillance System" or "Universal shipborne Automatic Identification System"
ALD	Assistive Listening Devices
AM	Amplitude Modulation
AMS(R)S	Aeronautical Mobile-Satellite (Route) Service
ASDE	Airport Surface Detection Equipment
ATIS	Automatic Transmitter Identification System
ATPC	Automatic Transmit Power Control
BBDR	Broad Band Disaster Relief
BC	Broadcasting
BEM	Block Edge Mask
BFWA	Broadband Fixed Wireless Access

BMA	Building Material Analysis
BSS	Broadcasting Satellite Service
BTS	Base Transceiver Station
BWA	Broadband Wireless Access
CB	Citizen's Band
CDMA	Code Division Multiple Access
CEPT	European Conference of Postal and Telecommunications Administrations
CGC	Complementary Ground Component
COM	Communication
CT	Cordless Telephone
DA2GC	Direct Air-to-Ground Communications
CW	Continuous Waves
DAA	Detect and Avoid
DAB	Digital Audio Broadcasting
dB	decibel
dBd	antenna gain in decibels relative to a dipole antenna
dBi	antenna gain in decibels relative to an isotropic antenna
dBm	dB relative to the power of 1 mW
dBW	dB relative to the power of 1 W
DC	Duty Cycle
DEC	Decision
DECT	Digital Enhanced Cordless Telecommunications
D-GPS	Differential Global Positioning System

DL	Down Link (Base station to Mobile station)
DME	Distance Measuring Equipment
DMO	Direct Mode Operation (PMR)
DMR	Digital Mobile Radio
DRM	Digital Radio Mondiale
DRS	Digital Radio System
DSC	Digital Selective Calling
DSRR	Digital Short- Range Radio
DSSS	Direct Sequence Spread Spectrum
DVB	Digital Video Broadcasting
DVB-T	Digital Video Broadcasting - Terrestrial
DVB-H	Digital Video Broadcasting - Handheld
EAS	Electronic Article Surveillance
ECA	European Common Allocation
ECC	Electronic Communications Committee
ECC/DEC	Decision from the ECC
ECC/REC	Recommendation from the ECC
ECO	European Communications Office
EESS	Earth Exploration-Satellite Service
EGSM	Extended Global System for Mobile Communications
EIRP or e.i.r.p.	Equivalent Isotropically Radiated Power
ELT	Emergency Locator Transmitter
EMC	Electromagnetic Compatibility

EN	European Standard (Telecommunications series)
ENG/OB	Electronic News Gathering / Outside Broadcasting
EPIRBs	Emergency Position Indicating Radio Beacon
ERC	European Radiocommunications Committee
ERC/DEC	Decision from the ERC
ERC/REC	Recommendation from the ERC
ERMES	Enhanced Radio Messaging System
ERO	European Radiocommunications Office
ERP or e.r.p.	Effective Radiated Power
ERPEP	Effective Radiated Peak Envelope Power
ESV	Earth Stations on-board Vessels
ETSI	European Telecommunications Standards Institute
EU	European Union
FB	Base station (in a mobile radio system)
FHSS	Frequency Hopping Spread Spectrum
FM	Frequency Modulation
FMCW	Frequency Modulated Continuous Wave
FOCA	Federal Office of Civil Aviation
FHSS	Frequency Hopping Spread Spectrum
FS	Fixed Service
FSS	Fixed-Satellite Service
FWA	Fixed Wireless Access
GALILEO	European Global Navigation Satellite System

GBAS	Ground Based Augmentation System
GBSAR	Ground Based Synthetic Aperture Radar
GBR	Ground Based Radar
GLONASS	Global Orbiting Navigation Satellite System (Globalnaya Navigatsionnaya Sputniko-vaya Sistema)
GMDSS	Global Maritime Distress and Safety System
GNSS	Global Navigation Satellite System
GNSS	Pseudolites Global Navigation Satellite System Pseudolites
GPR	Ground Probing Radar
GPS	Global Positioning System
GSM	Global System for Mobile Communications
GSM 1800	Global System for Mobile Communications at 1800 MHz
GSM 900	Global System for Mobile Communications at 900 MHz
GSMOBA	Global System for Mobile Communications On Board Aircraft
GSMOBV	Global System for Mobile Communications On Board Vessels
GSM-R	Global System for Mobile Communications on Railways
GSO ESOMPs	Earth Stations On Mobile Platforms (geostationary FSS systems)
HAPS	High Altitude Platform Station
HDFS	High Density applications in the Fixed Service
HEST	High EIRP Satellite Terminal
HIPERLAN	High Performance Radio Local Area Network
HRPD	High Rate Packet Data
IALA	International Association Of Lighthouse Authorities
ICAO	International Civil Aviation Organisation

IEEE	Institute of Electrical and Electronics Engineers
ILS	Instrument Landing Systems
IMT	International Mobile Telecommunications
IMT-2000	International Mobile Telecommunications-2000
ISM	Industrial, Scientific and Medical Applications
ITS	Intelligent Transport Systems
ITU	International Telecommunication Union
JTIDS	Joint Tactical Information and Distribution System
LAN	Local Area Network
LBT	Listen Before Talk, Listen Before Transmit
LEO	Low Earth Orbit
Links	Radio Connections
LPD	Low Power Device
LP GSM	Low Power Global System for Mobile Communications
LPR	Level Probing Radar
LRR	Long Range Radar
LTE	Long Term Evolution
Mar Mob	Maritime Mobile
MAC	Medium Access Control
MFCN	Mobile/Fixed Communications Networks
MEDS	Medical Data Service Systems
MIDS	Multifunctional Information Distribution System
Misc. applic.	Miscellaneous applications

