NTRA
National Telecom Regulatory Authority
الجهاز القومي لتنظيم الإتصالات

Arab Republic of Egypt

National Frequency Allocations Table

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Document History

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1.0 (Active)	June 2021

Contents

Acronyms

Term	Definition
ADSE	Airport Surface Detection Equipment
AID	Automatic Identification
AIS	Automatic Identification System
AM	Amplitude Modulation
Appendix 17	Appendix 17 of the Radio Regulations: Frequencies and channeling arrangements in the high-frequency bands for the maritime mobile service
Appendix 18	Appendix 18 of the Radio Regulations: Table of transmitting frequencies in the VHF maritime mobile band
Appendix 30	Appendix 30 of the Radio Regulations: Provisions for all services and associated plans and list for the broadcasting-satellite service in the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2)
Appendix 30A	Appendix 30A of the Radio Regulations: Provisions and associated plans and list for feeder links for the broadcasting-satellite service (11.7-12.5 GHz in Region 1, 12.2-12.7 GHz in Region 2 and 11.7-12.2 GHz in Region 3) in the frequency bands 14.5-14.8 GHz and 17.3-18.1 GHz in Regions 1 and 3, and 17.3-17.8 GHz in Region 2
Appendix 30B	Appendix 30B of the Radio Regulations: Provisions and associated plan for the fixed-satellite service in the frequency bands 4 500-4 800 MHz, 6 725-7 025 MHz, 10.70-10.95 GHz, 11.20-11.45 GHz and 12.75-13.25 GHz
Appendix 4	Appendix 4 of the Radio Regulations: Consolidated list and tables of characteristics for use in the application of the procedures of Chapter III
Appendix 5	Appendix 5 of the Radio Regulations: Identification of administrations with which coordination is to be effected or agreement sought under the provisions of Article 9
Article 12	Article 12 of the Radio Regulations: Seasonal planning of the high frequency bands allocated to the broadcasting service between 5 900 kHz and 26 100 kHz
Article 23	Article 23 of the Radio Regulations: Broadcasting services
Article 26	Article 26 of the Radio Regulations: Standard frequency and time signal service
Article 31	Article 31 of the Radio Regulations: Frequencies for the global maritime distress and safety system (GMDSS)
Article 5	Article 5 of the Radio Regulations: Frequency allocations
BFWA	Broadband Fixed Wireless Access
BSS	Broadcast - Satellite Service
COSPAS	Space System for Search of Distress Vessels
DME	Distance Measuring Equipment
DSC	Digital Selective Calling
E.I.R.P.	Equivalent isotopically radiated power - the product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna (absolute or isotropic gain)
EESS	Earth Exploration Satellite Service
EIRP	Effective Isotropic Radiated Power
ENG	Electronic News Gathering
EPIRB	Emergency Position Indicating Radio Beacons
FM	Frequency Modulation
FSS	Fixed - Satellite Service

FWA	Fixed Wireless Access
GLONASS	GLObal Navigation Satellite System
GMDSS	Global Maritime Distress and Safety System
GPS	Global Positioning System
GSO	Geostationary Satellite Orbit
HAPS	High-Altitude Platform System
HDFSS	High Density Fixed-Satellite Service
ICAO	International Civil Aviation Organization
ILS	Instrument Landing System
IMT	International Mobile Telecommunication
ISM	Industrial, Scientific and Medical applications
ITU	International Telecommunication Union
ITU GE-06 plan	The Plans for VHF/UHF analogue and digital broadcasting in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz, Geneva 2006
ITU GE-75 plan	Plan for the assignment of frequencies to broadcasting stations in the medium frequency bands in Regions 1 and 3 and in the low frequency bands in Region 1
ITU GE-84 plan	Frequency assignment plan for FM sound broadcasting stations in Region 1 and part of Region 3 in the band 87.5-108 MHz
ITU RR	ITU Radio Regulation
ITU-R	The Radiocommunication Sector of the ITU
LEO	Low Earth Orbit
MLS	Microwave Landing System
MMDS	Multi-channel Multi-point Distribution Service
MMSI	Maritime Mobile Service Identity
MSI	Maritime Safety Information
MSS	Mobile Satellite Service
NAVTEX	Navigation Text Messaging system
NBDP	Narrow Band Direct Printing
NDB	Non-Directional radio Beacon
NFAT	National Frequency Allocations Table
PMR	Private (or Professional) Mobile Radio
PPDR	Public Protection and Disaster Relief
RACON	Radar Beacon
RTP-COM	Radio Telephony Communication
SAB	Service Ancillary to Broadcasting
SAP	Service Ancillary to Program making
SAR	Search and Rescue
SARSAT	Search and Rescue Satellite-Aided Tracking
SART	Search and Rescue Transponder
SNG	Satellite News Gathering
SRD	Short Range Device
SSB	Single Sideband
SSR	Secondary Surveillance Radar
VOR	VHF Omni-Directional Range
VSAT	Very Small Aperture Terminal
WAS	Wireless Access System

PREFACE

GENERAL INFORMATION

1. Introduction

Radio spectrum use in the Egypt is required to be authorized by the National Telecom Regulatory Authority (NTRA) according to the telecommunication law no. (10) of 2003, this use needs to be carefully planned to avoid harmful interference. State agencies and authorities such as Armed Forces, National Security Entities and Companies of the National Authority for Military Production, in regard of Telecommunication Equipment that are related to National Security requirements, do not legally require authorization from NTRA.

The Egyptian National Frequency Allocations Table (NFAT) is prepared and issued in accordance with articles 13 and 50 of the telecommunication law no. (10) of 2003 regarding the frequency spectrum management. The NFAT details the general classification of uses of various radio spectrum bands in Egypt (referred to as 'allocations'). Spectrum allocations in the NFAT include the allocation of the radio spectrum to the various radio services categories in conformity with the international regulations governing radio spectrum i.e. Radio Regulations of the International Telecommunication Union (ITU), and in conformity with regional agreements concluded or acceded to by the Arab Republic of Egypt.

2. Principles of Spectrum Management

2.1 National level

As radio spectrum is limited resource, efficient use of this resource is essential for the functioning of modern communication societies. telecommunication law no. (10) of 2003 includes a direct mandate for NTRA to manage radio spectrum and act appropriately in order to ensure efficient use of this resource. Regulation is fundamentally concerned with combining the various interests of frequency users and manufacturers within the aforementioned legal mandate. NTRA continuously analyses the spectrum requirements for existing and planned radio services in Egypt. This is necessary for efficient and equitable planning and coordination of frequencies in order to avoid interference.

NTRA strategy aims to efficiently regulate access to radio spectrum on a national and international level in a coordinated manner. It aims to ensure that Egypt's rights are respected in accordance with international framework. International bodies aim to harmonize the use of the spectrum by the various radio services, thus any international decisions taken therefore play a part in national spectrum management.

2.2 International level

NTRA represents Egypt in regional and international bodies dealing with the spectrum management, where it safeguards Egypt's interests in order to promote them on an international (regional and global) level.

The requirements of industry and the associated civil uses are handled via the international working activities of the ITU as radio signals propagate across international borders, cross-border agreements regarding spectrum use become vital both between neighboring countries and between economic interest blocks on a global scale. The use of all spectrum resources is being harmonized at the international level at the ITU World Radiocommunication Conferences in order to ensure efficient and interference-free use of radio spectrum.

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

3. Basic Provisions

Direct references have been made within NFAT to the footnotes of the International Telecommunication Union Table of Frequency Allocations which apply to Egypt's radio services or frequency bands concerned. All remaining international footnotes that are not specifically mentioned in the in the International Telecommunication Union Table of Frequency Allocations do not therefore apply in Egypt.

The NFAT thus qualifies the provisions of the International Telecommunication Union Table of Frequency Allocations and makes additional provisions for domestic radio spectrum requirements; and it provides the framework within which frequency assignments are to be made for all services. The provisions of the NFAT shall therefore be applied to all radio services, transmitting or receiving within the territory or territorial waters of Arab Republic of Egypt as appropriate.

Where the provisions of the International Telecommunication Union Table of Frequency Allocations and NFAT differ, those of the latter will apply.

4. Uses of Spectrum

This document does not represent all uses of spectrum that are authorized in Egypt or that may be authorized in future. The conditions that are attached to the use of different frequency bands are set out in licenses issued by NTRA, and/or in regulations made by NTRA, where such use regulated by NTRA under the telecommunication law no. (10) of 2003.

NTRA may, having consulted as it considers appropriate, vary existing conditions of use, and may issue new authorizations, under responsibilities entitled to it by the telecommunication law no. (10) of 2003, and in accordance with the mandates of other Egyptian laws and legislations. This document is

therefore not binding on NTRA but NTRA will take due note of its contents and consult where necessary during the discharge of its statutory duties.

Where statutory regulations are in place to exempt radio spectrum systems from the need to issue license (license exempt), these regulations take precedence over the detail shown in NFAT.

5. Amendments

NTRA periodically shall review and update the NFAT, in consultation with the national authorities and concerned parties in Egypt, based on new developments in the radiocommunication sector in and conformity with the International Telecommunication Union Table of Frequency Allocations, as the Radio Regulations being modified by World Radiocommunication Conferences of the International Telecommunication Union each 4 to 5 years.

Chapter 1

Terms and Definitions

6. Radiocommunication Definitions

6.1 General terms

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.

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 direction-finding: Radiodetermination using the reception of radio waves for the purpose of determining the direction of a station or object.

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

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.

6.2 Specific terms related to frequency management

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

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

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.

6.3 Radio services

Radiocommunication service: A service as defined in this Section involving the transmission, emission and/or reception of radio waves for specific telecommunication purposes.

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

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

Ship movement service: A safety service in the maritime mobile service other than a port operations service, between coast stations and ship stations, or between ship stations, in which messages are restricted to those relating to the movement of ships. Messages which are of a public correspondence nature shall be excluded from this service.

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.

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.

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

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

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.

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, which may include links between 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.

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

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

Amateur service: A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly

authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

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

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

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

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

6.4 Radio stations and systems

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 one or more space stations; or with one or more stations of the same kind by means of one or more reflecting satellites or other objects in space.

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.

Survival craft station: A mobile station in the maritime mobile service or the aeronautical mobile service intended solely for survival purposes and located on any lifeboat, life-raft or other survival equipment.

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.

Land station: A station in the mobile service not intended to be used while in motion.

Land earth station: An earth station in the fixed-satellite service or, in some cases, in the mobile-satellite service, located at a specified fixed point or within a specified area on land to provide a feeder link for the mobile-satellite service.

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.

Coast earth station: An earth station in the fixed-satellite service or, in some cases, in the maritime mobile-satellite service, located at a specified fixed point on land to provide a feeder link for the maritime mobile-satellite 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.

Ship earth station: A mobile earth station in the maritime mobile-satellite service located on board ship.

On-board communication station: A low-powered mobile station in the maritime mobile service intended for use for internal communications on board a ship, or between a ship and its lifeboats and life-rafts during lifeboat drills or operations, or for communication within a group of vessels being towed or pushed, as well as for line handling and mooring instructions.

Port station: A coast station in the port operations service.

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 station: A mobile station in the aeronautical mobile service, other than a survival craft station, located on board an aircraft.

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.

Radionavigation mobile station: A station in the radionavigation service intended to be used while in motion or during halts at unspecified points.

Radionavigation land station: A station in the radionavigation service not intended to be used while in motion.

Radiolocation mobile station: A station in the radiolocation service intended to be used while in motion or during halts at unspecified points.

Radiolocation land station: A station in the radiolocation service not intended to be used while in motion.

Radio direction-finding station: A radiodetermination station using radio direction-finding.

Radiobeacon station: A station in the radionavigation service the emissions of which are intended to enable a mobile station to determine its bearing or direction in relation to the radiobeacon station.

Emergency position-indicating radiobeacon station: A station in the mobile service the emissions of which are intended to facilitate search and rescue operations.

Satellite emergency position-indicating radiobeacon: An earth station in the mobile-satellite service the emissions of which are intended to facilitate search and rescue operations.

Standard frequency and time signal station: A station in the standard frequency and time signal service.

Amateur station: A station in the amateur service.

Radio astronomy station: A station in the radio astronomy service.

Experimental station: A station utilizing radio waves in experiments with a view to the development of science or technique.

Ship's emergency transmitter: A ship's transmitter to be used exclusively on a distress frequency for distress, urgency or safety purposes.

Radar: A radiodetermination system based on the comparison of reference signals with radio signals reflected, or retransmitted, from the position to be determined.

Primary radar: A radiodetermination system based on the comparison of reference signals with radio signals reflected from the position to be determined.

Secondary radar: A radiodetermination system based on the comparison of reference signals with radio signals retransmitted from the position to be determined.

Radar beacon (racon): A transmitter-receiver associated with a fixed navigational mark which, when triggered by a radar, automatically returns a distinctive signal which can appear on the display of the triggering radar, providing range, bearing and identification information.

Instrument landing system (ILS): A radionavigation system which provides aircraft with horizontal and vertical guidance just before and during landing and, at certain fixed points, indicates the distance to the reference point of landing.

Instrument landing system localizer: A system of horizontal guidance embodied in the instrument landing system which indicates the horizontal deviation of the aircraft from its optimum path of descent along the axis of the runway.

Instrument landing system glide path: A system of vertical guidance embodied in the instrument landing system which indicates the vertical deviation of the aircraft from its optimum path of descent.

Marker beacon: A transmitter in the aeronautical radionavigation service which radiates vertically a distinctive pattern for providing position information to aircraft.

Radio altimeter: Radionavigation equipment, on board an aircraft or spacecraft, used to determine the height of the aircraft or the spacecraft above the Earth's surface or another surface.

Meteorological aids land station: A station in the meteorological aids service not intended to be used while in motion.

Meteorological aids mobile station: A station in the meteorological aids service intended to be used while in motion or during halts at unspecified points. (WRC-15)

Radiosonde: An automatic radio transmitter in the meteorological aids service usually carried on an aircraft, free balloon, kite or parachute, and which transmits meteorological data.

Adaptive system: A radiocommunication system which varies its radio characteristics according to channel quality.

Space system: Any group of cooperating earth stations and/or space stations employing space radiocommunication for specific purposes.

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 one satellite. A satellite link comprises one up-link and one down-link.

Multi-satellite link: A radio link between a transmitting earth station and a receiving earth station through two or more satellites, without any intermediate earth station.

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.

6.5 Technical terms relating to space

Deep space: Space at distances from the Earth equal to, or greater than, 2×10^6 km.

Spacecraft: A man-made vehicle which is intended to go beyond the major portion of the Earth's atmosphere.

Satellite: A body which revolves around another body of preponderant mass and which has a motion primarily and permanently determined by the force of attraction of that other body.

Active satellite: A satellite carrying a station intended to transmit or retransmit radiocommunication signals.

Reflecting satellite: A satellite intended to reflect radiocommunication signals.

Active sensor: A measuring instrument in the earth exploration-satellite service or in the space research service by means of which information is obtained by transmission and reception of radio waves.

Passive sensor: A measuring instrument in the earth exploration-satellite service or in the space research service by means of which information is obtained by reception of radio waves of natural origin.

Orbit: The path, relative to a specified frame of reference, described by the center of mass of a satellite or other object in space subjected primarily to natural forces, mainly the force of gravity.

Inclination of an orbit (of an earth satellite): The angle determined by the plane containing the orbit and the plane of the Earth's equator measured in degrees between 0º and 180º and in counterclockwise direction from the Earth's equatorial plane at the ascending node of the orbit.

Period (of a satellite): The time elapsing between two consecutive passages of a satellite through a characteristic point on its orbit.

Altitude of the apogee or of the perigee: The altitude of the apogee or perigee above a specified reference surface serving to represent the surface of the Earth.

Geosynchronous satellite: An earth satellite whose period of revolution is equal to the period of rotation of the Earth about its axis.

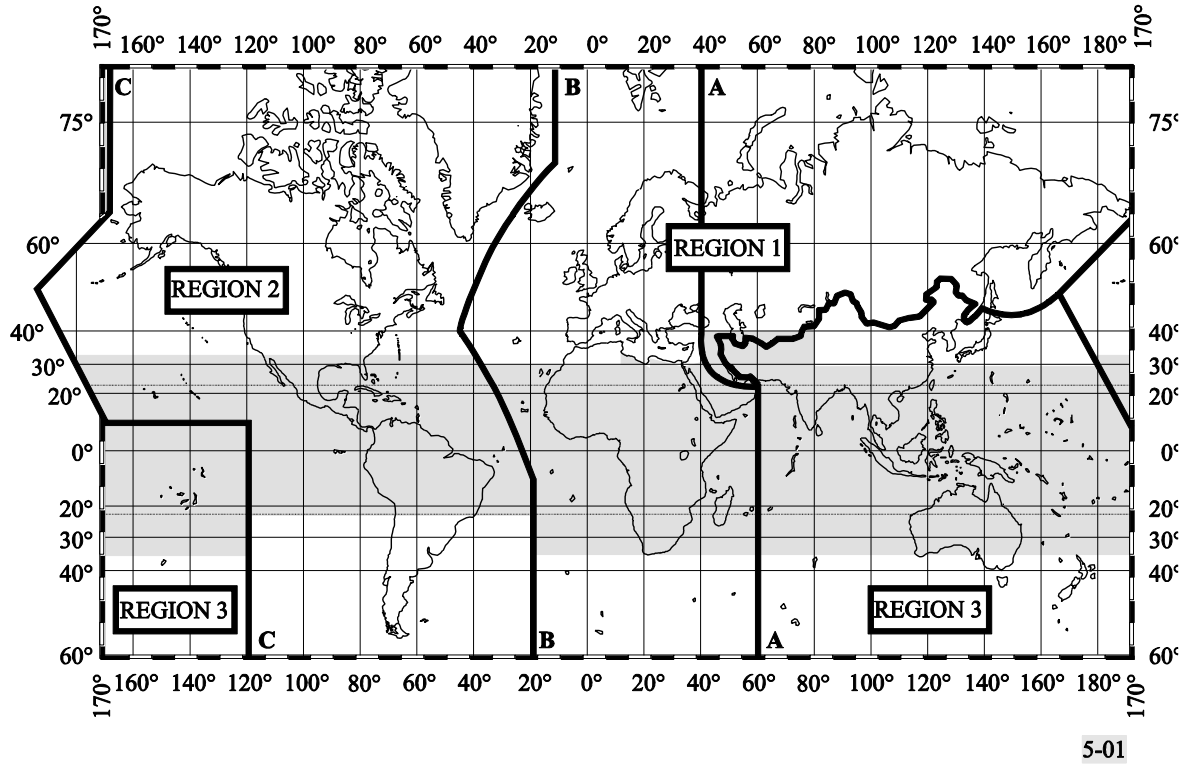
Geostationary satellite: A geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's equator and which thus remains fixed relative to the Earth; by extension, a geosynchronous satellite which remains approximately fixed relative to the Earth.

Geostationary-satellite orbit: The orbit of a geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's equator.

Steerable satellite beam: A satellite antenna beam that can be re-pointed.

7. Regions and areas

For the allocation of radio spectrum, International Telecommunication Union (ITU), has divided the world into three Regions where the shaded part represents the Tropical Zones as shown on the following map.



Frequency Allocations Regions Map (source: The RR Article 5)

Egypt is among the signatory countries to the convention of International Telecommunication Union (ITU) and is situated in Region 1, the ITU regions are defined below.

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.

Region 2:

Region 2 includes the area limited on the east by line B and on the west by line C.

Region 3:

Region 3 includes the area limited on the east by line C and on the west by line A, except any 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. It also includes that part of the territory of the Islamic Republic of Iran lying outside of those limits

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.

African Broadcasting Area:

a) African countries, parts of countries, territories and groups of territories situated between the parallels 40° South and 30° North;

b) islands in the Indian Ocean west of meridian 60° East of Greenwich, situated between the parallel 40° South and the great circle arc joining the points 45° East, 11° 30¢ North and 60° East, 15° North;

c) islands in the Atlantic Ocean east of line B defined in No. 5.8 of these Regulations, situated between the parallels 40° South and 30° North.

European Broadcasting Area:

Is bounded on the west by the western boundary of Region 1, on the east by the meridian 40° East of Greenwich and on the south by the parallel 30° North so as to include the northern part of Saudi Arabia and that part of those countries bordering the Mediterranean within these limits. In addition, Armenia, Azerbaijan, Georgia and those parts of the territories of Iraq, Jordan, Syrian Arab Republic, Turkey and Ukraine lying outside the above limits are included in the European Broadcasting Area. (WRC-07)

European Maritime Area:

Is bounded to the north by a line extending along parallel 72° North from its intersection with meridian 55° East of Greenwich to its intersection with meridian 5° West, then along meridian 5° West to its intersection with parallel 67° North, thence along parallel 67° North to its intersection with meridian 32° West; to the west by a line extending along meridian 32° West to its intersection with parallel 30° North; to the south by a line extending along parallel 30° North to its intersection with meridian 43° East; to the east by a line extending along meridian 43° East to its intersection with parallel 60° North, thence along parallel 60° North to its intersection with meridian 55° East and thence along meridian 55° East to its intersection with parallel 72° North.

Tropical Zone:

the whole of that area in Region 2 between the Tropics of Cancer and Capricorn;

the whole of that area in Regions 1 and 3 contained between the parallels 30° North and 35° South with the addition of:

i) The area contained between the meridians 40° East and 80° East of Greenwich and the parallels 30° North and 40° North;

ii) that part of Libya north of parallel 30° North.

A sub-Region:

Is an area consisting of two or more countries in the same Region.