ML	Mobile station (in a mobile radio system)
MLS	Microwave Landing System
mmwFS	millimetre wave applications in the Fixed Service
MP-MP	Multipoint to Multipoint
MSI	Maritime Safety Information
MSS	Mobile-Satellite Service
MWS	Multimedia Wireless System
NAVTEX	Narrow-band direct-printing telegraphy system for transmission of navigational and meteorological warnings and urgent information to ships
NCU	Network Control Unit
NDB	Non Directional Radio Beacon
NGSO	Non Geostationary Satellite Orbit
NGSO ESOMPs	Land and Maritime Earth Stations On Mobile Platforms (ESOMPs) operating with Non-Geostationary FSS systems.
NIB	Non Interference Basis (in connection with frequency assignment)
NINPB	Non Interference Non Protected Basis (in connection with frequency assignment)
NMT	Nordic Mobile Telephone
NPB	Non Protected Basis (in connection with frequency assignment)
NP2M	Narrowband Point to Multipoint system
OB	Outside Broadcasting
OBTS	On Board Transceiver Station
OFDM	Orthogonal Frequency Division Multiplexing
PAMR	Public Access Mobile Radio
PLB	Personal Locator Beacon

PLC	Powerline Communications
P-MP	Point to Multipoint
PMR	Private (Professional) Mobile Radio
PPDR	Public Protection and Disaster Relief
Primary	Where a band is indicated as allocated to more than one service and the name of the service is printed in “capitals“ (example: FIXED) these are called “primary“ services. Within a band, primary services shall have prior choice of frequencies. Where a band is indicated in a footnote of the Table as allocated to a service “on a primary basis“ in an area smaller than a Region, or in a particular country, this is a primary service only in that area or country.
P-P	Point to Point
ppm	parts per million
PRF	Pulse Repetition Frequency
PSD	Power Spectral Density
R	Tags Radio Tags
R&TTE	Radio and Telecommunications Terminal Equipment
RA	Radio Astronomy
RAS	Radio Astronomy Service
RBW	Resolution Bandwidth
REC	Recommendation
RF	Radio frequency
RFID	Radio Frequency Identification
RLAN	Radio Local Area Networks
RNSS	Radionavigation Satellite Service
RR	Radio Regulations
RSBN	Radiolocation Systems for Short Range Navigation

RSU	Road Site Units
RTE	Radar Target Enhancer
RTPC	Remote Transmit Power Control
RTTT	Road Transport and Traffic Telematics
RX	Receiver (Receiving frequency)
SAB	Service Ancillary to Broadcasting
SAR	Search and Rescue
SARSAT	Search and Rescue Satellite
SDL	Supplementary Down Link
S-DAB	Satellite Digital Audio Broadcasting
Secondary	"Where a band is indicated as allocated to more than one service and the name of the service is printed in "normal characters" (example: Fixed) these are called "secondary services". Stations of a secondary service: - shall not cause harmful interference to stations of primary services to which the-frequencies are already assigned or to which stations may be assigned at a later date. - cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date. - can claim protection, however from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date. Where a band is indicated in a footnote of the table as allocated to a service “on a secondary basis “in an area smaller than a Region, or in a particular country, this is a secondary service."
SF-CW	Radar Stepped Frequency CW Radar
SIT/SUT	Satellite Interactive Terminal / Satellite User Terminal
SNG	Satellite News Gathering
SOLAS	Safety of Life at Sea
SPA	Self Provided Applications

S-PCS	Satellite Personal Communication System
SRD(s)	Short Range Device(s)
SRR	Short Range Radars
SS	Spread Spectrum
SSR	Secondary Surveillance Radar
TACAN	Tactical Air Navigation
TACS	Total Access Communications System
TAPS	TETRA Advanced Packet Service
T-DAB	Terrestrial Digital Audio Broadcasting
TETRA	Trans European Trunked Radio System, Terrestrial Trunked Radio
TETRAPOL	Digital PMR technology
TLPR	Tank Level Probing Radar
TRA-ECS	Terrestrial radio applications capable of providing electronic communications services
TTT	Transport and Traffic Telematics
TV	Television
TX	Transmitter (Transmitting frequency)
UAV	Unmanned Aerial Vehicle
UL	Up Link (Mobile station to Base station)
UMTS	Universal Mobile Telecommunication System
UNO	United Nations Organisation
UWB	Ultra Wide Band
VBW	Video BandWidth
VLBI	Very Long Baseline Interferometry

VOR	VHF Omnidirectional Radio Range
v-BS	Vessel Base Station
v-MS	Vessel Mobile Station
VSAT	Very Small Aperture Terminal
VSWR	Voltage Standing Wave Ratio
VTS	Vessel Traffic System (radar)
WAS	Wireless Access Systems
WAS/RLAN	Wireless Access Systems including Radio Local Area Networks
WB	Wide Band
WIA	Wireless Industrial Applications
WiMAX	Worldwide Interoperability for Microwave Access
WLAM	Wideband Low Activity Mode
WLAN	Wireless Local Area Networks
WPR	Wall Probing Radar
WRC	World Radiocommunication Conference
WTO	World Trade Organization

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Spectrum Management Department
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