8. Frequency bands and wavelength

8.1 ITU designation of radio spectrum

According to ITU Radio Regulations, the Radio Frequencies shall be subdivided into nine frequency bands, which shall be designated by progressive whole numbers in accordance with the following table.

The unit of frequency is the hertz (Hz), frequencies shall be expressed:

- in kilohertz (kHz), up to and including 3 000 kHz;
- in megahertz (MHz), above 3 MHz, up to and including 3 000 MHz;
- in gigahertz (GHz), above 3 GHz, up to and including 3 000 GHz.

Table 1: ITU Frequency bands and wavelength

Band	Frequency range	Wavelength
Very Low Frequency (VLF)	3 kHz - 30 kHz	100 km – 10 km
Low Frequency (LF)	30 kHz - 300 kHz	10 km – 1 km
Medium Frequency (MF)	300 kHz - 3 000 kHz	1 km – 100 m
High Frequency (HF)	3 MHz - 30 MHz	100 m – 10 m
Very High Frequency (VHF)	30 MHz - 300 MHz	10 m – 1 m
Ultra High Frequency (UHF)	300 MHz - 3 000 MHz	1 m – 100 mm
Super High Frequency (SHF)	3 - 30 GHz	100 mm – 10 mm
Extremely High Frequency (EHF)	30 - 300 GHz	10 mm – 1 mm
Tremendously High Frequency (THF)	300 - 3 000 GHz	1 mm – 100 µm

NOTE 1: "Band N" (N = band number) extends from 0.3×10^N Hz to 3×10^N Hz.

NOTE 2: Prefix: k = kilo (10^3), M = mega (10^6), G = giga (10^9).

8.2 Other designations

According to IEEE Standard Letter Designations for Radar-Frequency Bands, the Radio Frequencies descriptions names generally were used for radar and RF dependent weapon and communication spectrum. L band stood for long wave, S band for short wave, C band for compromise between S and X band, X band was used for fire control with the X being the cross hair in a trigger. Ku band was from Kurz (German for short) Under with K band in the middle and Ka band Kurz Above. In addition to V, W and G bands.

Within V and W Band there are three bands allocated for fixed (but potentially mobile) services, two 5 GHz bands at 71- 76 and 81 - 86 GHz and a 3 GHz band at 92-95 GHz. These are known collectively as E band from the waveguide naming regime for 60 to 90 GHz.

Table 2: IEEE bands designations

Band	Frequency Range
L	1 - 2 GHz
S	2 - 4 GHz
C	4 - 8 GHz
X	8 - 12 GHz
Ku	12 - 18 GHz
K	18 - 27 GHz
Ka	27 - 40 GHz
V	40 - 75 GHz
W	75 - 110 GHz
G	110 - 300 GHz

9. Categories of Radiocommunication Services and Footnotes

9.1 Radiocommunication Services

Where, in this document, a frequency band is indicated as allocated to more than one service, such services are listed in the following order:

- Services names of which are printed in “capital” (example: FIXED); are called “primary” services;
- Services names of which are printed in “normal characters” (example: Mobile); are called “secondary” services.
- Additional remarks shall be printed in normal characters (example: MOBILE except aeronautical mobile).

Stations of a secondary service:

1) 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.
2) 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.

3) 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.

9.2 Footnotes

Where footnotes are employed, the following rules apply:

a) Where a footnote is printed on the same line as the name of a radio service the footnote applies only to that service.
b) Where a footnote is printed within the lower part of a frequency band and not on the same line as a radio service, the footnote applies to that band or some part thereof.
c) Footnotes in the International Telecommunication Union Table of Frequency Allocations are identified below the tables by their number, e.g. '5.12'. Where references are made in or below the table to these international footnotes, they are similarly identified.
d) Footnotes in Egypt tables are always identified by the prefix 'EG' - e.g. 'EG35'.

Chapter 2

TABLE OF NATIONAL FREQUENCY ALLOCATIONS

This Egyptian table of National Frequency Allocation is divided into rows representing frequency band allocations of Radio Services, and it consists of four columns, as follows:

ITU Radio Regulations Region 1 Allocations:

- ITU allocations as given in ITU Radio Regulations, Article 5 for Region 1 (as Egypt territories are located in Region 1) are listed to compare with the Egypt Allocations.
- The Region 1 column has references to ITU International Footnotes as given in Article 5 of ITU Radio Regulations and shown as 5.XXX.
- The International Footnotes are compiled at the end of this table for reference purposes.

Egypt National Allocations:

- Contains applicable Radio Services allocations, specific allocations for Egypt only are written in **bold** font.
- Egypt National Allocations column has references to Egypt National Footnotes and shown as EGXX. These National Footnotes are also summarized below the table in section 12.
- Egypt National Footnotes are arranged in different categories for ease of reference and are based on specific usage for Egypt.

Main Usage:

- Includes summary of main radios services applications allowed for usage within Egypt in each band.
- Includes also additional classes of important radio applications as identified within each frequency band.
- Important exclusive frequency usage for certain applications like distress and safety communications.

Remarks:

- Includes further regulatory references and notes concerning the band and its utilization from the relevant sections in ITU Radio Regulations and other important international standards as well.

10. Table of National Frequency Allocations

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
3-8.3 kHz			
(Not allocated)	(Not allocated)		
5.53 5.54			
8.3-9 kHz			
METEOROLOGICAL AIDS 5.54A	METEOROLOGICAL AIDS RADIONAVIGATION FIXED MOBILE		
5.54B 5.54C			
9-11.3 kHz			
METEOROLOGICAL AIDS 5.54A **RADIONAVIGATION**	METEOROLOGICAL AIDS RADIONAVIGATION	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	
	EG01		
11.3-14 kHz			
RADIONAVIGATION	RADIONAVIGATION	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	
	EG01		
14-19.95 kHz			
MARITIME MOBILE 5.57 **FIXED**	MARITIME MOBILE FIXED	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	– Maritime mobile use is limited to radiotelegraph coast stations (A1A and F1B only). **(5.57)** – For Maritime applications

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.55 5.56	EG01		
19.95-20.05 kHz			
STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	ITU RR Article **26**
	EG01		
20.05-70 kHz			
FIXED **MARITIME MOBILE 5.57**	FIXED MARITIME MOBILE	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	– Maritime mobile use is limited to radiotelegraph coast stations (A1A and F1B only). **(5.57)** – For Maritime applications
5.56 5.58	EG01		
70-72 kHz			
RADIONAVIGATION 5.60	RADIONAVIGATION	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	
	EG01		
72-84 kHz			
FIXED **MARITIME MOBILE 5.57** **RADIONAVIGATION 5.60**	FIXED MARITIME MOBILE RADIONAVIGATION	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	Maritime mobile use is limited to radiotelegraph coast stations (A1A and F1B only). **(5.57)**
5.56	EG01		
84-86 kHz			
RADIONAVIGATION 5.60	RADIONAVIGATION	SRD: ▪ Inductive applications	

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
		▪ Ultra-Low Power Active Medical Implants	
	EG01		
86-90 kHz			
FIXED **MARITIME MOBILE 5.57** **RADIONAVIGATION**	FIXED MARITIME MOBILE RADIONAVIGATION	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	– Maritime mobile use is limited to radiotelegraph coast stations (A1A and F1B only). **(5.57)** – For Maritime applications
5.56	EG01		
90-110 kHz			
RADIONAVIGATION 5.62 **Fixed**	RADIONAVIGATION Fixed	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	
5.64	EG01		
110-112 kHz			
FIXED **MARITIME MOBILE** **RADIONAVIGATION**	FIXED MARITIME MOBILE RADIONAVIGATION	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	
5.64	EG01		
112-115 kHz			
RADIONAVIGATION 5.60	RADIONAVIGATION	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	
	EG01		
115-117.6 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
RADIONAVIGATION 5.60 **Fixed** **Maritime mobile**	RADIONAVIGATION Fixed Maritime mobile	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	
5.64 5.66	EG01		
117.6-126 kHz			
FIXED **MARITIME MOBILE** **RADIONAVIGATION 5.60**	FIXED MARITIME MOBILE RADIONAVIGATION	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	
5.64	EG01		
126-129 kHz			
RADIONAVIGATION 5.60	RADIONAVIGATION	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	
	EG01		
129-130 kHz			
FIXED **MARITIME MOBILE** **RADIONAVIGATION 5.60**	FIXED MARITIME MOBILE RADIONAVIGATION	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	
5.64	EG01		
130-135.7 kHz			
FIXED **MARITIME MOBILE**	FIXED MARITIME MOBILE	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	
5.64 5.67	EG01		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
135.7-137.8 kHz			
MARITIME MOBILE **FIXED** **Amateur 5.67A**	FIXED MARITIME MOBILE	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	Amateur usage not allowed. **(5.67B)**
5.64 5.67 5.67B	EG01		
137.8-148.5 kHz			
FIXED **MARITIME MOBILE**	FIXED MARITIME MOBILE	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	
5.64 5.67	EG01		
148.5-255 kHz			
BROADCASTING	BROADCASTING	SRD: ▪ Ultra-Low Power Active Medical Implants	ITU **GE-75** Plan
5.68 5.69 5.70	EG01		
255-283.5 kHz			
BROADCASTING **AERONAUTICAL RADIONAVIGATION**	BROADCASTING AERONAUTICAL RADIONAVIGATION	SRD: ▪ Ultra-Low Power Active Medical Implants	– ITU RR Article **28** and Appendix **12** – For Aeronautical NDBs and locators – ITU **GE-75** Plan
5.70	EG01		
283.5-315 kHz			
AERONAUTICAL RADIONAVIGATION **MARITIME RADIONAVIGATION (radiobeacons) 5.73**	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons)	– Maritime Radio Beacons – SRD: ▪ Ultra-Low Power Active Medical Implants	– The band 283.5-325 kHz may be used to transmit supplementary navigational information using narrow-band techniques. **(5.73)** – The frequency band 285.3-285.7 kHz is also allocated to the maritime

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
			radionavigation service (other than radiobeacons) on a primary basis. (5.74) – ITU RR Article 28 and Appendix 12 – For Aeronautical NDBs and locators
5.74	EG01, EG04		
315-325 kHz			
AERONAUTICAL RADIONAVIGATION **Maritime radionavigation (radiobeacons) 5.73**	AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons)	SRD: ▪ Ultra-Low Power Active Medical Implants	– The band 283.5-325 kHz may be used to transmit supplementary navigational information using narrow-band techniques. (5.73) – ITU RR Article 28 and Appendix 12 – For Aeronautical NDBs and locator
5.75	EG01, EG04		
325-405 kHz			
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	– Aeronautical NDBs and locators – SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	ITU RR Article 28 and Appendix 12
	EG01, EG05		
405-415 kHz			
RADIONAVIGATION 5.76	RADIONAVIGATION	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	For Maritime radio direction-finding at 410 kHz. (5.76)
	EG01		
415-435 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
MARITIME MOBILE 5.79 **AERONAUTICAL RADIONAVIGATION**	MARITIME MOBILE AERONAUTICAL RADIONAVIGATION	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	– ITU RR Article 28 and Appendix 12 – For Aeronautical NDBs and locators – The use of the band by the maritime mobile service is limited to radiotelegraphy. (5.79)
	EG01, EG04		
435-472 kHz			
MARITIME MOBILE 5.79 **Aeronautical radionavigation 5.77**	MARITIME MOBILE Aeronautical radionavigation	– Maritime applications – SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants ▪ Casualty detection devices	– ITU RR Articles 51 and 52 – The use of the band by the maritime mobile service is limited to radiotelegraphy. (5.79)
5.82	EG01, EG04		
472-479 kHz			
MARITIME MOBILE 5.79 **Amateur 5.80A** **Aeronautical radionavigation 5.77** **5.80**	MARITIME MOBILE Aeronautical radionavigation	SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	– The use of the band by the maritime mobile service is limited to radiotelegraphy. (5.79) – Amateur usage not allowed (5.80B)
5.80B 5.82	EG01, EG04		
479-495 kHz			
MARITIME MOBILE 5.79 5.79A **Aeronautical radionavigation 5.77**	MARITIME MOBILE Aeronautical radionavigation	– Maritime Safety Information (MSI) at 490 kHz - NAVTEX – SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	– ITU RR 52.7 – ITU RR Appendices 15 and 25 – NAVTEX operations in accordance with IMO procedures (5.79A) – The use of the band by the maritime mobile service is limited to radiotelegraphy. (5.79)
5.82	EG01, EG04		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
495-505 kHz			
MARITIME MOBILE 5.82C	MARITIME MOBILE	– Maritime GMDSS – Broadcasting safety information from coast stations – SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	Exclusive to international NAVDAT system. (5.82C)
	EG01, EG04		
505-526.5 kHz			
MARITIME MOBILE 5.79 5.79A 5.84 **AERONAUTICAL RADIONAVIGATION**	MARITIME MOBILE AERONAUTICAL RADIONAVIGATION	– Maritime Safety Information (MSI) at 518 kHz - Exclusive to international NAVTEX – SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	– ITU RR 52.6 – ITU RR Article 28 and Appendix 12 and 15 – NAVTEX operations in accordance with IMO procedures. (5.79A) – The use of the band by the maritime mobile service is limited to radiotelegraphy. (5.79) – For Aeronautical NDBs and locators.
	EG01, EG04		
526.5-1606.5 kHz			
BROADCASTING	BROADCASTING	– Traditional AM Sound Broadcasting – SRD: ▪ Inductive applications ▪ Ultra-Low Power Active Medical Implants	ITU GE-75 Plan
5.87 5.87A	EG01		
1606.5-1625 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MARITIME MOBILE 5.90** **LAND MOBILE**	FIXED MARITIME MOBILE LAND MOBILE	Maritime applications	ITU RR Articles 51 and 52
5.92	EG04		
1625-1635 kHz			
RADIOLOCATION	RADIOLOCATION		
5.93			
1635-1800 kHz			
FIXED **MARITIME MOBILE 5.90** **LAND MOBILE**	FIXED MARITIME MOBILE LAND MOBILE		
5.92 5.96	EG04		
1800-1810 kHz			
RADIOLOCATION	RADIOLOCATION		
5.93			
1810-1850 kHz			
AMATEUR	1810-1830 kHz **FIXED** **MOBILE except aeronautical mobile**		
	1830-1850 kHz AMATEUR	Amateur applications	
5.98 5.99 5.100	EG02, EG04, EG07		
1850-2000 kHz			
FIXED **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile		
5.92 5.96 5.103	EG02, EG04		
2000-2025 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE except aeronautical mobile (R)** **5.92 5.103**	FIXED MOBILE except aeronautical mobile (R) EG02, EG04		
2025-2045 kHz			
FIXED **MOBILE except aeronautical mobile (R)** **Meteorological aids 5.104** **5.92 5.103**	FIXED MOBILE except aeronautical mobile (R) Meteorological aids EG02, EG04		Meteorological aids usage is limited to oceanographic buoy stations. **(5.104)**
2045-2160 kHz			
FIXED **MARITIME MOBILE** **LAND MOBILE** **5.92**	FIXED MARITIME MOBILE LAND MOBILE EG02, EG04	– Fixed applications – Maritime applications	ITU RR Articles **51** and **52**
2160-2170 kHz			
RADIOLOCATION **5.93 5.107**	RADIOLOCATION		
2170-2173.5 kHz			
MARITIME MOBILE	MARITIME MOBILE EG04		
2173.5-2190.5 kHz			
MOBILE (distress and calling)	MOBILE (distress and calling)	– DSC distress calling at 2187.5 kHz – Telex distress traffic at 2174.5 kHz – Radiotelephony distress calling and traffic at 2182 kHz	ITU RR Articles **5.108, 5.109, 5.110, 5.111** and Appendix **15**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.108 5.109 5.110 5.111			
2190.5-2194 kHz			
MARITIME MOBILE	MARITIME MOBILE		
	EG04		
2194-2300 kHz			
FIXED **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R)	Fixed applications	
5.92 5.103 5.112	EG02, EG04		
2300-2498 kHz			
FIXED **MOBILE except aeronautical mobile (R)** **BROADCASTING 5.113**	FIXED MOBILE except aeronautical mobile (R) BROADCASTING	Fixed applications	ITU RR Article 23
5.103	EG02, EG04		
2498-2501 kHz			
STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)	STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)		ITU RR Article 26
2501-2502 kHz			
STANDARD FREQUENCY AND TIME SIGNAL **Space research**	STANDARD FREQUENCY AND TIME SIGNAL Space research		ITU RR Article 26
2502-2625 kHz			
FIXED **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R)	Fixed and Mobile applications	

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.92 5.103 5.114	EG02, EG04		
2625-2650 kHz			
MARITIME MOBILE **MARITIME RADIONAVIGATION**	MARITIME MOBILE MARITIME RADIONAVIGATION		
5.92	EG04		
2650-2850 kHz			
FIXED **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R)	– Fixed and Mobile applications – Maritime applications	
5.92 5.103	EG02, EG04		
2850-3025 kHz			
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	– Search and rescue operations at 3023 kHz	– ITU RR Article **5.111** and Appendix **27** – For Air-ground communications (HF voice and data)
5.111 5.115			
3025-3155 kHz			
AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		ITU RR Appendix **26**
3155-3200 kHz			
FIXED **MOBILE except aeronautical mobile (R)**	**FIXED** **MOBILE except aeronautical mobile**	– Fixed and Mobile applications – Maritime applications – SRD: ▪ Inductive applications	
5.116 5.117	EG01, EG02, EG04		
3200-3230 kHz			
FIXED **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R)	– Fixed and Mobile applications – Maritime applications – SRD:	ITU RR Article **23**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
BROADCASTING 5.113	BROADCASTING	▪ Inductive applications	
5.116	EG01, EG02, EG04		
3230-3400 kHz			
FIXED **MOBILE except aeronautical mobile** **BROADCASTING 5.113**	FIXED MOBILE except aeronautical mobile BROADCASTING	– Fixed and Mobile applications – Maritime applications – SRD: ▪ Inductive applications	ITU RR Article 23
5.116 5.118	EG01, EG02, EG04		
3400-3500 kHz			
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Aeronautical applications	– ITU RR Appendix 27 – For Air-ground communications (HF voice and data)
	EG05		
3500-3800 kHz			
AMATEUR **FIXED** **MOBILE except aeronautical mobile**	AMATEUR FIXED MOBILE except aeronautical mobile	– Fixed and Mobile applications – Maritime applications – Amateur applications	ITU RR Articles 51 and 52
5.92	EG02, EG04, EG07		
3800-3900 kHz			
FIXED **AERONAUTICAL MOBILE (OR)** **LAND MOBILE**	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	Fixed and Mobile applications	ITU RR Appendix 26
	EG02		
3900-3950 kHz			
AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		ITU RR Appendix 26
5.123			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
3950-4000 kHz			
FIXED **BROADCASTING**	FIXED BROADCASTING	Fixed applications	ITU RR Article 23
4000-4063 kHz			
FIXED **MARITIME MOBILE 5.127**	FIXED MARITIME MOBILE	– Fixed applications – Maritime applications	ITU RR Articles 51 and 52
5.126	EG04		
4063-4438 kHz			
MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132	MARITIME MOBILE	– International DSC calling at 4208/4219.5 kHz – Maritime Safety Information (MSI) at 4210 kHz – Meteorological and navigational warnings (MSI-NAVTEX) at 4209.5 kHz – DSC distress calling at 4207.5 kHz – Telex distress traffic at 4177.5 kHz – Radiotelephony distress calling and traffic at 4125 kHz – Fixed applications	– ITU RR Appendices 15,17 and 25 – NAVTEX operating characteristics in accordance with IMO procedures. (5.79A) – The band may be used exceptionally by stations in the fixed service, fixed stations mean power should not exceed 50 W. (5.128)
5.128	EG04		
4438-4488 kHz			
FIXED **MOBILE except aeronautical mobile (R)** **Radiolocation 5.132A**	FIXED MOBILE except aeronautical mobile (R) Radiolocation	Fixed applications	Radiolocation applications are limited to oceanographic radars. (5.132A)

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.132B	EG04		
4488-4650 kHz			
FIXED **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R) EG02, EG04	– Fixed and Mobile applications – Maritime applications	ITU RR Appendix 17
4650-4700 kHz			
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)		– ITU RR Appendix 27 – For Air-ground communications (HF voice and data)
4700-4750 kHz			
AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		ITU RR Appendix 26
4750-4850 kHz			
FIXED **AERONAUTICAL MOBILE (OR)** **LAND MOBILE** **BROADCASTING 5.113**	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING EG02	Fixed and Mobile applications	ITU RR Article 23
4850-4995 kHz			
FIXED **LAND MOBILE** **BROADCASTING 5.113**	FIXED LAND MOBILE BROADCASTING EG02	Fixed applications	ITU RR Article 23
4995-5003 kHz			
STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)	STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)	SRD: ▪ Inductive applications	ITU RR Article 26

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
	EG01		
5003-5005 kHz			
STANDARD FREQUENCY AND TIME SIGNAL **Space research**	STANDARD FREQUENCY AND TIME SIGNAL Space research	SRD: ▪ Inductive applications	ITU RR Article 26
	EG01		
5005-5060 kHz			
FIXED **BROADCASTING 5.113**	FIXED BROADCASTING	– Fixed applications – SRD: ▪ Inductive applications	ITU RR Article 23
	EG01		
5060-5250 kHz			
FIXED **Mobile except aeronautical mobile**	FIXED Mobile except aeronautical mobile	– Fixed and Mobile applications – Maritime applications – SRD: ▪ Inductive applications	
5.133	EG01, EG02, EG04		
5250-5275 kHz			
FIXED **MOBILE except aeronautical mobile** **Radiolocation 5.132A**	FIXED MOBILE except aeronautical mobile Radiolocation	– Fixed applications – SRD: ▪ Inductive applications	Radiolocation applications are limited to oceanographic radars. (5.132A)
5.133A	EG01, EG02		
5275-5351.5 kHz			
FIXED **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile	– Fixed and Mobile applications – SRD: ▪ Inductive applications	
	EG01, EG02		
5351.5-5366.5 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE except aeronautical mobile** **Amateur 5.133B**	FIXED MOBILE except aeronautical mobile Amateur	SRD: ▪ Inductive applications	
	EG01, EG02		
5366.5-5450 kHz			
FIXED **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile	SRD: ▪ Inductive applications	
	EG01, EG02		
5450-5480 kHz			
FIXED **AERONAUTICAL MOBILE (OR)** **LAND MOBILE**	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	SRD: ▪ Inductive applications	ITU RR Appendix **26**
	EG01, EG02		
5480-5680 kHz			
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	– Search and rescue operations at 5680 kHz – SRD: ▪ Inductive applications	– ITU RR Appendix **27** – For Air-ground communications (HF voice and data)
5.111 5.115	**EG01**		
5680-5730 kHz			
AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	SRD: ▪ Inductive applications	ITU RR Appendix **26**
5.111 5.115	**EG01**		
5730-5900 kHz			
FIXED **LAND MOBILE**	FIXED LAND MOBILE	SRD: ▪ Inductive applications	
	EG01, EG02		
5900-5950 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
BROADCASTING 5.134	BROADCASTING Fixed Land mobile	– Fixed and mobile applications – SRD: ▪ Inductive applications	– ITU RR Article 12 – For HFBC application – Fixed and mobile stations operate with minimum power (5.136)
5.136	EG01, EG02		
5950-6200 kHz			
BROADCASTING	BROADCASTING	SRD: ▪ Inductive applications	
	EG01		
6200-6525 kHz			
MARITIME MOBILE 5.109 5.110 5.130 5.132	MARITIME MOBILE	– International DSC calling at 6312.5/6331 kHz – Maritime Safety Information (MSI) at 6314 kHz – DSC distress calling at 6312 kHz – Telex distress traffic at 6268 kHz – Radiotelephony distress calling and traffic at 6215 kHz – SRD: ▪ Inductive applications	ITU RR Appendices 15, 17 and 25
5.137	EG01, EG04		
6525-6685 kHz			
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	SRD: ▪ Inductive applications	– ITU RR Appendix 27 – For Air-ground communications (HF voice and data)
	EG01		
6685-6765 kHz			
AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	SRD:	ITU RR Appendix 26

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
		▪ Inductive applications	
	EG01		
6765-7000 kHz			
FIXED **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R)	SRD: ▪ Inductive applications	ISM usage in 6765-6795 kHz is subject to authorization from NTRA. **(5.138)**
5.138	EG01, EG04		
7000-7100 kHz			
AMATEUR **AMATEUR-SATELLITE**	7000-7050 kHz FIXED	SRD: ▪ Inductive applications	
	7050-7100 kHz AMATEUR AMATEUR-SATELLITE	– Amateur applications – SRD: ▪ Inductive applications	
5.140 5.141 5.141A	EG01, EG07		
7100-7200 kHz			
AMATEUR	AMATEUR FIXED MOBILE except aeronautical mobile (R)	SRD: ▪ Inductive applications	
5.141A 5.141B	EG01, EG02, EG04		
7200-7300 kHz			
BROADCASTING	BROADCASTING	SRD: ▪ Inductive applications	
	EG01		
7300-7400 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
BROADCASTING 5.134	7300-7350 kHz BROADCASTING **Fixed** **Land mobile**	SRD: ▪ Inductive applications	– ITU RR Article **12** – For HFBC application – Fixed and mobile stations operate with minimum power. **(5.143, 5.143B)**
	7350-7400 kHz BROADCASTING **FIXED** **Land mobile**		
5.143 5.143A 5.143B 5.143C 5.143D	**EG01, EG02**		
7400-7450 kHz			
BROADCASTING	BROADCASTING **FIXED** **Land mobile**	SRD: ▪ Inductive applications	Fixed and mobile stations operate with minimum power **(5.143B)**
5.143B 5.143C	**EG01, EG02**		
7450-8100 kHz			
FIXED **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R)	– Maritime applications – SRD: ▪ Inductive applications	
5.144	**EG01, EG02, EG04**		
8100-8195 kHz			
FIXED **MARITIME MOBILE**	FIXED MARITIME MOBILE	SRD: ▪ Inductive applications	
	EG01, EG04		
8195-8815 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
MARITIME MOBILE 5.109 5.110 5.132 5.145	MARITIME MOBILE	– International DSC calling at 8415/8436.5 kHz – DSC distress calling at 8414.5 kHz – Telex distress traffic at 8376.5 kHz – Radiotelephony distress calling and traffic at 8291 kHz – Maritime Safety Information (MSI) at 8416.5 kHz – Search and rescue operations at 8364 kHz – SRD: ▪ Inductive applications	ITU RR Appendices **15**,**17** and **25**
5.111	**EG01, EG04**		
8815-8965 kHz			
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	SRD: ▪ Inductive applications	– ITU RR Appendix **27** – For Air-ground communications (HF voice and data)
	EG01		
8965-9040 kHz			
AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	SRD: ▪ Inductive applications	ITU RR Appendix **26**
	EG01		
9040-9305 kHz			
FIXED	FIXED	SRD: ▪ Inductive applications	
	EG01		
9305-9355 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **Radiolocation 5.145A**	FIXED Radiolocation	SRD: ▪ Inductive applications	Radiolocation applications are limited to oceanographic radars **(5.145A)**
5.145B	EG01		
9355-9400 kHz			
FIXED	FIXED	SRD: ▪ Inductive applications	
	EG01		
9400-9500 kHz			
BROADCASTING 5.134	BROADCASTING **Fixed**	SRD: ▪ Inductive applications	– ITU RR Article **12** – For HFBC application – Fixed stations operate with minimum power. **(5.146)**
5.146	EG01		
9500-9900 kHz			
BROADCASTING	**9500-9775 kHz** BROADCASTING **9775-9900 kHz** BROADCASTING **Fixed**	SRD: ▪ Inductive applications	Fixed stations total radiated power should not exceed 24 dBW. **(5.147)**
5.147	EG01		
9900-9995 kHz			
FIXED	FIXED	SRD: ▪ Inductive applications	
	EG01		
9995-10003 kHz			
STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz)	STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz)	– Search and rescue operations at 10003 kHz ± 3 kHz – SRD: ▪ Inductive applications	– Article **5.111** – ITU RR Article **26**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.111	EG01		
10003-10005 kHz			
STANDARD FREQUENCY AND TIME SIGNAL **Space research**	STANDARD FREQUENCY AND TIME SIGNAL Space research	– Search and rescue operations at 10003 kHz ± 3 kHz – SRD: ▪ Inductive applications	– Article **5.111** – ITU RR Article **26**
5.111	EG01		
10005-10100 kHz			
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	– Search and rescue operations at 10003 kHz ± 3 kHz – SRD: ▪ Inductive applications	– Article **5.111** – ITU RR Appendix **27** – For Air-ground communications (HF voice and data)
5.111	EG01		
10100-10150 kHz			
FIXED **Amateur**	FIXED Amateur	– Amateur applications – SRD: ▪ Inductive applications	
	EG01, EG07		
10150-11175 kHz			
FIXED **Mobile except aeronautical mobile (R)**	FIXED Mobile except aeronautical mobile (R)	– Maritime applications – SRD: ▪ Inductive applications	
	EG01, EG04		
11175-11275 kHz			
AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	SRD: ▪ Inductive applications	ITU RR Appendix **26**
	EG01		
11275-11400 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	SRD: ▪ Inductive applications	– ITU RR Appendix **27** – For Air-ground communications (HF voice and data)
	EG01		
11400-11600 kHz			
FIXED	FIXED	SRD: ▪ Inductive applications	
	EG01		
11600-11650 kHz			
BROADCASTING 5.134	BROADCASTING **Fixed**	SRD: ▪ Inductive applications	– ITU RR Article **12** – For HFBC application – Fixed stations operate with minimum power. **(5.146)**
5.146	**EG01**		
11650-12050 kHz			
BROADCASTING	**11650-11700 kHz** BROADCASTING **Fixed**	SRD: ▪ Inductive applications	Fixed stations total radiated power should not exceed 24 dBW. **(5.147)**
	11700-11975 kHz BROADCASTING		
	11975-12050 kHz BROADCASTING **Fixed**		
5.147	**EG01**		
12050-12100 kHz			
BROADCASTING 5.134	BROADCASTING **Fixed**	SRD: ▪ Inductive applications	– ITU RR Article **12** – For HFBC application – Fixed stations operate with minimum power. **(5.146)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.146	EG01		
12100-12230 kHz			
FIXED	FIXED	SRD: ▪ Inductive applications	
	EG01		
12230-13200 kHz			
MARITIME MOBILE 5.109 5.110 5.132 5.145	MARITIME MOBILE	– International DSC calling at 12577.5/12657 kHz – DSC distress calling at 12577 kHz – Telex distress traffic at 12520 kHz – Radiotelephony distress calling and traffic at 12290 kHz – Maritime Safety Information (MSI) at 12579 kHz – SRD: ▪ Inductive applications ▪ Active Medical Implants	ITU RR Appendices 15,17 and 25
	EG01, EG04		
13200-13260 kHz			
AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	SRD: ▪ Inductive applications ▪ Active Medical Implants	ITU RR Appendix 26
	EG01		
13260-13360 kHz			
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	SRD: ▪ Inductive applications ▪ Active Medical Implants	– ITU RR Appendix 27 – For Air-ground communications (HF voice and data)

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
	EG01		
13360-13410 kHz			
FIXED **RADIO ASTRONOMY**	FIXED RADIO ASTRONOMY	SRD: ▪ Inductive applications ▪ Active Medical Implants	
5.149	EG01, EG12		
13410-13450 kHz			
FIXED **Mobile except aeronautical mobile (R)**	FIXED Mobile except aeronautical mobile (R)	SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01, EG02		
13450-13550 kHz			
FIXED **Mobile except aeronautical mobile (R)** **Radiolocation 5.132A**	FIXED Mobile except aeronautical mobile (R) Radiolocation	SRD: ▪ Inductive applications ▪ Active Medical Implants	Radiolocation applications are limited to oceanographic radars. **(5.132A)**
5.149A	EG01, EG02		
13550-13570 kHz			
FIXED **Mobile except aeronautical mobile (R)**	FIXED Mobile except aeronautical mobile (R)	SRD: ▪ Inductive applications ▪ Active Medical Implants	For ISM in 13 553-13 567 kHz. **(5.150)**
5.150	EG01, EG02		
13570-13600 kHz			
BROADCASTING 5.134	BROADCASTING **Fixed** **Mobile except aeronautical mobile (R)**	SRD: ▪ Inductive applications ▪ Active Medical Implants	– ITU RR Article **12** – For HFBC application – Fixed and mobile stations operate with minimum power. **(5.151)**
5.151	EG01, EG02		
13600-13800 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
BROADCASTING	BROADCASTING	SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01		
13800-13870 kHz			
BROADCASTING 5.134	BROADCASTING Fixed Mobile except aeronautical mobile (R)	SRD: ▪ Inductive applications ▪ Active Medical Implants	– ITU RR Article 12 – For HFBC application – Fixed and mobile stations operate with minimum power. (5.151)
5.151	EG01, EG02		
13870-14000 kHz			
FIXED **Mobile except aeronautical mobile (R)**	FIXED Mobile except aeronautical mobile (R)	SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01EG02		
14000-14250 kHz			
AMATEUR **AMATEUR-SATELLITE**	AMATEUR AMATEUR-SATELLITE	– Amateur applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01, EG07		
14250-14350 kHz			
AMATEUR	AMATEUR	– Amateur applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
5.152	EG01, EG07		
14350-14990 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **Mobile except aeronautical mobile (R)**	FIXED Mobile except aeronautical mobile (R)	– Fixed applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01		
14990-15005 kHz			
STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz)	STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz)	– Search and rescue operations at 14993 kHz – SRD: ▪ Inductive applications ▪ Active Medical Implants	– Article **5.111** – ITU RR Article **26**
5.111	**EG01**		
15005-15010 kHz			
STANDARD FREQUENCY AND TIME SIGNAL **Space research**	STANDARD FREQUENCY AND TIME SIGNAL Space research	SRD: ▪ Inductive applications ▪ Active Medical Implants	ITU RR Article **26**
	EG01		
15010-15100 kHz			
AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	SRD: ▪ Inductive applications ▪ Active Medical Implants	ITU RR Appendix **26**
	EG01		
15100-15600 kHz			
BROADCASTING	BROADCASTING	– Broadcasting applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01		
15600-15800 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
BROADCASTING 5.134	BROADCASTING **Fixed**	– Fixed applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	– ITU RR Article **12** – For HFBC application – Fixed stations operate with minimum power. **(5.146)**
5.146	**EG01**		
15800-16100 kHz			
FIXED	FIXED	– Fixed applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
5.153	**EG01**		
16100-16200 kHz			
FIXED **Radiolocation 5.145A**	FIXED Radiolocation	SRD: ▪ Inductive applications ▪ Active Medical Implants	
5.145B	**EG01**		
16200-16360 kHz			
FIXED	FIXED	– Fixed applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01		
16360-17410 kHz			
MARITIME MOBILE 5.109 5.110 5.132 5.145	MARITIME MOBILE	– International DSC calling at 16805/16903 kHz – DSC distress calling at 16804.5 kHz – Telex distress traffic at 16695 kHz	ITU RR Appendices **15**, **17** and **25**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
		– Radiotelephony distress calling and traffic at 16420 kHz – Maritime Safety Information (MSI) at 16806.5 kHz – Maritime applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01, EG04		
17410-17480 kHz			
FIXED	FIXED	– Fixed applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01		
17480-17550 kHz			
BROADCASTING 5.134	BROADCASTING **Fixed**	SRD: ▪ Inductive applications ▪ Active Medical Implants	– ITU RR Article **12** – For HFBC application – Fixed stations operate with minimum power. **(5.146)**
5.146	EG01		
17550-17900 kHz			
BROADCASTING	BROADCASTING	– Broadcasting applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01		
17900-17970 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	– Aeronautical applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	– ITU RR Appendix **27** – For Air-ground communications (HF voice and data)
	EG01, EG05		
17970-18030 kHz			
AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	SRD: ▪ Inductive applications ▪ Active Medical Implants	ITU RR Appendix **26**
	EG01		
18030-18052 kHz			
FIXED	FIXED	– Fixed applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01		
18052-18068 kHz			
FIXED **Space research**	FIXED Space research	SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01		
18068-18168 kHz			
AMATEUR **AMATEUR-SATELLITE**	AMATEUR AMATEUR-SATELLITE	– Amateur applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
5.154	**EG01, EG07**		
18168-18780 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **Mobile except aeronautical mobile**	FIXED Mobile except aeronautical mobile	– Fixed applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01		
18780-18900 kHz			
MARITIME MOBILE	MARITIME MOBILE	– International DSC calling at 18898.5 kHz – SRD: ▪ Inductive applications ▪ Active Medical Implants	ITU RR Appendix 17
	EG01		
18900-19020 kHz			
BROADCASTING 5.134	BROADCASTING **Fixed**	SRD: ▪ Inductive applications ▪ Active Medical Implants	– ITU RR Article 12 – For HFBC application – Fixed stations operate with minimum power. (5.146)
5.146	EG01		
19020-19680 kHz			
FIXED	FIXED	– Fixed applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01		
19680-19800 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
MARITIME MOBILE 5.132	MARITIME MOBILE	– International DSC calling at 19703.5 kHz – Maritime Safety Information (MSI) at 19680.5 kHz – SRD: ▪ Inductive applications ▪ Active Medical Implants	ITU RR Appendices 15 and 17
	EG01		
19800-19990 kHz			
FIXED	FIXED	– Fixed applications – SRD: ▪ Inductive applications ▪ Active Medical Implants	
	EG01		
19990-19995 kHz			
STANDARD FREQUENCY AND TIME SIGNAL **Space research**	STANDARD FREQUENCY AND TIME SIGNAL Space research	– Search and rescue operations at 19993 kHz ±3 kHz – SRD: ▪ Inductive applications ▪ Active Medical Implants	– Article 5.111 – ITU RR Article 26
5.111	EG01		
19995-20010 kHz			
STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz)	STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz)	– Search and rescue operations at 19993 kHz ±3 kHz – SRD: ▪ Inductive applications ▪ Active Medical Implants	– Article 5.111 – ITU RR Article 26
5.111	EG01		
20010-21000 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **Mobile**	FIXED Mobile	– Fixed applications – SRD: ▪ Inductive applications	
	EG01		
21000-21450 kHz			
AMATEUR **AMATEUR-SATELLITE**	AMATEUR AMATEUR-SATELLITE	– Amateur applications – SRD: ▪ Inductive applications	
	EG01, EG07		
21450-21850 kHz			
BROADCASTING	BROADCASTING	SRD: ▪ Inductive applications	
	EG01		
21850-21870 kHz			
FIXED 5.155A	FIXED	– Fixed applications – SRD: ▪ Inductive applications	
5.155	EG01		
21870-21924 kHz			
FIXED 5.155B	FIXED	SRD: ▪ Inductive applications	For the fixed service usage for provision of aircraft flight safety. **(5.155B)**
	EG01		
21924-22000 kHz			
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	SRD: ▪ Inductive applications	– ITU RR Appendix **27** – For Air-ground communications (HF voice and data)
	EG01		
22000-22855 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
MARITIME MOBILE 5.132	MARITIME MOBILE	– International DSC calling at 22374.5/22444 kHz – Maritime Safety Information (MSI) at 22376 kHz – Maritime applications – SRD: ▪ Inductive applications	ITU RR Appendices **15**, **17** and **25**
5.156	EG01, EG04		
22855-23000 kHz			
FIXED	FIXED	– Fixed applications – SRD: ▪ Inductive applications	
5.156	EG01		
23000-23200 kHz			
FIXED **Mobile except aeronautical mobile (R)**	FIXED Mobile except aeronautical mobile (R)	– Fixed applications – SRD: ▪ Inductive applications	
5.156	EG01, EG04		
23200-23350 kHz			
FIXED 5.156A **AERONAUTICAL MOBILE (OR)**	FIXED AERONAUTICAL MOBILE (OR)	SRD: ▪ Inductive applications	The fixed service usage is limited to provision of aircraft flight safety. **(5.156A)**
	EG01		
23350-24000 kHz			
FIXED **MOBILE except aeronautical mobile 5.157**	FIXED MOBILE except aeronautical mobile	– Fixed applications – SRD: ▪ Inductive applications	The maritime mobile service usage limited to inter-ship radiotelegraphy. **(5.157)**
	EG01, EG04		
24000-24450 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **LAND MOBILE**	FIXED LAND MOBILE	SRD: ▪ Inductive applications	
	EG01		
24450-24600 kHz			
FIXED **LAND MOBILE** **Radiolocation 5.132A**	FIXED LAND MOBILE Radiolocation	– Fixed applications – SRD: ▪ Inductive applications	Radiolocation applications are limited to oceanographic radars. **(5.132A)**
5.158	**EG01**		
24600-24890 kHz			
FIXED **LAND MOBILE**	FIXED LAND MOBILE	– Fixed applications – SRD: ▪ Inductive applications	
	EG01		
24890-24990 kHz			
AMATEUR **AMATEUR-SATELLITE**	AMATEUR AMATEUR-SATELLITE	– Amateur applications – SRD: ▪ Inductive applications	
	EG01, EG07		
24990-25005 kHz			
STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)	STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)	SRD: ▪ Inductive applications	ITU RR Article **26**
	EG01		
25005-25010 kHz			
STANDARD FREQUENCY AND TIME SIGNAL **Space research**	STANDARD FREQUENCY AND TIME SIGNAL Space research	SRD: ▪ Inductive applications	ITU RR Article **26**
	EG01		
25010-25070 kHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile	– Mobile applications – SRD: ▪ Inductive applications	
	EG01, EG02, EG04		
25070-25210 kHz			
MARITIME MOBILE	MARITIME MOBILE	– International DSC calling at 25208.5 kHz – SRD: ▪ Inductive applications	ITU RR Appendix 17
	EG01, EG04		
25210-25550 kHz			
FIXED **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile	– Mobile applications – SRD: ▪ Inductive applications	
	EG01, EG02, EG04		
25550-25670 kHz			
RADIO ASTRONOMY	RADIO ASTRONOMY	SRD: ▪ Inductive applications	
5.149	EG01, EG12		
25670-26100 kHz			
BROADCASTING	BROADCASTING	SRD: ▪ Inductive applications	
	EG01		
26100-26175 kHz			
MARITIME MOBILE 5.132	MARITIME MOBILE	– International DSC calling at 26121 kHz – Maritime Safety Information (MSI) at 26100.5 kHz – SRD:	ITU RR Appendices 15 and 17

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
		▪ Inductive applications	
	EG01, EG04		
26175-26200 kHz			
FIXED **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile	– Fixed and mobile applications – SRD: ▪ Inductive applications	
	EG01, EG02, EG04		
26200-26350 kHz			
FIXED **MOBILE except aeronautical mobile** **5.132A** **Radiolocation**	FIXED MOBILE except aeronautical mobile Radiolocation	– Fixed and mobile applications – SRD: ▪ Inductive applications	Radiolocation applications are limited to oceanographic radars. **(5.132A)**
5.133A	EG01, EG02, EG04		
26350-27500 kHz			
FIXED **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile	– Fixed and mobile applications – SRD: ▪ Inductive applications ▪ Wireless control devices ▪ Measurement equipment	For ISM in 26 957-27 283 kHz. **(5.150)**
5.150	EG01, EG02, EG04		
27.5-28 MHz			
METEOROLOGICAL AIDS **FIXED** **MOBILE**	METEOROLOGICAL AIDS FIXED MOBILE	– Fixed and mobile applications – Meteorological applications – SRD: ▪ Inductive applications	
	EG01, EG02		
28-29.7 MHz			
AMATEUR **AMATEUR-SATELLITE**	AMATEUR AMATEUR-SATELLITE	– Amateur applications – SRD:	

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
		▪ Inductive applications	
	EG01, EG07		
29.7-30.005 MHz			
FIXED **MOBILE**	FIXED MOBILE	– Fixed applications – SRD: ▪ Inductive applications ▪ Radio Microphone ▪ Active Medical Implants	
	EG01, EG02		
30.005-30.01 MHz			
SPACE OPERATION (satellite identification) **FIXED** **MOBILE** **SPACE RESEARCH**	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	SRD: ▪ Radio Microphone ▪ Active Medical Implants	
	EG01, EG02		
30.01-37.5 MHz			
FIXED **MOBILE**	FIXED MOBILE	– Fixed and mobile applications – SRD: ▪ Radio Microphone ▪ Active Medical Implants ▪ Wireless control devices	
	EG01, EG02		
37.5-38.25 MHz			
FIXED **MOBILE** **Radio astronomy**	FIXED MOBILE Radio astronomy	SRD: ▪ Radio Microphone	
5.149	EG01, EG02, EG12		
38.25-39 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE**	FIXED MOBILE	– Mobile applications – SRD: ▪ Radio Microphone	
	EG01, EG02		
39-39.5 MHz			
FIXED **MOBILE** **Radiolocation 5.132A**	FIXED MOBILE Radiolocation	– Mobile applications – SRD: ▪ Radio Microphone	Radiolocation applications are limited to oceanographic radars. (5.132A)
5.159	EG01, EG02		
39.5-39.986 MHz			
FIXED **MOBILE**	FIXED MOBILE	SRD: ▪ Radio Microphone	
	EG01, EG02		
39.986-40.02 MHz			
FIXED **MOBILE** **Space research**	FIXED MOBILE Space research	SRD: ▪ Radio Microphone	
	EG01, EG02		
40.02-40.98 MHz			
FIXED **MOBILE**	FIXED MOBILE	– Fixed and Mobile applications – SRD: ▪ Radio Microphone ▪ Wireless control devices ▪ Measurement equipment	For ISM in 40.66-40.70 MHz. (5.150)
5.150	EG01, EG02		
40.98-41.015 MHz			
FIXED **MOBILE** **Space research**	FIXED MOBILE Space research	SRD: ▪ Radio Microphone ▪ Wireless control devices	

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
		▪ Measurement equipment	
5.160 5.161	EG01, EG02		
41.015-42 MHz			
FIXED **MOBILE**	FIXED MOBILE	– Fixed applications – SRD: ▪ Radio Microphone ▪ Measurement and Remote-control equipment	
5.160 5.161 5.161A	EG01, EG02		
42-42.5 MHz			
FIXED **MOBILE** **Radiolocation 5.132A**	FIXED MOBILE Radiolocation	SRD: ▪ Radio Microphone ▪ Measurement and Remote-control equipment	
5.160 5.161B	EG01, EG02		
42.5-44 MHz			
FIXED **MOBILE**	FIXED MOBILE	– Fixed and mobile applications – SRD: ▪ Radio Microphone ▪ Measurement and Remote-control equipment ▪ Cordless short-range telephones	
5.160 5.161 5.161A	EG01, EG02		
44-47 MHz			
MOBILE **FIXED**	MOBILE FIXED	SRD: ▪ Radio Microphone ▪ Measurement and Remote-control equipment	

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
		▪ Cordless short-range telephones	
5.162 5.162A	EG01, EG02		
47-50 MHz			
BROADCASTING	FIXED MOBILE except aeronautical mobile BROADCASTING	– Broadcasting systems – SRD: ▪ Non-specific short-range devices ▪ Cordless short-range telephones	ITU GE-89 Plan
5.162A 5.163 5.164 5.165	EG01, EG02		
50-52 MHz			
BROADCASTING **Amateur 5.166A 5.166B 5.166C 5.166D 5.166E 5.169 5.169A 5.169B**	FIXED MOBILE except aeronautical mobile BROADCASTING Amateur		ITU GE-89 Plan
5.162A 5.164 5.165	EG02		
52-68 MHz			
BROADCASTING	FIXED MOBILE except aeronautical mobile BROADCASTING	Broadcasting systems	ITU GE-89 Plan
5.162A 5.163 5.164 5.165 5.169 5.169A 5.169B 5.171	EG02		
68-74.8 MHz			
FIXED **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile	Fixed and mobile applications	
5.149 5.175 5.177 5.179	EG02, EG12		
74.8-75.2 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION Mobile	ILS/Marker beacons at 75 MHz	– The frequency 75 MHz is assigned to marker beacons and needs protection in the frequency range of 74.8 MHz and 75.2 MHz. (5.180) – ICAO Annex 10
5.180 5.181	EG02, EG05		
75.2-87.5 MHz			
FIXED **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile	Fixed and mobile applications	
5.175 5.179 5.187	EG02		
87.5-100 MHz			
BROADCASTING	BROADCASTING	– FM sound Broadcasting systems – SRD: ▪ Wireless Audio Applications ▪ Radio Microphone	ITU GE-84 Plan
5.190	EG01		
100-108 MHz			
BROADCASTING	BROADCASTING	– FM sound Broadcasting systems – SRD: ▪ Wireless Audio Applications ▪ Radio Microphone	ITU GE-84 Plan
5.194 5.192	EG01		
108-117.975 MHz			
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	– Aeronautical radionavigation applications	– The allocation to Aeronautical mobile (R) service is in accordance with RR Resolution 413 (Rev.WRC-07). (5.197A) – ICAO Annex 10

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
		– VHF omnidirectional radio range (VOR) in 108 - 117.975 MHz	– For ILS (localizer) in 108 - 112 MHz – For VDL mode 4 in 112–117.975 MHz – For ground-based augmentation system (GBAS) in 108-117.975 MHz – Can be used for AM(R)S applications compatible with ICAO Annex 10 SARP requirements in 112-117.975 MHz
5.197 5.197A	EG05		
117.975-137 MHz			
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	– AERO-SAR and EPIRB at 121.5 MHz – Search and rescue operations at 121.5 MHz – Aeronautical applications	– Article 5.111 – ITU RR Appendix 15 – Auxiliary aeronautical emergency on 123.1 MHz. (5.200) – ICAO Annex 10 – For aeronautical emergency VHF air-ground and air-air communications (voice and data)
5.111 5.200 5.201 5.202	EG05		
137-137.025 MHz			
SPACE OPERATION (space-to-Earth) 203C **METEOROLOGICAL-SATELLITE (space-to-Earth)** **MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209** **SPACE RESEARCH (space-to-Earth)** **Fixed** **Mobile except aeronautical mobile (R)**	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R)		– Resolution 739 (Rev.WRC-19) applies – The mobile-satellite service use is limited to non-geostationary-satellite systems. (5.209)
5.204 5.205 5.206 5.207 5.208			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
137.025-137.175 MHz			
SPACE OPERATION (space-to-Earth) **203C** **METEOROLOGICAL-SATELLITE (space-to-Earth)** **SPACE RESEARCH (space-to-Earth)** **Fixed** **Mobile except aeronautical mobile (R)** **Mobile-satellite (space-to-Earth)** **5.208A 5.208B 5.209** **5.204 5.205 5.206 5.207 5.208**	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth)		– Resolution 739 (Rev.WRC-19) applies – The mobile-satellite service use is limited to non-geostationary-satellite systems. (5.209)
137.175-137.825 MHz			
SPACE OPERATION (space-to-Earth) **5.203C 5.209A** **METEOROLOGICAL-SATELLITE (space-to-Earth)** **MOBILE-SATELLITE (space-to-Earth)** **5.208A 5.208B 5.209** **SPACE RESEARCH (space-to-Earth)** **Fixed** **Mobile except aeronautical mobile (R)** **5.204 5.205 5.206 5.207 5.208**	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R)		– The mobile-satellite service use is limited to non-geostationary-satellite systems. (5.209) – Resolution 739 (Rev.WRC-19) applies
137.825-138 MHz			
SPACE OPERATION (space-to-Earth) **5.203C** **METEOROLOGICAL-SATELLITE (space-to-Earth)** **SPACE RESEARCH (space-to-Earth)**	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth)		– The mobile-satellite service use is limited to non-geostationary-satellite systems. (5.209) – Resolution 739 (Rev.WRC-19) applies

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
Fixed **Mobile except aeronautical mobile (R)** **Mobile-satellite (space-to-Earth)** **5.208A 5.208B 5.209**	Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth)		
5.204 5.205 5.206 5.207 5.208			
138-143.6 MHz			
AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		
5.210 5.211 5.212 5.214			
143.6-143.65 MHz			
AERONAUTICAL MOBILE (OR) **SPACE RESEARCH (space-to-Earth)**	AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth)		
5.211 5.212 5.214			
143.65-144 MHz			
AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		
5.210 5.211 5.212 5.214			
144-146 MHz			
AMATEUR **AMATEUR-SATELLITE**	AMATEUR AMATEUR-SATELLITE	Cube satellites for scientific research	
5.216	EG08		
146-148 MHz			
FIXED **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R)	Fixed and mobile applications	
	EG02		
148-149.9 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE except aeronautical mobile (R)** **MOBILE-SATELLITE (Earth-to-space)** **5.209**	FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space)	Fixed and mobile applications	The mobile-satellite service use is limited to non-geostationary-satellite systems. **(5.209)**
5.218 5.218A 5.219 5.221	EG02		
149.9-150.05 MHz			
MOBILE-SATELLITE (Earth-to-space) **5.209 5.220**	MOBILE-SATELLITE (Earth-to-space)		The mobile-satellite service use is limited to non-geostationary-satellite systems. **(5.209)**
150.05-153 MHz			
FIXED **MOBILE except aeronautical mobile** **RADIO ASTRONOMY**	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY	Fixed and mobile applications	
5.149	EG02, EG12		
153-154 MHz			
FIXED **MOBILE except aeronautical mobile (R)** **Meteorological aids**	FIXED MOBILE except aeronautical mobile (R) Meteorological aids	Fixed and mobile applications	
	EG02		
154-156.4875 MHz			
FIXED **MOBILE except aeronautical mobile (R)**	FIXED MOBILE except aeronautical mobile (R)	– The frequency 156.3 (VHF-CH06) MHz may be used for communication between ship stations and aircraft stations engaged in coordinated search and rescue operations.	– ITU RR Appendices **15** and **18** – In the band 156-156.4875 MHz priority is given to frequencies assigned to the stations of the maritime mobile service, however, it may be used for radiocommunications on inland

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
		– Maritime applications – Fixed and mobile applications	waterways subject to agreement between interested and affected administrations. (5.226) – ITU Articles 31 and 52, and Appendix 18
5.225A 5.226	EG02, EG04		
156.4875-156.5625 MHz			
MARITIME MOBILE (distress and calling via DSC)	MARITIME MOBILE (distress and calling via DSC)	– International DSC distress, urgency, safety and calling at 156.525 MHz (VHF-CH70) – Search and rescue operations at 156.525 MHz – Maritime applications – Fixed and mobile applications	– ITU RR Appendix 15 – The conditions for the use of this band are contained in Articles 31 and 52, and in Appendix 18. (5.226) – This band is also allocated to the fixed and land mobile services on a primary basis. (5.227)
5.111 5.226 5.227	EG02, EG04		
156.5625-156.7625 MHz			
MOBILE except aeronautical mobile (R) **FIXED**	MOBILE except aeronautical mobile (R) FIXED	– Ship-to-ship communications relating to the safety of navigation at 156.650 MHz (VHF-CH13) – Maritime applications – Fixed and mobile applications	– ITU RR Appendices 15 and 18 – In this band priority is given to frequencies assigned to the stations of the maritime mobile service, however, it may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations. (5.226) – ITU Articles 31 and 52, and Appendix 18
5.226	EG02, EG04		
156.7625-156.7875 MHz			
MARITIME MOBILE **Mobile-satellite (Earth-to-space)**	MARITIME MOBILE Mobile-satellite (Earth-to-space)	Maritime applications	– The conditions for the use of this band are contained in Articles 31 and 52, and in Appendix 18. (5.226)

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
			– The use of this band by the mobile-satellite service (Earth-to-space) is limited to the reception of automatic identification system (AIS) emissions of long-range AIS broadcast messages. **(5.228)**
5.111 5.226 5.228	EG04		
156.7875-156.8125 MHz			
MARITIME MOBILE (distress and calling)	MARITIME MOBILE (distress and calling)	– International distress, urgency, safety and calling by radiotelephony at 156.8 MHz (VHF-CH16) – Search and rescue operations at 156.8 MHz – Maritime applications	– Article **5.111** – ITU RR Appendix **15** – The conditions for the use of this band are contained in Articles **31** and **52**, and in Appendix **18. (5.226)**
5.111 5.226	EG04		
156.8125-156.8375 MHz			
MARITIME MOBILE **Mobile-satellite (Earth-to-space)**	MARITIME MOBILE Mobile-satellite (Earth-to-space)	Maritime applications	– The conditions for the use of this band are contained in Articles **31** and **52**, and in Appendix **18. (5.226)** – The use of this band by the mobile-satellite service (Earth-to-space) is limited to the reception of automatic identification system (AIS) emissions of long-range AIS broadcast messages. **(5.228)**
5.111 5.226 5.228	EG04		
156.8375-157.1875 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE except aeronautical mobile** **5.226**	FIXED MOBILE except aeronautical mobile EG02, EG04	– Maritime applications – Fixed and mobile applications	– In this band priority is given to frequencies assigned to the stations of the maritime mobile service, however, it may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations. (5.226) – ITU Articles 31 and 52, and Appendix 18
157.1875 -157.3375 MHz			
FIXED **MOBILE except aeronautical mobile** **Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC** **5.226**	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite EG02, EG04	– Maritime applications – Mobile applications	– In this band priority is given to frequencies assigned to the stations of the maritime mobile service, however, it may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations. (5.226) – Resolution 739 (Rev.WRC-19) applies – ITU Articles 31 and 52, and Appendix 18
157.3375-161.7875 MHz			
FIXED **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile	– Maritime applications – Fixed and mobile applications	– In the bands 157.3375-157.45 MHz, 160.6-160.975 MHz and 161.475-161.7875 MHz priority is given to frequencies assigned to the stations of the maritime mobile service, however, they may be used for radiocommunications on inland waterways subject to agreement

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
			between interested and affected administrations. (5.226) – ITU Articles 31 and 52, and Appendix 18
5.226	EG02, EG04		
161.7875-161.9375 MHz			
FIXED **MOBILE except aeronautical mobile** **Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC**	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite	– Maritime applications – Fixed and mobile applications	– In this band priority is given to frequencies assigned to the stations of the maritime mobile service, however, it may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations. (5.226) – Resolution 739 (Rev.WRC-19) applies – ITU Articles 31 and 52, and Appendix 18
5.226	EG02, EG04		
161.9375-161.9625 MHz			
FIXED **MOBILE except aeronautical mobile** **Maritime mobile-satellite (Earth-to-space) 5.228AA**	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to-space)	Maritime applications	– In this band priority is given to frequencies assigned to the stations of the maritime mobile service, however, it may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations. (5.226) – ITU Articles 31 and 52, and Appendix 18
5.226	EG02, EG04		
161.9625-161.9875 MHz			
FIXED **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space)	Maritime applications	– In this band priority is given to frequencies assigned to the stations of the maritime mobile service, however, it

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
Mobile-satellite (Earth-to-space) **5.228F** **5.226 5.228A 5.228B**	EG02, EG04		may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations. (5.226) – ITU Articles 31 and 52, and Appendix 18
161.9875-162.0125 MHz			
FIXED 5.228AA **MOBILE except aeronautical mobile** **Maritime mobile-satellite (Earth-to-space)** **5.226 5.229**	FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to-space) EG02, EG04	Maritime applications	– In this band priority is given to frequencies assigned to the stations of the maritime mobile service, however, it may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations. (5.226) – ITU Articles 31 and 52, and Appendix 18
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 Mobile-satellite (Earth-to-space) EG02, EG04	Maritime applications	– In this band priority is given to frequencies assigned to the stations of the maritime mobile service, however, it may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations. (5.226) – ITU Articles 31 and 52, and Appendix 18
162.0375-174 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE except aeronautical mobile** **5.226 5.229**	FIXED MOBILE except aeronautical mobile EG01, EG02, EG04	– Fixed and mobile applications – SRD: ▪ Wireless Meter Reading ▪ Wireless Audio Applications ▪ Radio Microphone ▪ Alarms Applications ▪ Measurement and Remote-control equipment ▪ Non-specific Short-Range Devices	– In the band 162.0375-162.05 MHz priority is given to frequencies assigned to the stations of the maritime mobile service, however, it may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations. (5.226) – ITU Articles 31 and 52, and Appendix 18
174-223 MHz			
BROADCASTING **5.235 5.237 5.243**	BROADCASTING **Fixed** **Mobile** EG01, EG02	– TV Broadcasting (terrestrial VHF TV Band III) – Fixed and mobile applications – SRD: ▪ Wireless Audio Applications ▪ Radio Microphone	ITU GE-06 Plan
223-230 MHz			
BROADCASTING **Fixed** **Mobile** **5.243 5.246 5.247**	BROADCASTING Fixed Mobile	TV Broadcasting (terrestrial VHF TV Band III)	ITU GE-06 Plan
230-235 MHz			
FIXED **MOBILE** **5.247 5.251 5.252**	FIXED MOBILE		
235-267 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE** **5.111 5.252 5.254 5.256 5.256A**	FIXED MOBILE EG02	– Search and rescue operations and operation of survival craft stations and equipment used for survival purposes at 243 MHz – Mobile applications	– Article **5.111** – The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **9.21**. **(5.254)**
267-272 MHz			
FIXED **MOBILE** **Space operation (space-to-Earth)** **5.254 5.257**	FIXED MOBILE Space operation (space-to-Earth) EG02	Mobile applications	The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **9.21**. **(5.254)**
272-273 MHz			
SPACE OPERATION (space-to-Earth) **FIXED** **MOBILE** **5.254**	SPACE OPERATION (space-to-Earth) FIXED MOBILE EG02	Mobile applications	The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **9.21**. **(5.254)**
273-312 MHz			
FIXED **MOBILE** **5.254**	FIXED MOBILE EG02	Mobile applications	The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **9.21**. **(5.254)**
312-315 MHz			
FIXED **MOBILE**	FIXED MOBILE Mobile-satellite (Earth-to-space)	Fixed and mobile applications	The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
Mobile-satellite (Earth-to-space) 5.254 5.255			satellite service, subject to agreement obtained under No. **9.21**. **(5.254)**
	EG02		
315-322 MHz			
FIXED **MOBILE**	FIXED MOBILE	Fixed and mobile applications	The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **9.21**. **(5.254)**
5.254	EG02		
322-328.6 MHz			
FIXED **MOBILE** **RADIO ASTRONOMY**	FIXED MOBILE RADIO ASTRONOMY		
5.149	EG02, EG12		
328.6-335.4 MHz			
AERONAUTICAL RADIONAVIGATION **5.258**	AERONAUTICAL RADIONAVIGATION **Mobile**	– For ILS glide path in conjunction with the ILS localizer in 108–112 MHz – Mobile applications	– Limited to Instrument Landing Systems ILS (glide path). **(5.258)** – ICAO Annex **10**
5.259	EG02, EG05		
335.4-387 MHz			
FIXED **MOBILE**	FIXED MOBILE	Fixed and mobile applications	The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **9.21**. **(5.254)**
5.254	EG02		
387-390 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE** **Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255**	FIXED MOBILE Mobile-satellite (space-to-Earth)	Fixed and mobile applications	– Resolution **739** (Rev.WRC-19) applies **(5.208B)** – The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **9.21**. **(5.254)**
	EG02		
390-399.9 MHz			
FIXED **MOBILE**	FIXED MOBILE	Fixed and mobile applications	The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **9.21**. **(5.254)**
5.254	EG02		
399.9-400.05 MHz			
MOBILE-SATELLITE (Earth-to-space) 5.209 5.220 5.260A 5.260B	MOBILE-SATELLITE (Earth-to-space)		The mobile-satellite service use is limited to non-geostationary-satellite systems. (**5.209**)
400.05-400.15 MHz			
STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz)	STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) **FIXED** **MOBILE**		ITU RR Article **26**
5.261 5.262	EG02		
400.15-401 MHz			
METEOROLOGICAL AIDS **METEOROLOGICAL-SATELLITE (space-to-Earth)** **MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209**	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth)	– Meteorological applications – Fixed and Mobile applications	– The mobile-satellite service use is limited to non-geostationary-satellite systems. **(5.209)** – Resolution **739** (Rev.WRC-19) applies

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
SPACE RESEARCH (space-to-Earth) 5.263 **Space operation (space-to-Earth)**	FIXED MOBILE Space operation (space-to-Earth)		
5.262 5.264	EG02		
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 applications – Fixed and Mobile applications – SRD: ▪ Ultra-Low Power Medical Data Service (MEDS)	
5.264A 5.264B	EG01, EG02		
402-403 MHz			
METEOROLOGICAL AIDS **EARTH EXPLORATION-SATELLITE (Earth-to-space)** **METEOROLOGICAL-SATELLITE (Earth-to-space)** **Fixed** **Mobile except aeronautical mobile**	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	– Meteorological applications – Fixed and mobile applications – SRD: ▪ Ultra-Low Power Medical Data Service (MEDS)	
5.264A 5.264B	EG01, EG02		
403-406 MHz			
METEOROLOGICAL AIDS **Fixed** **Mobile except aeronautical mobile**	METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	– Meteorological applications – Fixed and mobile applications – SRD: ▪ Ultra-Low Power Medical Data Service (MEDS)	Resolution **205** (Rev.WRC-19) applies. **(5.265)**
5.265	EG01, EG02		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
406-406.1 MHz			
MOBILE-SATELLITE (Earth-to-space) **5.265 5.266 5.267**	MOBILE-SATELLITE (Earth-to-space)	– Distress and Safety EPIRB /Emergency and Locator Transmitters (ELT)	– COSPAS – SARSAT / Low power EPIRBs. – ITU RR Article **31**, Appendices **13** and **15)** and Resolution **205** (Rev.WRC-19) apply. **(5.265)** – Any emission capable of causing harmful interference to the authorized uses of the band 406-406.1 MHz is prohibited. **(5.267)**
406.1-410 MHz			
FIXED **MOBILE except aeronautical mobile** **RADIO ASTRONOMY** **5.149 5.265**	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY **EG02, EG12**	Fixed and mobile applications	Resolution **205** (Rev.WRC-19) applies. **(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) **EG01, EG02**	– Fixed and mobile applications – SRD: ▪ Measurement and Remote-control equipment	
420-430 MHz			
FIXED **MOBILE except aeronautical mobile** **Radiolocation** **5.269 5.270 5.271**	FIXED MOBILE except aeronautical mobile Radiolocation **EG02**	Fixed and mobile applications	
430-432 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
AMATEUR **RADIOLOCATION**	**FIXED** **MOBILE except aeronautical mobile** AMATEUR RADIOLOCATION	Fixed and mobile applications	
5.271 5.274 5.275 5.276 5.277	**EG02**		
432-438 MHz			
AMATEUR **RADIOLOCATION** **Earth exploration-satellite (active)** **5.279A**	**432-435 MHz** **FIXED** **MOBILE except aeronautical mobile** AMATEUR RADIOLOCATION Earth exploration-satellite(active)	– Fixed and mobile applications – SRD: ▪ Non-specific SRD applications	ISM usage in 433.05-434.79 MHz is subject to authorization from NTRA. **(5.138)**
	435-438 MHz **FIXED** AMATEUR RADIOLOCATION Earth exploration-satellite (active)	– Fixed applications – Cube satellites for scientific research	The amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table. **(5.282)**
5.138 5.271 5.276 5.277 5.280 5.281 5.282	**EG01, EG02, EG08**		
438-440 MHz			
AMATEUR **RADIOLOCATION**	**MOBILE except aeronautical mobile** **FIXED** AMATEUR RADIOLOCATION	Mobile applications	
5.271 5.274 5.275 5.276 5.277 5.283	**EG02**		
440-450 MHz			
FIXED **MOBILE except aeronautical mobile** **Radiolocation**	FIXED MOBILE except aeronautical mobile Radiolocation	Fixed and mobile applications	
5.269 5.270 5.271 5.284 5.285 5.286	**EG02**		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
450-455 MHz			
FIXED **MOBILE 5.286AA**	FIXED MOBILE	Fixed and mobile applications	– This band is identified for IMT under Resolution **224** (Rev.WRC-19). **(5.286AA)** – The mobile-satellite service use in 454-456 MHz is limited to non-geostationary-satellite systems. **(5.209)** – The use of the mobile-satellite service is subject to coordination under No. **9.11A**. **(5.286A)**
5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E	EG02, EG06		
455-456 MHz			
FIXED **MOBILE 5.286AA**	FIXED MOBILE	Fixed and mobile applications	– This band is identified for IMT under Resolution **224** (Rev.WRC-19). **(5.286AA)** – The mobile-satellite service use in 454-456 MHz is limited to non-geostationary-satellite systems. **(5.209)** – The use of the mobile-satellite service is subject to coordination under No. **9.11A**. **(5.286A)**
5.209 5.271 5.286A 5.286B 5.286C 5.286E	EG02, EG06		
456-459 MHz			
MOBILE 5.286AA **FIXED**	MOBILE FIXED	– Fixed and mobile applications – SRD: ▪ Wireless control devices	– This band is identified for IMT under Resolution **224** (Rev.WRC-19). **(5.286AA)** – Use of the frequency band 457.5125-457.5875 MHz by the maritime mobile service is limited to on-board communication stations. **(5.287)**
5.271 5.287 5.288	EG01, EG02, EG06		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
459-460 MHz			
FIXED **MOBILE 5.286AA**	FIXED MOBILE	– Fixed applications – SRD: ▪ Wireless control devices	– This band is identified for IMT under Resolution **224** (Rev.WRC-19) **(5.286AA)** – The mobile-satellite service use in 459-460 MHz is limited to non-geostationary-satellite systems. **(5.209)** – The use of the mobile-satellite service is subject to coordination under No. **9.11A**. **(5.286A)**
5.209 5.271 5.286A 5.286B 5.286C 5.286E	EG01, EG02, EG06		
460-470 MHz			
FIXED **MOBILE 5.286AA** **Meteorological-satellite (space-to-Earth)**	FIXED MOBILE Meteorological-satellite (space-to-Earth)	Fixed and mobile applications	– This band is identified for IMT under Resolution **224** (Rev.WRC-19). **(5.286AA)** – Use of the frequency band 467.5125-467.5875 MHz by the maritime mobile service is limited to on-board communication stations. **(5.287)** – Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used. **(5.289)**
5.287 5.288 5.289 5.290	EG02, EG06		
470-694 MHz			
BROADCASTING	**470-582 MHZ** BROADCASTING **FIXED** **Land mobile**	– Analogue & Digital TV Broadcasting – Fixed applications – SRD: ▪ Wireless Audio Applications ▪ Radio Microphones	– ITU **GE-06** Plan – The use of Land mobile service is for applications ancillary to broadcasting and programme-making (PMSE). **(5.296)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
	582-606 MHz BROADCASTING **Fixed** **Mobile except aeronautical mobile** **Land mobile**	– Analogue & Digital TV Broadcasting – SRD: ▪ Wireless Audio Applications ▪ Radio Microphones	– ITU **GE-06** Plan – The use of Land mobile service is for applications ancillary to broadcasting and programme-making (PMSE). **(5.296)**
	606-614 MHz BROADCASTING **RADIO ASTRONOMY** **Fixed** **Mobile except aeronautical mobile** **Land mobile**	– Analogue & Digital TV Broadcasting – Fixed applications – SRD: ▪ Wireless Audio Applications ▪ Radio Microphones	– ITU **GE-06** Plan – The use of Land mobile service is for applications ancillary to broadcasting and programme-making (PMSE). **(5.296)**
	614-694 MHz BROADCASTING **Fixed** **Mobile except aeronautical mobile** **Land mobile**	– Analogue & Digital TV Broadcasting – Fixed applications	– ITU **GE-06** Plan – The use of Land mobile service is for applications ancillary to broadcasting and programme-making (PMSE). **(5.296)**
5.149 5.291A 5.294 5.296 5.300 5.304 5.306 5.312	EG01, EG12		
694-790 MHz			
MOBILE except aeronautical mobile **5.312A 5.317A** **BROADCASTING**	MOBILE except aeronautical mobile **Fixed**	– Terrestrial IMT (703-733/758 - 788 MHz) – Fixed and Mobile applications	– This band is identified for use to implement IMT, Resolutions **224** (Rev.WRC-19),**760** (Rev.WRC-19) and **749** (Rev.WRC-19) are applied. **(5.317A)** – Subject to the provisions of Resolutions **760** (Rev.WRC-19) & **224** (Rev.WRC-19). **(5.312A)**
5.300 5.312	EG06		
790-862 MHz			
FIXED	FIXED MOBILE except aeronautical mobile	– Fixed and Mobile applications	This band is identified for use to implement IMT, Resolutions **224** (Rev.WRC-19),**760**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
MOBILE except aeronautical mobile **5.316B 5.317A** **BROADCASTING**			(Rev.WRC-19) and **749** (Rev.WRC-19) are applied. **(5.317A)**
5.312 5.319	**EG06**		
862-890 MHz			
FIXED **MOBILE except aeronautical mobile** **5.317A** **BROADCASTING 5.322**	FIXED MOBILE except aeronautical mobile	– Terrestrial IMT (880 - 915/925 - 960 MHz) – Fixed and Mobile applications – SRD: ▪ Measurement and Remote-control equipment ▪ Alarms applications ▪ Radio frequency identification ▪ Wireless Audio applications	This band is identified for use to implement IMT, Resolutions **224** (Rev.WRC-19),**760** (Rev.WRC-19) and **749** (Rev.WRC-19) are applied. **(5.317A)**
5.319 5.323	**EG01, EG06**		
890-942 MHz			
FIXED **MOBILE except aeronautical mobile** **5.317A** **BROADCASTING 5.322** **Radiolocation**	FIXED MOBILE except aeronautical mobile	Terrestrial IMT (880 - 915/925 - 960 MHz)	This band is identified for use to implement IMT, Resolutions **224** (Rev.WRC-19),**760** (Rev.WRC-19) and **749** (Rev.WRC-19) are applied. **(5.317A)**
5.323	**EG06**		
942-960 MHz			
FIXED **MOBILE except aeronautical mobile** **5.317A** **BROADCASTING 5.322**	FIXED MOBILE except aeronautical mobile	Terrestrial IMT (880 - 915/925 - 960 MHz)	This band is identified for use to implement IMT, Resolutions **224** (Rev.WRC-19),**760** (Rev.WRC-19) and **749** (Rev.WRC-19) are applied. **(5.317A)**
5.323	**EG06**		
960-1164 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
AERONAUTICAL MOBILE (R) 5.327A **AERONAUTICAL RADIONAVIGATION 5.328**	AERONAUTICAL MOBILE (R) AERONAUTICAL RADIONAVIGATION	– Aeronautical radio navigation systems: ▪ DME/SSR in 960-1215 MHz ▪ ACAS (air-air interrogation/air-air reply) on 1030 /1090 MHz respectively	– The band 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. **(5.328)** – For ADS-B uplink emissions from aircraft in 1087.7-1092.3 MHz in accordance with Resolution **425** (Rev.WRC-19). **(5.328AA)** – Resolution **417** (Rev.WRC-15) applies. (**5.327A**) – ICAO Annex **10**
5.328AA	EG05, EG10		
1164-1215 MHz			
AERONAUTICAL RADIONAVIGATION 5.328 **RADIONAVIGATION-SATELLITE (space-to-Earth)(space-to-space) 5.328B**	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth)(space-to-space)	– Aeronautical radio navigation systems: ▪ DME/SSR in 960-1215 MHz ▪ GNSS systems (GPS L5, Galileo E5, GLONASS G3)	– The band 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. **(5.328)** – ICAO Annex **10**
5.328A	EG05, EG10		
1215-1240 MHz			
EARTH EXPLORATION-SATELLITE (active) **RADIOLOCATION** **RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A** **SPACE RESEARCH (active)**	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) SPACE RESEARCH (active) **FIXED** **MOBILE** **RADIONAVIGATION**	– Fixed applications – GNSS systems (GPS L2, GLONASS G2)	– Resolutions **608** (Rev.WRC-19) and **610** (WRC-03) shall apply. **(5.328B)** – ICAO Annex **10** – For Radar and Navigation systems

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.330 5.331 5.332			
1240-1300 MHz			
EARTH EXPLORATION-SATELLITE (active) **RADIOLOCATION** **RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A** **SPACE RESEARCH (active)** **Amateur**	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) SPACE RESEARCH (active) FIXED MOBILE RADIONAVIGATION Amateur	– Fixed applications – GNSS systems (GLONASS G2, Galileo E6)	– Resolutions 608 (Rev.WRC-19) and 610 (WRC-03) shall apply – ICAO Annex 10 – For Radar and Navigation systems
5.282 5.330 5.331 5.332 5.335 5.335A			
1300-1350 MHz			
RADIOLOCATION **AERONAUTICAL RADIONAVIGATION 5.337** **RADIONAVIGATION-SATELLITE (Earth-to-space)**	RADIOLOCATION AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space)		– Aeronautical radionavigation service use is restricted to ground-based radars and to associated airborne transponders. (5.337) – ICAO Annex 10 – For Radar and Navigation systems
5.149 5.337A	EG12		
1350-1400 MHz			
FIXED **MOBILE** **RADIOLOCATION**	FIXED MOBILE RADIOLOCATION	Fixed links	– In this frequency band Resolution 750 (Rev.WRC-19) applies. (5.338A) – ICAO Annex 10
5.149 5.338 5.338A 5.339	EG03, EG12		
1400-1427 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		All emissions are prohibited in this band **(5.340)**
5.340 5.341	EG11		
1427-1429 MHz			
SPACE OPERATION (Earth-to-space) **FIXED** **MOBILE except aeronautical mobile** **5.341A 5.341B 5.341C**	FIXED MOBILE except aeronautical mobile SPACE OPERATION (Earth-to-space)	Fixed links	This band is identified for use to implement IMT, Resolution **223** (Rev.WRC-15) applies. **(5.341A)**
5.338A 5.341	EG03, EG06		
1429-1452 MHz			
FIXED **MOBILE except aeronautical mobile** **5.341A**	FIXED MOBILE except aeronautical mobile	Fixed links	This band is identified for use to implement IMT, Resolution **223** (Rev.WRC-15) applied. **(5.341A)**
5.338A 5.341 5.342	EG03, EG06		
1452-1492 MHz			
FIXED **MOBILE except aeronautical mobile** **5.346** **BROADCASTING** **BROADCASTING-SATELLITE 5.208B**	FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE	Fixed links	– This band is identified for use to implement IMT, Resolution **223** (Rev.WRC-19) applied. **(5.346)** – Resolution **739** (Rev.WRC-19) applies. **(5.208B)**
5.341 5.342 5.345	EG03, EG06		
1492-1518 MHz			
FIXED **MOBILE except aeronautical mobile** **5.341A**	FIXED MOBILE except aeronautical mobile	Fixed links	This band is identified for use to implement IMT, Resolution **223** (Rev.WRC-15) applies. **(5.341A)**
5.341 5.342	EG03, EG06		
1518-1525 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE except aeronautical mobile** **MOBILE-SATELLITE (space-to-Earth)** **5.348 5.348A 5.348B 5.351A**	FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth)	– Fixed links – Mobile satellite systems	The use of this band by the mobile-satellite service is subject to coordination under **No. 9.11A. (5.348)**
5.341 5.342	EG03, EG08		
1525-1530 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**	**FIXED** **MOBILE except aeronautical mobile** MOBILE-SATELLITE (space-to-Earth) SPACE OPERATION (space-to-Earth) Earth exploration-satellite	– Fixed links – Mobile satellite systems	– Priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **44. (5.357A)** – Resolution **739 (**Rev.WRC-19) applies. **(5.208B)**
5.341 5.342 5.350 5.351 5.352A 5.354	EG03, G08		
1530-1535 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**	**MOBILE-SATELLITE (space-to-Earth)** **SPACE OPERATION (space-to-Earth)** Earth exploration-satellite Fixed Mobile except aeronautical mobile	– GMDSS (SAT-COM) in 1 530–1 544 MHz – Mobile satellite systems – Fixed applications	– ITU RR Appendix **15** – GMDSS distress, urgency and safety communications have priority in this band. **(5.353A)** – In addition to its availability for routine non-safety purposes, the band 1530-1544 MHz is used for distress and safety purposes in the space-to-Earth direction in the maritime mobile-satellite service. – Resolution **739** (Rev.WRC-19) applies. **(5.208B)**
5.341 5.342 5.351 5.354	EG08		
1535-1559 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A	1535-1540 MHz MOBILE-SATELLITE (space-to-Earth)	– GMDSS (SAT-COM) in 1 530–1 544 MHz – Mobile satellite systems	– ITU RR Appendix 15 – GMDSS distress, urgency and safety communications have priority in this band. (5.353A) – The band 1530-1544 MHz is used for distress and safety purposes in the space-to-Earth direction in the maritime mobile-satellite service.
	1540-1559 MHz MOBILE-SATELLITE (space-to-Earth) Fixed	– GMDSS (SAT-COM) in 1 530–1 544 MHz / (D&S-OPS) in 1544–1545 MHz – Mobile satellite systems – Fixed applications	– ITU RR Appendix 15 – The band 1530-1544 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. (5.353A) – Use of the band 1544-1545 MHz (space-to-Earth) is limited to distress and safety operations. (5.356)
5.341 5.351 5.353A 5.354 5.355 5.356 5.357 5.357A 5.359 5.362A	EG08		
1559-1610 MHz			
AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth)(space-to-space) 5.208B 5.328B 5.329A	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth)(space-to-space)	GNSS systems (GPS L1, Galileo E1-E2, GLONASS G1, BeiDou B11)	– Resolution 739 (Rev.WRC-19) applies. (5.208B) – ICAO Annex 10 – For ADS-B surveillance and the GBAS landing system (GLS)
5.341			
1610-1610.6 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
MOBILE-SATELLITE (Earth-to-space) **5.351A** **AERONAUTICAL RADIONAVIGATION**	AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (Earth-to-space) Fixed		– This Band is also allocated to the fixed service on a secondary basis. **(5.355)** – The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. **9.11A**. **(5.364)** – ICAO Annex **10** – For Standardized aeronautical mobile-satellite (R) systems in compliance with the relevant ICAO SARPs
5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372	EG08, EG10		
1610.6-1613.8 MHz			
MOBILE-SATELLITE (Earth-to-space) **5.351A** **RADIO ASTRONOMY** **AERONAUTICAL RADIONAVIGATION**	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Fixed		– The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. **9.11A**. **(5.364)** – ICAO Annex **10** – For Standardized aeronautical mobile-satellite (R) systems in compliance with the relevant ICAO SARPs
5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372	EG08, EG10, EG12		
1613.8-1621.35 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
MOBILE-SATELLITE (Earth-to-space) 5.351A **AERONAUTICAL RADIONAVIGATION** **Mobile-satellite (space-to-Earth) 5.208B**	MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) **Fixed**	Mobile satellite systems	– The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. **9.11A. (5.364)** – Resolution **739** (Rev.WRC-19) applies **(5.208B)** – ICAO Annex **10** – For Standardized aeronautical mobile-satellite (R) systems in compliance with the relevant ICAO SARPs.
5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372	EG08, EG10		
1621.35-1626.5 MHz			
MARITIME MOBILE-SATELLITE (space-to-Earth) 5.373 5.373A **MOBILE-SATELLITE (Earth-to-space) 5.351A** **AERONAUTICAL RADIONAVIGATION** **Mobile-satellite (space-to-Earth) except maritime mobile satellite (space-to-Earth) 5.208B**	MARITIME MOBILE-SATELLITE (space-to-Earth) MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) except maritime mobile satellite (space-to-Earth) **Fixed**	– Used for distress and safety purposes in the Earth-to-space and space-to-Earth directions in the maritime mobile-satellite service – Mobile satellite systems	– ITU RR Appendix **15** – The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. **9.11A. (5.364)** – Resolution **739** (Rev.WRC-19) applies. **(5.208B)** – ICAO Annex **10** – For Standardized aeronautical mobile-satellite (R) systems in compliance with the relevant ICAO SARPs.
5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372	EG08, EG10		
1626.5-1660 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
MOBILE-SATELLITE (Earth-to-space) **5.351A**	1626.5-1645.5 MHz MOBILE-SATELLITE (Earth-to-space) Fixed	– GMDSS (SAT-COM) in 1626.5 – 1645.5 MHz – Mobile satellite systems – Fixed applications	– ITU RR Appendix 15. – 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. (5.353A)
	1645.5-1646.5 MHz MOBILE-SATELLITE (Earth-to-space)	– GMDSS (D&S-OPS) in 1645.5-1646.5 MHz – Mobile satellite systems	– ITU RR Appendix 15. – Use of the band 1 645.5-1 646.5 MHz (Earth-to-space) is limited to distress and safety operations. (5.375)
	1646.5-1660 MHz MOBILE-SATELLITE (Earth-to-space) Fixed	– Mobile satellite systems – Fixed applications	ITU RR Appendix 15.
5.341 5.351 5.353A 5.354 5.355 5.357A 5.359 5.362A 5.374 5.375 5.376	EG08		
1660-1660.5 MHz			
MOBILE-SATELLITE (Earth-to-space) **5.351A** **RADIO ASTRONOMY**	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY		
5.149 5.341 5.351 5.354 5.362A 5.376A	EG12		
1660.5-1668 MHz			
RADIO ASTRONOMY **SPACE RESEARCH (passive)** **Fixed** **Mobile except aeronautical mobile**	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile	Fixed applications	
5.149 5.341 5.379 5.379A	EG11, EG12		
1668-1668.4 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
MOBILE-SATELLITE (Earth-to-space) **5.351A 5.379B 5.379C** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** **Fixed** **Mobile except aeronautical mobile**	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile		The aggregate power flux density values produced by mobile earth stations operating in this band is limited. **(5.379C)**
5.379A 5.379 5.341 5.149	**EG11, EG12**		
1668.4-1670 MHz			
METEOROLOGICAL AIDS **FIXED** **MOBILE except aeronautical mobile** **MOBILE-SATELLITE (Earth-to-space)** **5.351A 5.379B 5.379C** **RADIO ASTRONOMY**	METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY		The aggregate power flux density values produced by mobile earth stations operating in this band is limited. **(5.379C)**
5.149 5.341 5.379D 5.379E	**EG12**		
1670-1675 MHz			
METEOROLOGICAL AIDS **FIXED** **METEOROLOGICAL-SATELLITE (space-to-Earth)** **MOBILE** **MOBILE-SATELLITE (Earth-to-space)** **5.351A 5.379B**	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (Earth-to-space)		
5.341 5.379D 5.379E 5.380A			
1675-1690 MHz			
METEOROLOGICAL AIDS **FIXED** **METEOROLOGICAL-SATELLITE (space-to-Earth)** **MOBILE except aeronautical mobile**	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	Fixed applications	

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.341			
1690-1700 MHz			
METEOROLOGICAL AIDS **METEOROLOGICAL-SATELLITE (space-to-Earth)** **Fixed** **Mobile except aeronautical mobile**	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) **FIXED** **MOBILE except aeronautical mobile**		Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used. **(5.289)**
5.289 5.341 5.382			
1700-1710 MHz			
FIXED **METEOROLOGICAL-SATELLITE (space-to-Earth)** **MOBILE except aeronautical mobile**	FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	Fixed applications	Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used. **(5.289)**
5.289 5.341			
1710-1930 MHz			
FIXED **MOBILE 5.384A 5.388A 5.388B**	FIXED MOBILE	– Terrestrial IMT (1710-1785/1805-1880 MHz) (1920-1980/2110-2170 MHz) – Fixed applications – Wireless Local loop WLL (1880-1900 MHz) – SRD: ▪ Cordless telephone (DECT)	– This Band is identified to implement International Mobile Telecommunications (IMT) in accordance with Resolutions **212** (Rev.WRC-15) and **223** (Rev.WRC-15). **(5.384A) (5.388)** – 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. **(5.385)**
5.149 5.341 5.385 5.386 5.387 5.388	**EG01, EG06, EG12**		
1930-1970 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE 5.388A 5.388B**	FIXED MOBILE	Terrestrial IMT (1920-1980/2110-2170 MHz)	– This Band is identified to implement International Mobile Telecommunications (IMT) in accordance with Resolution **212** (Rev.WRC-15). **(5.388)** – This Band may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications (IMT), in accordance with Resolution **221** (Rev. WRC-07). **(3.388A)**
5.388	EG06		
1970-1980 MHz			
FIXED **MOBILE 5.388A 5.388B**	FIXED MOBILE	Terrestrial IMT (1920-1980/2110-2170 MHz)	– This Band is identified to implement International Mobile Telecommunications (IMT) in accordance with Resolution **212** (Rev.WRC-15). **(5.388)** – This Band may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications (IMT), in accordance with Resolution **221** (Rev.WRC-07). **(3.388A)**
5.388	EG06		
1980-2010 MHz			
FIXED **MOBILE** **MOBILE-SATELLITE (Earth-to-space)** **5.351A**	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space)	Fixed applications	This band is identified for use to implement IMT, in accordance with Resolutions **212** (Rev.WRC-15) and **223** (Rev.WRC-15). **(5.388)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.388 5.389A 5.389B 5.389F	EG06		
2010-2025 MHz			
FIXED **MOBILE 5.388A 5.388B**	FIXED MOBILE	Fixed applications	– This Band may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications (IMT), in accordance with Resolution **221** (Rev. WRC-07). **(3.388A)** – This band is identified for use to implement IMT, in accordance with Resolutions **212** (Rev.WRC-15) and **223** (Rev.WRC-15). **(5.388)**
5.388	EG06		
2025-2110 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)**	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)	– Earth exploration satellite applications – Fixed applications	
5.392	EG08		
2110-2120 MHz			
FIXED **MOBILE 5.388A 5.388B** **SPACE RESEARCH (deep space) (Earth-to-space)**	FIXED MOBILE	Terrestrial IMT (1920-1980/2110-2170 MHz)	This Band is identified to implement International Mobile Telecommunications (IMT) in accordance with Resolution **212** (Rev. WRC-15)**. (5.388)**
5.388	EG06		
2120-2160 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE 5.388A 5.388B**	FIXED MOBILE	Terrestrial IMT (1920-1980/2110-2170 MHz)	– This Band is identified to implement International Mobile Telecommunications (IMT) in accordance with Resolution **212** (Rev.WRC-15). **(5.388)** – This Band may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications (IMT), in accordance with Resolution **221** (Rev.WRC-07). **(3.388A)**
5.388	EG06		
2160-2170 MHz			
FIXED **MOBILE 5.388A 5.388B**	FIXED MOBILE	Terrestrial IMT (1920-1980/2110-2170 MHz)	– This Band is identified to implement International Mobile Telecommunications (IMT) in accordance with Resolution **212** (Rev.WRC-15) **(5.388)** – The high altitude platform station (HAPS) in this band, 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, in order to protect Fixed and mobile services. **(5.388B)**
5.388	EG06		
2170-2200 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE** **MOBILE-SATELLITE (space-to-Earth)** **5.351A**	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth)	Fixed applications	This Band is identified to implement International Mobile Telecommunications (IMT) in accordance with Resolution **212** (Rev.WRC-15). **(5.388)**
5.388 5.389A 5.389F	EG06		
2200-2290 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)**	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)	– Earth exploration satellite applications – Fixed applications	
5.392	EG08		
2290-2300 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)	Fixed links	
	EG03		
2300-2450 MHz			
FIXED **MOBILE 5.384A** **Amateur** **Radiolocation**	FIXED MOBILE Amateur Radiolocation	– Fixed links – SRD: ▪ Wireless LANs (2400-2483.5 MHz) ▪ Wideband Data Transmission Systems ▪ Measurement and Remote-control equipment	– The band 2300-2400 MHz is identified for use to implement IMT, Resolution **223** (Rev.WRC-15) applies. **(5.384A)** – For ISM in 2400-2500 MHz. **(5.150)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
		▪ Radio determination applications ▪ Radio frequency identification	
5.150 5.282 5.395	EG01, EG03, EG06		
2450-2483.5 MHz			
FIXED **MOBILE** **Radiolocation**	FIXED MOBILE Radiolocation	– Fixed links – SRD: ▪ Wireless LANs (2400-2483.5 MHz) ▪ Wideband Data Transmission Systems ▪ Measurement and Remote-control equipment ▪ Radio determination applications ▪ Radio frequency identification	For ISM in 2400-2500 MHz. **(5.150)**
5.150	EG01, EG03		
2483.5-2500 MHz			
FIXED **MOBILE** **MOBILE-SATELLITE (space-to-Earth)** **5.351A** **RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398** **Radiolocation 5.398A**	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) RADIODETERMINATION-SATELLITE (space-to-Earth) Radiolocation	Fixed links	For ISM in 2400-2500 MHz. (**5.150**)
5.150 5.399 5.401 5.402	EG03		
2500-2520 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED 5.410 **MOBILE except aeronautical mobile** **5.384A**	FIXED MOBILE except aeronautical mobile	– Terrestrial IMT (2500 –2690 MHz)	– This band is identified for use to implement IMT, Resolutions 223 (Rev.WRC-15) applied (5.384A) – This band may be used for tropospheric scatter systems (5.410)
5.412	EG06		
2520-2655 MHz			
FIXED 5.410 **MOBILE except aeronautical mobile** **5.384A** **BROADCASTING-SATELLITE 5.413** **5.416**	FIXED MOBILE except aeronautical mobile	– Terrestrial IMT (2500 – 2690 MHz)	– This band is identified for use to implement IMT, Resolutions 223 (Rev.WRC-15) applied (5.384A) – This band may be used for tropospheric scatter systems (5.410)
	EG06		
2655-2670 MHz			
FIXED 5.410 **MOBILE except aeronautical mobile** **5.384A** **BROADCASTING-SATELLITE 5.208B** **5.413 5.416** **Earth exploration-satellite (passive)** **5.410** **Radio astronomy** **Space research (passive)**	FIXED MOBILE except aeronautical mobile	– Terrestrial IMT (2500 – 2690 MHz)	– This band is identified for use to implement IMT, Resolutions 223 (Rev.WRC-15) applied. (5.384A) – This band may be used for tropospheric scatter systems (5.410) – Resolution 739 (Rev.WRC-19) applies.
5.149 5.412	EG06, EG12		
2670-2690 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
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 EG06, EG12	– Terrestrial IMT (2500 – 2690 MHz)	– This band is identified for use to implement IMT, Resolutions 223 (Rev.WRC-15) applied. (5.384A) – This band may be used for tropospheric scatter systems (5.410)
2690-2700 MHz			
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** **5.340 5.422**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) FIXED MOBILE except aeronautical mobile EG11		All emissions are prohibited in this band except for Fixed and mobile services use for equipment in operation by 1 January 1985 **(5.340) (5.422)**
2700-2900 MHz			
AERONAUTICAL RADIONAVIGATION 5.337 **Radiolocation** **5.424 5.423**	AERONAUTICAL RADIONAVIGATION Radiolocation EG05	– Aeronautical radionavigation radars: ▪ PSR (primary surveillance radar) – Meteorological radar	– Aeronautical radionavigation service use is restricted to ground-based radars and to associated airborne transponders. (5.337) – ICAO Annex 10
2900-3100 MHz			
RADIOLOCATION 5.424A **RADIONAVIGATION 5.426** **5.425 5.427**	RADIOLOCATION RADIONAVIGATION EG04		– ICAO Annex 10 – For Aeronautical radionavigation /radiolocation: ▪ PSR (primary surveillance radar)
3100-3300 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
RADIOLOCATION **Earth exploration-satellite (active)** **Space research (active)**	RADIOLOCATION Earth exploration-satellite (active) Space research (active)		
5.149 5.428	EG12		
3300-3400 MHz			
RADIOLOCATION	**MOBILE** **FIXED** RADIOLOCATION		This band is identified for IMT in accordance to Resolution **223** (REV.WRC-19). **(5.429B)**
5.149 5.429 5.429A 5.429B 5.430	EG06, EG12		
3400-3600 MHz			
FIXED **FIXED-SATELLITE (space-to-Earth)** **MOBILE except aeronautical mobile** **5.430A** **Radiolocation**	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation	– Fixed links	This band is identified for IMT, provisions **9.17** and **9.18** apply. **(5.430A)**
5.431	EG03, EG06, EG08		
3600-4200 MHz			
FIXED **FIXED-SATELLITE (space-to-Earth)** **Mobile**	FIXED FIXED-SATELLITE (space-to-Earth) Mobile	– Fixed links – Mobile applications – Fixed satellite systems	
	EG03, EG08		
4200-4400 MHz			
AERONAUTICAL MOBILE (R) 5.436 **AERONAUTICAL RADIONAVIGATION** **5.438**	AERONAUTICAL MOBILE (R) AERONAUTICAL RADIONAVIGATION		– Aeronautical mobile (R) service use is exclusively reserved for Wireless Avionics Intra-Communication systems (WAIC), Resolution **424** (WRC-15) applies. **(5.436)** – Aeronautical radionavigation service use is exclusively reserved for "radio altimeters". **(5.438)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.437 5.439 5.440			
4400-4500 MHz			
FIXED **MOBILE 5.440A**	FIXED MOBILE		
	EG03		
4500-4800 MHz			
FIXED **FIXED-SATELLITE (space-to-Earth) 5.441** **MOBILE 5.440A**	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	The use of this band by Fixed Satellite service under Provisions of Appendix **30B** **(5.441)**
	EG01, EG03, EG08		
4800-4990 MHz			
FIXED **MOBILE 5.440A 5.441A 5.441B 5.442** **Radio astronomy**	FIXED MOBILE Radio astronomy	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	In the frequency bands 4 825-4 835 MHz and 4 950-4 990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile. **(5.442)**
5.149 5.339 5.443	**EG01, EG03, EG12**		
4990-5000 MHz			
FIXED **MOBILE except aeronautical mobile** **RADIO ASTRONOMY** **Space research (passive)**	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive)	SRD: ▪ Tank Level Probing Radar (TLPR)	
5.149	**EG01, EG03, EG12**		
5000-5010 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)	SRD: ▪ Tank Level Probing Radar (TLPR)	– The use of this band by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems. **(5.443AA)** – ICAO Annex **10**
	EG01		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5010-5030 MHz			
AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA **AERONAUTICAL RADIONAVIGATION** **RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space)**	AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space)	SRD: ▪ Tank Level Probing Radar (TLPR)	– The use of this band by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems. **(5.443AA)** – ICAO Annex **10**
5.328B 5.443B	EG01		
5030-5091 MHz			
AERONAUTICAL MOBILE (R) 5.443C **AERONAUTICAL MOBILE-SATELLITE (R) 5.443D** **AERONAUTICAL RADIONAVIGATION**	AERONAUTICAL MOBILE (R) AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION	SRD: ▪ Tank Level Probing Radar (TLPR)	– Aeronautical mobile (R) service use is limited to internationally standardized aeronautical systems. **(5.443C)** – This band is used for the operation of the international standard system Microwave Landing System (MLS) for precision approach and landing. No. **5.444A** and Resolution **114** (Rev.WRC-15) apply. **(5.444)** – ICAO Annex **10**
5.444	EG01		
5091-5150 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED-SATELLITE (Earth-to-space) **5.444A** **AERONAUTICAL MOBILE 5.444B** **AERONAUTICAL MOBILE-SATELLITE (R)** **5.443AA** **AERONAUTICAL RADIONAVIGATION**	FIXED-SATELLITE (Earth-to-space) AERONAUTICAL MOBILE AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION	SRD: ▪ Tank Level Probing Radar (TLPR)	– Aeronautical mobile-satellite (R) service use is limited to internationally standardized aeronautical systems. (5.443AA) – This band is used for the operation of the international standard system Microwave Landing System (MLS) for precision approach and landing. No. 5.444A and Resolution 114 (Rev.WRC-15) apply. (5.444) – Fixed-satellite service use is limited to feeder links of non-geostationary satellite systems in the mobile-satellite service. (5.444A) – The use of this band by the aeronautical mobile service is limited to: ▪ International standard systems in accordance with Resolution 748 (Rev.WRC-19) ▪ Aeronautical telemetry transmissions from aircraft stations in accordance with Resolution 418 (Rev.WRC-19). (5.444B) – ICAO Annex 10
5.444	EG01		
5150-5250 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED-SATELLITE (Earth-to-space) 5.447A **MOBILE except aeronautical mobile 5.446A 5.446B** **AERONAUTICAL RADIONAVIGATION**	FIXED-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION **MOBILE**	SRD: ▪ Wireless LANs (5150-5350 MHz) ▪ Tank Level Probing Radar (TLPR)	– The frequency band 5150-5216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis **(5.446)** – Resolution **229 (**Rev. WRC-19**)** applies **(5.446A)** – The allocation to the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service **(5.447A)** – The band 5150-5216 MHz is allocated to the fixed-satellite service (space-to-Earth) on a primary basis limited to feeder links of non-geostationary-satellite systems in the mobile satellite service **(5.447B)** – Aeronautical mobile service use is limited to aeronautical telemetry transmissions from aircraft stations in accordance with Resolution **418** (Rev.WRC-19). **(5.446C)** – ICAO Annex **10**
5.446 5.446C 5.446D 5.447 5.447B 5.447C	**EG01**		
5250-5255 MHz			
EARTH EXPLORATION-SATELLITE (active) **MOBILE except aeronautical mobile 5.446A 5.447F** **RADIOLOCATION** **SPACE RESEARCH 5.447D**	EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile RADIOLOCATION SPACE RESEARCH	SRD: ▪ Wireless LANs (5150-5350 MHz) ▪ Tank Level Probing Radar (TLPR)	Resolution **229** (Rev. WRC-19) applies. **(5.446A)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.447E 5.448 5.448A	EG01		
5255-5350 MHz			
EARTH EXPLORATION-SATELLITE (active) **MOBILE except aeronautical mobile 5.446A 5.447F** **RADIOLOCATION** **SPACE RESEARCH (active)**	EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile RADIOLOCATION SPACE RESEARCH (active)	SRD: ▪ Wireless LANs (5150-5350 MHz) ▪ Tank Level Probing Radar (TLPR)	Resolution 229 (Rev. WRC-19) applies. **(5.446A)**
5.447E 5.448 5.448A	EG01		
5350-5460 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)	SRD: ▪ Tank Level Probing Radar (TLPR)	– Aeronautical radionavigation service use is limited to airborne radars and associated airborne beacons (airborne weather and ground mapping radar). **(5.449)** – ICAO Annex 10
	EG01		
5460-5470 MHz			
EARTH EXPLORATION-SATELLITE (active) **RADIOLOCATION 5.448D** **RADIONAVIGATION 5.449** **SPACE RESEARCH (active)**	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active)	SRD: ▪ Tank Level Probing Radar (TLPR)	– Aeronautical radionavigation service use is limited to airborne radars and associated airborne beacons (airborne weather and ground mapping radar). **(5.449)** – ICAO Annex 10
5.448B	EG01		
5470-5570 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
EARTH EXPLORATION-SATELLITE (active) **MOBILE except aeronautical mobile** **5.446A 5.450A** **RADIOLOCATION 5.450B** **MARITIME RADIONAVIGATION** **SPACE RESEARCH (active)**	EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile RADIOLOCATION MARITIME RADIONAVIGATION SPACE RESEARCH (active)	SRD: ▪ Tank Level Probing Radar (TLPR)	Resolution **229** (Rev. WRC-19) applies. **(5.446A)**
5.448B 5.450 5.451	EG01, EG04		
5570-5650 MHz			
MOBILE except aeronautical mobile **5.446A 5.450A** **RADIOLOCATION 5.450B** **MARITIME RADIONAVIGATION**	MOBILE except aeronautical mobile RADIOLOCATION MARITIME RADIONAVIGATION	– Meteorological Radar (5600 – 5650 MHz) – SRD: ▪ Tank Level Probing Radar (TLPR)	Resolution **229** (Rev. WRC-19) applies. **(5.446A)**
5.450 5.451 5.452	EG01, EG04		
5650-5725 MHz			
MOBILE except aeronautical mobile **5.446A 5.450A** **RADIOLOCATION** **Amateur** **Space research (deep space)**	**FIXED** **MOBILE** RADIOLOCATION Amateur Space research (deep space)	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	Resolution **229** (Rev. WRC-19) applies. **(5.446A)**
5.282 5.451 5.453 5.454 5.455	EG01, EG03		
5725-5830 MHz			
FIXED-SATELLITE (Earth-to-space) **RADIOLOCATION** **Amateur**	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION **FIXED** **MOBILE** Amateur	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR) ▪ Non-specific short-range devices	
5.150 5.451 5.453 5.455	EG01, EG03, EG08		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5830-5850 MHz			
FIXED-SATELLITE (Earth-to-space) **RADIOLOCATION** **Amateur** **Amateur-satellite (space-to-Earth)**	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION **FIXED** **MOBILE** Amateur Amateur-satellite (space-to-Earth)	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	
5.150 5.451 5.453 5.455	**EG01, EG03, EG08**		
5850-5925 MHz			
FIXED **FIXED-SATELLITE (Earth-to-space)** **MOBILE**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	SRD: ▪ Tank Level Probing Radar (TLPR)	
5.150	**EG01, EG03, EG08**		
5925-6700 MHz			
FIXED 5.457 **FIXED-SATELLITE (Earth-to-space)** **5.457A 5.457B** **MOBILE 5.457C**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	– Fixed links – Fixed satellite systems – SRD: ▪ Tank Level Probing Radar (TLPR)	– The standard frequency and time signal-satellite service may be authorized to use the frequency 6427 MHz for Earth-to-space transmissions. **(5.440)** – Earth stations located on board vessels may operate under maritime mobile-satellite service on a secondary basis in accordance with Resolution **902** (WRC-03) **(5.457B)**
5.149 5.440 5.458	**EG01, EG03, EG08, EG12**		
6700-7075 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
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 **EG01, EG03, EG08, EG12**	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	– The use of the band 6 725-7 025 MHz by Fixed Satellite service under Provisions of Appendix **30B. (5.441)** – The space-to-Earth allocation to the fixed-satellite service is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service **(5.458B)**
7075-7145 MHz			
FIXED **MOBILE** **5.458 5.459**	FIXED MOBILE **EG03**	Fixed links	
7145-7190 MHz			
FIXED **MOBILE** **SPACE RESEARCH (deep space) (Earth-to-space)** **5.458 5.459**	FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) **EG03**	Fixed links	
7190-7235 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) **EG03**	Fixed links	
7235-7250 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A **FIXED** **MOBILE**	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED MOBILE	Fixed links	
5.458	**EG03**		
7250-7300 MHz			
FIXED **FIXED-SATELLITE (space-to-Earth)** **MOBILE**	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	Fixed links	This band is also allocated to the "mobile-satellite service" on a primary basis **(5.461)**
5.461	**EG03, EG08**		
7300-7375 MHz			
FIXED **FIXED-SATELLITE (space-to-Earth)** **MOBILE except aeronautical mobile**	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	Fixed links	This band is also allocated to the "mobile-satellite service" on a primary basis **(5.461)**
5.461	**EG03, EG08**		
7375-7450 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	The use of this band by the maritime mobile-satellite service is limited to geostationary-satellite networks **(5.461AA)**
	EG03, EG08		
7450-7550 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**	FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth)	Fixed links	– The use of this band by the maritime mobile-satellite service is limited to geostationary-satellite networks **(5.461AA)** – The use of this band by the meteorological-satellite service (space-

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
			to-Earth) is limited to geostationary-satellite systems **(5.461A)**
5.461A	**EG03, EG08**		
7550-7750 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	The use of this band by the maritime mobile-satellite service is limited to geostationary-satellite networks **(5.461AA)**
	EG03, EG08		
7750-7900 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	The use of this band by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems **(5.461B)**
	EG03		
7900-8025 MHz			
FIXED **FIXED-SATELLITE (Earth-to-space)** **MOBILE**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	Fixed links	This band is also allocated to the "mobile-satellite service" on a primary basis **(5.461)**
5.461	**EG03, EG08**		
8025-8175 MHz			
EARTH EXPLORATION-SATELLITE (space-to-Earth) **FIXED** **FIXED-SATELLITE (Earth-to-space)** **MOBILE 5.463**	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	– Fixed links – Earth exploration satellite systems	
5.462A	**EG03, EG08, EG11**		
8175-8215 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
EARTH EXPLORATION-SATELLITE (space-to-Earth) **FIXED** **FIXED-SATELLITE (Earth-to-space)** **METEOROLOGICAL-SATELLITE (Earth-to-space)** **MOBILE 5.463**	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE	– Fixed links – Earth exploration satellite systems	
5.462A	**EG03, EG08, EG11**		
8215-8400 MHz			
EARTH EXPLORATION-SATELLITE (space-to-Earth) **FIXED** **FIXED-SATELLITE (Earth-to-space)** **MOBILE 5.463**	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	– Fixed links – Earth exploration satellite systems	
5.462A	**EG03, EG08, EG11**		
8400-8500 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	
	EG03		
8500-8550 MHz			
RADIOLOCATION	**FIXED** **MOBILE** RADIOLOCATION	SRD: ▪ Tank Level Probing Radar (TLPR)	
5.468 5.469	**EG01, EG03**		
8550-8650 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
EARTH EXPLORATION-SATELLITE (active) **RADIOLOCATION** **SPACE RESEARCH (active)**	**FIXED** **MOBILE** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active)	SRD: ▪ Tank Level Probing Radar (TLPR)	
5.468 5.469 5.469A	EG01, EG03		
8650-8750 MHz			
RADIOLOCATION	**FIXED** **MOBILE** RADIOLOCATION	SRD: ▪ Tank Level Probing Radar (TLPR)	
5.468 5.469	EG01, EG03		
8750-8850 MHz			
RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470	8750-8825 MHz RADIOLOCATION AERONAUTICAL RADIONAVIGATION	SRD: ▪ Tank Level Probing Radar (TLPR)	– The use of this band by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8800 MHz. **(5.470)** – The maritime radionavigation service is for use by shore-based radars only. **(5.471)** – ICAO Annex **10**
	8825-8850 MHz **MARITIME RADIONAVIGATION** RADIOLOCATION AERONAUTICAL RADIONAVIGATION		
5.471	EG01, EG04		
8850-9000 MHz			
RADIOLOCATION **MARITIME RADIONAVIGATION 5.472**	RADIOLOCATION MARITIME RADIONAVIGATION	SRD: ▪ Tank Level Probing Radar (TLPR)	The maritime radionavigation service is limited to shore-based radars **(5.472)**
5.473	EG01, EG04		
9000-9200 MHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
RADIOLOCATION **AERONAUTICAL RADIONAVIGATION** **5.337**	RADIOLOCATION AERONAUTICAL RADIONAVIGATION **MARITIME RADIONAVIGATION**	– Aeronautical radionavigation ground-based PSR (primary surveillance radar) systems: -Precision approach radar (PAR) -Airport surveillance detection equipment (ASDE) – SRD: ▪ Radio determination Applications ▪ Tank Level Probing Radar (TLPR)	– The maritime radionavigation service is for use by shore-based radars only. **(5.471)** – Aeronautical radionavigation service use is restricted to ground-based radars and to associated airborne transponders. **(5.337)** – ICAO Annex **10**
5.473A 5.471	**EG01, EG04, EG05**		
9200-9300 MHz			
EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C **RADIOLOCATION** **MARITIME RADIONAVIGATION 5.472**	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION MARITIME RADIONAVIGATION	– Search and rescue transponders (SART) – SRD: ▪ Radio determination Applications ▪ Tank Level Probing Radar (TLPR)	– ITU RR Appendix **15** – Search and rescue transponders (SART) may be used (Article **31**). **(5.474)** – The maritime radionavigation service use is limited to shore-based radars. **(5.472)**
5.473 5.474 5.474D	**EG01, EG04**		
9300-9500 MHz			
EARTH EXPLORATION-SATELLITE (active) **RADIOLOCATION** **RADIONAVIGATION 5.475** **SPACE RESEARCH (active)**	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active)	– Search and rescue transponders (SART) – Aeronautical radionavigation airborne weather radar (AWR) and ground-based radar (PSR) – SRD: ▪ Radio determination Applications ▪ Tank Level Probing Radar (TLPR)	– ITU RR Appendix **15** – Search and rescue transponders (SART) may be used (Article **31**). **(5.474)** – The use of this band by the aeronautical radionavigation service is limited to airborne weather radars and ground-based radars **(5.475)** – ICAO Annex **10**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.427 5.474 5.475A 5.475B 5.476A	**EG01, EG04, EG05**		
9500-9800 MHz			
EARTH EXPLORATION-SATELLITE (active) **RADIOLOCATION** **RADIONAVIGATION** **SPACE RESEARCH (active)**	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active)	SRD: ▪ Radio determination Applications ▪ Tank Level Probing Radar (TLPR)	
5.476A	**EG01**		
9800-9900 MHz			
RADIOLOCATION **Earth exploration-satellite (active)** **Fixed** **Space research (active)**	**FIXED** RADIOLOCATION Earth exploration-satellite (active) Space research (active)	SRD: ▪ Radio determination Applications ▪ Tank Level Probing Radar (TLPR)	
5.477 5.478 5.478B 5.478A	**EG01, EG03**		
9900-10000 MHz			
EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C **RADIOLOCATION** **Fixed**	**FIXED** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION	– Fixed links – SRD: ▪ Radio determination Applications ▪ Tank Level Probing Radar (TLPR)	The band 9975-10025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars. **(5.479)**
5.474D 5.477 5.478 5.479	**EG01, EG03**		
10-10.4 GHz			
EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C **FIXED** **MOBILE** **RADIOLOCATION** **Amateur**	EARTH EXPLORATION-SATELLITE (active) FIXED MOBILE RADIOLOCATION Amateur	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	– The band 9 975-10 025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars. **(5.479)** – Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation **ITU-R RS.2066-0. (5.474B)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.474D 5.479	**EG01, EG03**		
10.4-10.45 GHz			
FIXED **MOBILE** **RADIOLOCATION** **Amateur**	FIXED MOBILE RADIOLOCATION Amateur	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	
	EG01, EG03		
10.45-10.5 GHz			
RADIOLOCATION **Amateur** **Amateur-satellite**	**FIXED** **MOBILE** RADIOLOCATION Amateur Amateur-satellite	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	
5.481	**EG01, EG03**		
10.5-10.55 GHz			
FIXED **MOBILE** **Radiolocation**	FIXED MOBILE Radiolocation	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	
	EG01, EG03		
10.55-10.6 GHz			
FIXED **MOBILE except aeronautical mobile** **Radiolocation**	FIXED MOBILE except aeronautical mobile Radiolocation	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	
	EG01, EG03		
10.6-10.68 GHz			
EARTH EXPLORATION-SATELLITE (passive) **FIXED** **MOBILE except aeronautical mobile**	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile	Fixed links	– In the band 10.6-10.68 GHz, the power delivered to the antenna of stations of the fixed and mobile, except aeronautical

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
RADIO ASTRONOMY **SPACE RESEARCH (passive)** **Radiolocation**	RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation		mobile, services shall not exceed –3 dBW. **(5.482)** – For the sharing this band between the Earth exploration-satellite (passive) service and the fixed and mobile, except aeronautical mobile, services. Resolution **751** (WRC-07) applies. **(5.482A)**
5.149 5.482 5.482A	EG03, EG12		
10.68-10.7 GHz			
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	**FIXED** **MOBILE except aeronautical mobile** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		The use of this band 10.68-10.7 GHz by fixed and mobile, except aeronautical mobile services on a primary basis is limited to equipment in operation by 1 January 1985. **(5.483)**
5.340 5.483	EG03, EG11		
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	– The use of this band by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service **(5.484)** – The use of this band by geostationary-satellite systems shall be in accordance with the provisions of Appendix **30B** and use it by a non-geostationary-satellite system is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. **(5.441)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
	EG03, EG08		
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 – Fixed satellite systems	– The use of this band by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service **(5.484)** – The use of this band 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. **(5.484A)** – Resolution **155** (WRC-15)) shall apply. **(5.484B)** – For command and non-payload communications of UAS (RPAS C2 link in ICAO).
	EG03, EG08		
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 – Fixed satellite systems	– The use of this band by geostationary-satellite systems shall be in accordance with the provisions of Appendix **30B** **(5.441)** – The use of this band by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. **(5.484)**
	EG03, EG08		
11.45-11.7 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
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 – Fixed satellite systems	– The use of this band by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. **(5.484)** – The use of this band 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. **(5.484A)** – Resolution **155** (WRC-15) shall apply. **(5.484B)** – For command and non-payload communications of UAS (RPAS C2 link in ICAO).
	EG03, EG08		
11.7-12.5 GHz			
FIXED **MOBILE except aeronautical mobile** **BROADCASTING** **BROADCASTING-SATELLITE 5.492**	FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE	– Fixed links – Broadcasting satellite systems	– Broadcasting-satellite stations operating in accordance Plan in Appendix **30**. **(5.487)** – This band is 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** **(5.487A)** – Stations of the broadcasting-satellite service List in Appendix **30** may also be

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
			used for transmissions in the fixed-satellite service (space-to-Earth). **(5.492)**
5.487 5.487A	EG03, EG08		
12.5-12.75 GHz			
FIXED-SATELLITE **(space-to-Earth) 5.484A 5.484B** **(Earth-to-space)**	**FIXED** FIXED-SATELLITE (space-to-Earth) (Earth-to-space) **MOBILE except aeronautical mobile**	– Fixed links – Fixed satellite systems	– The use of this band 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. **(5.484A)** – Resolution **155** (WRC 15) shall apply. **(5.484B)** – For command and non-payload communications of UAS (RPAS C2 link in ICAO).
5.494 5.495 5.496	EG03, EG08		
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	The use of this band by geostationary-satellite systems shall be in accordance with the provisions of Appendix **30B** and use it by a non-geostationary-satellite system is subject to application of the provisions of No. **9.12. (5.441)**
	EG03, EG08		
13.25-13.4 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
EARTH EXPLORATION-SATELLITE (active) **AERONAUTICAL RADIONAVIGATION 5.497** **SPACE RESEARCH (active)**	EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION SPACE RESEARCH (active)		– The use of this band GHz by the aeronautical radionavigation service is limited to Doppler navigation aids **(5.497)** – The use of this band GHz by the aeronautical radionavigation service is limited to Doppler navigation aids (airborne Doppler radar and ground mapping radar). **(5.497)** – ICAO Annex **10**
5.498A 5.499			
13.4-13.65 GHz			
EARTH EXPLORATION-SATELLITE (active) **FIXED-SATELLITE (space-to-Earth) 5.499A 5.499B** **RADIOLOCATION** **SPACE RESEARCH 5.499C 5.499D** **Standard frequency and time signal-satellite (Earth-to-space)**	**FIXED** **MOBILE** EARTH EXPLORATION-SATELLITE (active) FIXED-SATELLITE (space-to-Earth) RADIOLOCATION SPACE RESEARCH Standard frequency and time signal-satellite (Earth-to-space)	– Fixed links – SRD: ▪ Radio determination Applications	– The allocation of this band to the space research service on a primary basis is limited to: ▪ satellite systems operating in the space research service (space-to-space) ▪ active spaceborne sensors, ▪ satellite systems operating in the space research service (space-to-Earth). **(5.499c)** – The frequency band is also allocated to the fixed and mobile services on a primary basis. **(5.500)**
5.499E 5.500 5.501 5.501B	EG01, EG03, EG08		
13.65-13.75 GHz			
EARTH EXPLORATION-SATELLITE (active) **RADIOLOCATION** **SPACE RESEARCH 5.501A**	**FIXED** **MOBILE** EARTH EXPLORATION-SATELLITE (active)	SRD: ▪ Radio determination Applications	– The allocation of this band the space research service on a primary basis is limited to active spaceborne sensors. **(5.501A)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
Standard frequency and time signal-satellite (Earth-to-space)	RADIOLOCATION SPACE RESEARCH Standard frequency and time signal-satellite (Earth-to-space)		– the frequency band is also allocated to the fixed and mobile services on a primary basis. **(5.500)**
5.499 5.500 5.501 5.501B	EG01, EG03		
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**	**FIXED** **MOBILE** FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research	– Fixed links – Fixed satellite systems – SRD: ▪ Radio determination Applications	The frequency band is also allocated to the fixed and mobile services on a primary basis. **(5.500)**
5.499 5.500 5.501 5.502 5.503	EG01, EG03, EG08		
14-14.25 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 5.504C 5.506A** **Space research**	**FIXED** FIXED-SATELLITE (Earth-to-space) RADIONAVIGATION Mobile-satellite (Earth-to-space) Space research	– Fixed links – Fixed satellite systems	– Earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution **902** (WRC-03) in the "maritime mobile-satellite service" on a secondary basis. **(5.457B)** – Resolution **155** (WRC-15) shall apply. **(5.484B)** – Aircraft earth stations operating in the aeronautical mobile-satellite service shall comply with the provisions of Annex 1, Part C of Recommendation ITU R M.1643-0. **(5.504B)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
			– For command and non-payload communications of UAS (RPAS C2 link in ICAO).
5.504A 5.505	EG03, EG08		
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**	**FIXED** FIXED-SATELLITE (Earth-to-space) RADIONAVIGATION Mobile-satellite (Earth-to-space) Space research	– Fixed links – Fixed satellite systems	– Earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution **902** (WRC-03) in the "maritime mobile-satellite service" on a secondary basis. **(5.457B)** – Resolution **155 (WRC 15)** shall apply. **(5.484B)** – Ship earth stations with an e.i.r.p. greater than 21 dBW shall operate under the same conditions as earth stations located on board vessels, as provided in Resolution **902** (WRC-03). **(5.506A)** – For command and non-payload communications of UAS (RPAS C2 link in ICAO).
5.504A 5.505 5.508	EG03, EG08		
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**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) Radionavigation-satellite	Fixed satellite systems	– Earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution **902** (WRC-03) in the "maritime mobile-satellite service" on a secondary basis. **(5.457B)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
Radionavigation-satellite **5.504A**	EG08		– Resolution **155** (WRC-15) shall apply. **(5.484B)** – Aircraft earth stations operating in the aeronautical mobile-satellite service shall comply with the provisions of Annex 1, Part C of Recommendation ITU R M.1643-0. **(5.504B)** – For command and non-payload communications of UAS (RPAS C2 link in ICAO).
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** **Space research (space-to-Earth)** **5.504A**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) Space research (space-to-Earth) EG03, EG08	– Fixed links – Fixed satellite systems	– Earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution **902** (WRC-03) in the "maritime mobile-satellite service" on a secondary basis. **(5.457B)** – Resolution **155** (WRC-15) shall apply. **(5.484B)** – For command and non-payload communications of UAS (RPAS C2 link in ICAO).
14.47-14.5 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
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**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) Radio astronomy	Fixed links	– Earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution **902** (WRC-03) in the "maritime mobile-satellite service" on a secondary basis. **(5.457B)** – The use of this band 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. **(5.484A)**
5.149 5.504A	**EG03, EG08, EG12**		
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 – Fixed satellite systems	– The fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service is limited to geostationary-satellites **(5.509B)** – The frequency band 14.5-14.8 GHz is also allocated to the space research service on a primary basis. **(5.509G)** – 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. **(5.510)** – APPENDIX **30A** (REV.WRC-19) applies.
	EG03, EG08		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
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	– 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. **(5.510)** – APPENDIX **30A** (REV.WRC-19) applies. – The frequency band 14.5-14.8 GHz is also allocated to the space research service on a primary basis. **(5.509G)**
	EG03, EG08		
14.8-15.35 GHz			
FIXED **MOBILE** **Space research**	FIXED MOBILE Space research	Fixed links	This Band is also allocated to the space research (passive) and Earth exploration-satellite (passive) services on a secondary basis. **(5.339)**
5.339	**EG03**		
15.35-15.4 GHz			
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) **Fixed** **Mobile**		This Band is also allocated to the fixed and mobile services on a secondary basis. **(5.511)**
5.340 5.511	**EG03, EG11**		
15.4-15.43 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
RADIOLOCATION 5.511E 5.511F **AERONAUTICAL RADIONAVIGATION**	RADIOLOCATION AERONAUTICAL RADIONAVIGATION		– Radiolocation stations shall not exceed the power flux-density level of –156 dB(W/m2) in a 50 MHz bandwidth. **(5.511F)** – For Aeronautical radionavigation ground-based PSR (primary surveillance radar) systems: ▪ Precision approach radar (PAR) ▪ Airport surveillance detection equipment (ASDE) – ICAO Annex **10**
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		– The use of this band by the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service. **(5.511A)** – Radiolocation stations shall not exceed the power flux-density level of –156 dB(W/m2) in a 50 MHz bandwidth. **(5.511F)**
15.63-15.7 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
RADIOLOCATION 5.511E 5.511F **AERONAUTICAL RADIONAVIGATION**	RADIOLOCATION AERONAUTICAL RADIONAVIGATION		– Radiolocation stations shall not exceed the power flux-density level of –156 dB(W/m2) in a 50 MHz bandwidth. **(5.511F)** – For Aeronautical radionavigation ground-based PSR (primary surveillance radar) systems: -Precision approach radar (PAR) -Airport surveillance detection equipment (ASDE) – ICAO Annex **10**
15.7-16.6 GHz			
RADIOLOCATION	**FIXED** **MOBILE** RADIOLOCATION	Fixed links	– This band is also allocated to the fixed and mobile services on a primary basis. **(5.512)** – For Aeronautical radionavigation ground-based PSR (primary surveillance radar) systems: ▪ Precision approach radar (PAR) ▪ Airport surveillance detection equipment (ASDE) – ICAO Annex **10**
5.512 5.513	EG03		
16.6-17.1 GHz			
RADIOLOCATION **Space research (deep space)(Earth-to-space)**	**FIXED** **MOBILE** RADIOLOCATION Space research (deep space) (Earth-to-space)		This band is also allocated to the fixed and mobile services on a primary basis. **(5.512)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.512 5.513	EG03		
17.1-17.2 GHz			
RADIOLOCATION	**FIXED** **MOBILE** RADIOLOCATION		This band is also allocated to the fixed and mobile services on a primary basis. **(5.512)**
5.512 5.513	EG03		
17.2-17.3 GHz			
EARTH EXPLORATION-SATELLITE (active) **RADIOLOCATION** **SPACE RESEARCH (active)**	**FIXED** **MOBILE** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active)		– This band is also allocated to the fixed and mobile services on a primary basis. **(5.512)** – Spaceborne active sensors shall not cause harmful interference to, or constrain the development of, the radiolocation and other services allocated on a primary basis. **(5.513A)**
5.512 5.513 5.513A	EG03		
17.3-17.7 GHz			
FIXED-SATELLITE **(Earth-to-space) 5.516** **(space-to-Earth) 5.516A 5.516B** **Radiolocation**	FIXED-SATELLITE (Earth-to-space) (space-to-Earth) Radiolocation	– Fixed satellite systems – Broadcasting satellite systems feeder links	– Resolution **143** (Rev.WRC-19) applies. **(5.516B)** – APPENDIX **30A** (REV.WRC-19): Provisions and associated Plans and List for feeder links for the broadcasting satellite service in the frequency bands 17.3-18.1 GHz **(5.516)**
5.514	EG08		
17.7-18.1 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **FIXED-SATELLITE** **(space-to-Earth) 5.484A 5.517A** **(Earth-to-space) 5.516** **MOBILE**	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) MOBILE	– Fixed links – Fixed satellite systems – Broadcasting satellite systems feeder links	APPENDIX **30A** (REV.WRC-19): Provisions and associated Plans and List for feeder links for the broadcasting satellite service in the frequency bands 17.3-18.1 GHz. **(5.516)**
	EG03, EG08		
18.1-18.4 GHz			
FIXED **FIXED-SATELLITE** **(space-to-Earth) 5.484A 5.516B 5.517A** **(Earth-to-space) 5.520** **MOBILE**	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) MOBILE	– Fixed links – Fixed satellite systems	– The use of this band 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. **(5.484A)** – Resolution **143** (Rev.WRC-19) applies. **(5.516B)** – The fixed-satellite service (Earth-to-space) is limited to feeder links of geostationary-satellite systems in the broadcasting-satellite service. **(5.520)** – This Band is also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis limited to geostationary satellites. **(5.519)**
5.519 5.521	EG03, EG08		
18.4-18.6 GHz			
FIXED **FIXED-SATELLITE (space-to-Earth)** **5.484A 5.516B 5.517A** **MOBILE**	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	– Fixed links – Fixed satellite systems	– The use of this band by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
			for coordination with other non-geostationary-satellite systems in the fixed-satellite service. **(5.484A)** – Resolution **143** (Rev.WRC-19) applies. **(5.516B)**
	EG03, EG08		
18.6-18.8 GHz			
EARTH EXPLORATION-SATELLITE (passive) **FIXED** **FIXED-SATELLITE (space-to-Earth) 5.517A 5.522B** **MOBILE except aeronautical mobile** **Space research (passive)**	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Space research (passive)	– Fixed links – Fixed satellite systems	The use of this band by the fixed-satellite service is limited to geostationary systems and systems with an orbit of apogee greater than 20 000 km. **(5.522B)**
5.522A 5.522C	EG03, EG08		
18.8-19.3 GHz			
FIXED **FIXED-SATELLITE (space-to-Earth) 5.516B 5.517A 5.523A** **MOBILE**	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	– Fixed links – Fixed satellite systems	Resolution **143** (Rev.WRC-19) applies. **(5.516B)**
	EG03, EG08		
19.3-19.7 GHz			
FIXED **FIXED-SATELLITE (space-to-Earth)(Earth-to-space) 5.517A 5.523B 5.523C 5.523D 5.523E** **MOBILE**	FIXED FIXED-SATELLITE (space-to-Earth)(Earth-to-space) MOBILE	– Fixed links – Fixed satellite systems	The use of this band (Earth-to-space) by the fixed-satellite service is limited to feeder links for non-geostationary-satellite systems in the mobile-satellite service. **(5.523B)**
	EG03, EG08		
19.7-20.1 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED-SATELLITE (space-to-Earth) **5.484A 5.484B 5.516B 5.527A** **Mobile-satellite (space-to-Earth)**	FIXED-SATELLITE (space-to-Earth) **FIXED** **MOBILE** Mobile-satellite (space-to-Earth)	Fixed satellite systems	– Resolution **155** (WRC-15) shall apply. **(5.484B)** – Resolution **143** (Rev.WRC-19) applies. **(5.516B)** – The operation of earth stations in motion communicating with the FSS is subject to Resolution **156** (WRC-15)**. (5.527A)** – For command and non-payload communications of UAS (RPAS C2 link in ICAO).
5.524	EG03, EG08		
20.1-20.2 GHz			
FIXED-SATELLITE (space-to-Earth) **5.484A 5.484B 5.516B 5.527A** **MOBILE-SATELLITE (space-to-Earth)**	**FIXED** FIXED-SATELLITE (space-to-Earth) **MOBILE** MOBILE-SATELLITE (space-to-Earth)	Fixed satellite systems	– Resolution **155** (WRC-15) shall apply. **(5.484B)** – Resolution **143** (Rev.WRC-19) applies. **(5.516B)** – The operation of earth stations in motion communicating with the FSS is subject to Resolution **156** (WRC-15)**. (5.527A)** – For command and non-payload communications of UAS (RPAS C2 link in ICAO).
5.524 5.525 5.526 5.527 5.528	EG03, EG08		
20.2-21.2 GHz			
FIXED-SATELLITE (space-to-Earth) **MOBILE-SATELLITE (space-to-Earth)** **Standard frequency and time signal-satellite (space-to-Earth)**	**FIXED** FIXED-SATELLITE (space-to-Earth) **MOBILE** MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth)	Fixed satellite systems	This Band is also allocated to the fixed and mobile services on a primary basis. **(5.524)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.524	**EG03, EG08**		
21.2-21.4 GHz			
EARTH EXPLORATION-SATELLITE (passive) **FIXED** **MOBILE** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	Fixed links	
	EG03		
21.4-22 GHz			
FIXED **MOBILE** **BROADCASTING-SATELLITE 5.208B**	FIXED MOBILE BROADCASTING-SATELLITE	– Fixed links – Broadcasting satellite systems	Resolution **739** (Rev.WRC-19) applies. **(5.208B)**
5.530A 5.530B	**EG03, EGO8**		
22-22.21 GHz			
FIXED **MOBILE except aeronautical mobile**	FIXED MOBILE except aeronautical mobile	Fixed links	
5.149	**EG03, EG12**		
22.21-22.5 GHz			
EARTH EXPLORATION-SATELLITE (passive) **FIXED** **MOBILE except aeronautical mobile** **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive)	Fixed links	The use of this band by the Earth exploration-satellite (passive) and space research (passive) services shall not impose constraints upon the fixed and mobile, except aeronautical mobile, services. **(5.532)**
5.149 5.532	**EG03, EG12**		
22.5-22.55 GHz			
FIXED **MOBILE**	FIXED MOBILE	Fixed links	
	EG03		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
22.55-23.15 GHz			
FIXED **INTER-SATELLITE 5.338A** **MOBILE** **SPACE RESEARCH (Earth-to-space)** **5.532A**	FIXED INTER-SATELLITE MOBILE SPACE RESEARCH (Earth-to-space)	Fixed links	Resolution **750** (Rev.WRC-19) applies. **(5.338A)**
5.149	**EG03, EG12**		
23.15-23.55 GHz			
FIXED **INTER-SATELLITE 5.338A** **MOBILE**	FIXED INTER-SATELLITE MOBILE	Fixed links	Resolution **750** (Rev.WRC-19) applies. **(5.338A)**
	EG03		
23.55-23.6 GHz			
FIXED **MOBILE**	FIXED MOBILE	Fixed links	
	EG03		
23.6-24 GHz			
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		
5.340	**EG11**		
24-24.05 GHz			
AMATEUR **AMATEUR-SATELLITE**	AMATEUR AMATEUR-SATELLITE		For ISM in 24-24.25 GHz. **(5.150)**
5.150			
24.05-24.25 GHz			
RADIOLOCATION **Amateur**	RADIOLOCATION Amateur	SRD:	For ISM in 24-24.25 GHz. **(5.150)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
Earth exploration-satellite (active)	Earth exploration-satellite (active)	▪ Radio determination Applications ▪ Tank Level Probing Radar (TLPR)	
5.150	EG01		
24.25-24.45 GHz			
FIXED **MOBILE except aeronautical mobile** **5.338A 5.532AB**	FIXED MOBILE except aeronautical mobile	SRD: ▪ Tank Level Probing Radar (TLPR)	– Resolution **750** (Rev.WRC-19) applies. **(5.338A)** – This Band is identified for implement the terrestrial component of International Mobile Telecommunications (IMT). Resolution **242** (WRC-19) applies. **(5.532AB)**
	EG01, EG06		
24.45-24.65 GHz			
FIXED **INTER-SATELLITE** **MOBILE except aeronautical mobile** **5.338A 5.532AB**	FIXED INTER-SATELLITE MOBILE except aeronautical mobile	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	– Resolution **750** (Rev.WRC-19) applies. **(5.338A)** – This Band is identified for implement the terrestrial component of International Mobile Telecommunications (IMT). Resolution **242** (WRC-19) applies. **(5.532AB)**
	EG01, EG03, EG06		
24.65-24.75 GHz			
FIXED **FIXED-SATELLITE (Earth-to-space)** **5.532B** **INTER-SATELLITE** **MOBILE except aeronautical mobile** **5.338A 5.532AB**	FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE MOBILE except aeronautical mobile	– Fixed links – Fixed satellite systems – SRD: ▪ Tank Level Probing Radar (TLPR)	– Resolution **750** (Rev.WRC-19) applies **(5.338A)** – This Band is identified for implement the terrestrial component of International Mobile Telecommunications (IMT). Resolution **242** (WRC-19) applies. **(5.532AB)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
			– The use of this band by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5 m. **(5.532B)**
	EG01, EG03, EG06		
24.75-25.25 GHz			
FIXED **FIXED-SATELLITE (Earth-to-space)** **5.532B** **MOBILE except aeronautical mobile** **5.338A 5.532AB**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile	– Fixed links – Fixed satellite systems – SRD: ▪ Tank Level Probing Radar (TLPR)	– Resolution **750** (Rev.WRC-19) applies **(5.338A)** – The Use this Band is identified for implement the terrestrial component of International Mobile Telecommunications (IMT). Resolution **242** (WRC-19) applies. **(5.532AB)** – The use of this band by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5 m. **(5.532B)**
	EG01, EG03, EG06		
25.25-25.5 GHz			
FIXED 5.534A **INTER-SATELLITE 5.536** **MOBILE 5.338A 5.532AB** **Standard frequency and time signal-satellite (Earth-to-space)**	FIXED INTER-SATELLITE MOBILE Standard frequency and time signal-satellite (Earth-to-space)	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	– Resolution **750** (Rev.WRC-19) applies. **(5.338A)** – The use of this Band is identified for implement the terrestrial component of International Mobile Telecommunications (IMT). Resolution **242** (WRC-19) applies. **(5.532AB)**
	EG01, EG03, EG06		
25.5-27 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536B **FIXED 5.534A** **INTER-SATELLITE 5.536** **MOBILE 5.338A 5.532AB** **SPACE RESEARCH (space-to-Earth) 5.536C** **Standard frequency and time signal-satellite (Earth-to-space)**	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED INTER-SATELLITE MOBILE SPACE RESEARCH (space-to-Earth) Standard frequency and time signal-satellite (Earth-to-space)	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	– Resolution **750** (Rev.WRC-19) applies. **(5.338A)** – The use of this Band is identified for implement the terrestrial component of International Mobile Telecommunications (IMT). Resolution **242** (WRC-19) applies. **(5.532AB)**
5.536A	EG01, EG03, EG06		
27-27.5 GHz			
FIXED **INTER-SATELLITE 5.536** **MOBILE 5.338A 5.532AB**	FIXED INTER-SATELLITE MOBILE		– Resolution **750** (Rev.WRC-19) applies. **(5.338A)** – The use of this Band is identified for implement the terrestrial component of International Mobile Telecommunications (IMT). Resolution **242** (WRC-19) applies. **(5.532AB)**
	EG03, EG06		
27.5-28.5 GHz			
FIXED 5.537A **FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.539** **MOBILE**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	– Fixed links – Fixed satellite systems	– This Band is also allocated to the fixed-satellite service (space to Earth) on a primary basis for the beacon transmissions intended for up-link power control. **(5.538)** – This band may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service. **(5.539)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
			– This band is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control. **(5.540)** – Resolution **169** (WRC-19) applies. **(5.517A)**
5.538 5.540	EG03, EG08		
28.5-29.1 GHz			
FIXED **FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.523A 5.539** **MOBILE** **Earth exploration-satellite (Earth-to-space) 5.541**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Earth exploration-satellite (Earth-to-space)	– Fixed links – Fixed satellite systems	– This band may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service. **(5.539)** – This band is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control. **(5.540)** – Resolution **169** (WRC-19) applies. **(5.517A)** – The earth exploration-satellite service is limited to the transfer of data between stations and not to the primary collection of information by means of active or passive sensors. **(5.541)**
5.540	EG03, EG08		
29.1-29.5 GHz			
FIXED	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	– Fixed links – Fixed satellite systems	This band is also allocated to the fixed-satellite service (space-to-Earth) on a

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED-SATELLITE (Earth-to-space) 5.516B 5.517A 5.523C 5.523E 5.535A 5.539 5.541A **MOBILE** **Earth exploration-satellite (Earth-to-space) 5.541**	Earth exploration-satellite (Earth-to-space)		secondary basis for beacon transmissions intended for up-link power control. **(5.540)**
5.540	EG03, EG08		
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** **Mobile-satellite (Earth-to-space)**	FIXED-SATELLITE (Earth-to-space) **Fixed** **Mobile** Earth exploration-satellite (Earth-to-space) Mobile-satellite (Earth-to-space)	Fixed satellite systems	– This Band is also allocated to the fixed and mobile services on a secondary basis. **(5.542)** – This band may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service. **(5.539)** – Resolution **143** (Rev.WRC-19) applies. **(5.516B)** – The operation of earth stations in motion communicating with the FSS is subject to Resolution **156** (WRC-15). **(5.527A)** – The band is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control. **(5.540)** – The earth exploration-satellite service is limited to the transfer of data between stations and not to the primary collection of information by means of active or passive sensors. **(5.541)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
			– Resolution **155** (WRC-15) shall apply. **(5.484B)** – For command and non-payload communications of UAS (RPAS C2 link in ICAO).
5.540 5.542	**EG03, EG08**		
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**	FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) **Fixed** **Mobile** Earth exploration-satellite (Earth-to-space)	Fixed satellite systems	– This Band is also allocated to the fixed-satellite service (space to Earth) on a primary basis for the beacon transmissions intended for up-link power control. **(5.538)** – This band may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service. **(5.539)** – The band is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control. **(5.540)** – The operation of earth stations in motion communicating with the FSS is subject to Resolution **156** (WRC-15). **(5.527A)** – Resolution **155** (WRC-15) shall apply. **(5.484B)** – For command and non-payload communications of UAS (RPAS C2 link in ICAO).
5.525 5.526 5.527 5.538 5.540 5.542	**EG03, EG08**		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
30-31 GHz			
FIXED-SATELLITE (Earth-to-space) **5.338A** **MOBILE-SATELLITE (Earth-to-space)** **Standard frequency and time signal-satellite (space-to-Earth)**	FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) **Fixed** **Mobile** Standard frequency and time signal-satellite (space-to-Earth)	Fixed satellite systems	– Resolution **750** (Rev.WRC-19) applies **(5.338A)** – 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. **(5.542)**
5.542	**EG03, EG08**		
31-31.3 GHz			
FIXED 5.338A 5.543B **MOBILE** **Standard frequency and time signal-satellite (space-to-Earth)** **Space research 5.544 5.545**	FIXED MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research	Fixed links	– Resolution **750** (Rev.WRC-19) applies **(5.338A)** – The allocation to the fixed service in this band is identified for worldwide use by high-altitude platform stations (HAPS) and shall be in accordance with the provisions of Resolution **167** (WRC-19). **(5.543B)**
5.149	**EG03, EG12**		
31.3-31.5 GHz			
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		All emissions are prohibited in this band. **(5.340)**
5.340	**EG11**		
31.5-31.8 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)** **Fixed** **Mobile except aeronautical mobile** **5.149 5.546**	**FIXED** **MOBILE except aeronautical mobile** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) EG03, EG12		
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) EG03		– This band is available for high-density applications in the fixed service Resolution **75** (WRC-2000) applies. **(5.547)** – For ground-based airport surface detection equipment (ASDE) radar – ICAO Annex **10**
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) EG03	Fixed links	– This band is available for high-density applications in the fixed service. Resolution **75** (WRC-2000) applies. **(5.547)** – For ground-based airport surface detection equipment (ASDE) radar – ICAO Annex **10**
32.3-33 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED 5.547A **INTER-SATELLITE** **RADIONAVIGATION**	FIXED INTER-SATELLITE RADIONAVIGATION	Fixed links	– This band is available for high-density applications in the fixed service. Resolution **75** (WRC-2000) applies. **(5.547)** – For ground-based airport surface detection equipment (ASDE) radar – ICAO Annex **10**
5.547 5.547D 5.548	EG03		
33-33.4 GHz			
FIXED 5.547A **RADIONAVIGATION**	FIXED RADIONAVIGATION	Fixed links	– This band is available for high-density applications in the fixed service. Resolution **75** (WRC-2000) applies. **(5.547)** – For ground-based airport surface detection equipment (ASDE) radar – ICAO Annex **10**
5.547 5.547E	EG03		
33.4-34.2 GHz			
RADIOLOCATION	**FIXED** **MOBILE** RADIOLOCATION	Fixed links	This band is allocated to the fixed and mobile services on a primary basis (**5.549**)
5.549	EG03		
34.2-34.7 GHz			
RADIOLOCATION **SPACE RESEARCH (deep space) (Earth-to-space)**	**FIXED** **MOBILE** RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space)	Fixed links	This band is allocated to the fixed and mobile services on a primary basis. (**5.549**)
5.549	EG03		
34.7-35.2 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
RADIOLOCATION **Space research 5.550**	**FIXED** **MOBILE** RADIOLOCATION Space research		
5.549	EG03		
35.2-35.5 GHz			
METEOROLOGICAL AIDS **RADIOLOCATION**	**FIXED** **MOBILE** METEOROLOGICAL AIDS RADIOLOCATION		
5.549	EG03		
35.5-36 GHz			
METEOROLOGICAL AIDS **EARTH EXPLORATION-SATELLITE (active)** **RADIOLOCATION** **SPACE RESEARCH (active)**	**FIXED** **MOBILE** METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active)		
5.549 5.549A	EG03		
36-37 GHz			
EARTH EXPLORATION-SATELLITE (passive) **FIXED** **MOBILE** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)		
5.149 5.550A	EG03, EG12		
37-37.5 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **MOBILE except aeronautical mobile** **5.550B** **SPACE RESEARCH (space-to-Earth)**	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth)	Fixed links	– This band or portions thereof, is identified for the terrestrial component of IMT. **(5.550B)** – This band is available for high-density applications in the fixed service Resolution **75** (WRC-2000). **(5.547)**
5.547	EG03, EG06		
37.5-38 GHz			
FIXED **FIXED-SATELLITE (space-to-Earth)** **5.550C** **MOBILE except aeronautical mobile** **5.550B** **SPACE RESEARCH (space-to-Earth)** **Earth exploration-satellite (space-to-Earth)**	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth)	Fixed links	– This band or portions thereof, is identified for the terrestrial component of IMT. **(5.550B)** – This band is available for high-density applications in the fixed service Resolution **75** (WRC-2000). **(5.547)**
5.547	EG03, EG06, EG08		
38-39.5 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED 5.550D **FIXED-SATELLITE (space-to-Earth)** **5.550C** **MOBILE 5.550B** **Earth exploration-satellite (space-to-Earth)**	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth)	Fixed links	– The allocation to the fixed service in this band is identified for worldwide use by administrations wishing to implement high-altitude platform stations (HAPS) and shall be in accordance with the provisions of Resolution **168** (WRC-19). **(5.550d)** – This band or portions thereof, is identified for the terrestrial component of IMT. **(5.550B)** – This band is available for high-density applications in the fixed service Resolution **75** (WRC-2000). **(5.547)**
5.547	**EG03, EG06, EG08**		
39.5-40 GHz			
FIXED **FIXED-SATELLITE (space-to-Earth)** **5.516B 5.550C** **MOBILE 5.550B** **MOBILE-SATELLITE (space-to-Earth)** **Earth exploration-satellite (space-to-Earth)**	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth)	Fixed links	– This band is available for high-density applications in the fixed service Resolution **75** (WRC-2000). **(5.547)** – The use of this band by a non-geostationary-satellite system in the fixed satellite service is subject to the application of the provisions of No. **9.12.** **(5.550C)** – This band or portions thereof, is identified for the terrestrial component of IMT. **(5.550B)**
5.547 5.550E	**EG03, EG06, EG08**		
40-40.5 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
EARTH EXPLORATION-SATELLITE (Earth-to-space) **FIXED** **FIXED-SATELLITE (space-to-Earth)** **5.516B 5.550C** **MOBILE 5.550B** **MOBILE-SATELLITE (space-to-Earth)** **SPACE RESEARCH (Earth-to-space)** **Earth exploration-satellite (space-to-Earth)**	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)		– The use of this band by a non-geostationary-satellite system in the fixed satellite service is subject to the application of the provisions of **No. 9.12. (5.550C)** – This band or portions thereof, is identified for the terrestrial component of IMT. **(5.550B)**
5.550E	**EG03, EG06, EG08**		
40.5-41 GHz			
FIXED **FIXED-SATELLITE (space-to-Earth)** **5.550C** **LAND MOBILE 5.550B** **BROADCASTING** **BROADCASTING-SATELLITE** **Aeronautical mobile** **Maritime mobile**	FIXED FIXED-SATELLITE (space-to-Earth) LAND MOBILE BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile		This band or portions thereof, is identified for the terrestrial component of IMT. **(5.550B)** This band is available for high-density applications in the fixed service Resolution **75** (WRC-2000). **(5.547)**
5.547	**EG03, EG06, EG08**		
41-42.5 GHz			
FIXED **FIXED-SATELLITE (space-to-Earth)** **5.516B 5.550C** **LAND MOBILE 5.550B** **BROADCASTING** **BROADCASTING-SATELLITE** **Aeronautical mobile** **Maritime mobile**	FIXED FIXED-SATELLITE (space-to-Earth) LAND MOBILE BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile		– This band or portions thereof, is identified for the terrestrial component of IMT. **(5.550B)** – This band is available for high-density applications in the fixed service Resolution **75** (WRC-2000). **(5.547)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.547 5.551F 5.551H 5.551I	EG03, EG06, EG08		
42.5-43.5 GHz			
FIXED **FIXED-SATELLITE (Earth-to-space) 5.552** **MOBILE except aeronautical mobile** **5.550B** **RADIO ASTRONOMY**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile RADIO ASTRONOMY		– This band or portions thereof, is identified for the terrestrial component of IMT. **(5.550B)** – This band is available for high-density applications in the fixed service Resolution **75** (WRC-2000). **(5.547)**
5.149 5.547	EG03, EG06, EG08, EG12		
43.5-47 GHz			
MOBILE 5.553 5.553A **MOBILE-SATELLITE** **RADIONAVIGATION** **RADIONAVIGATION-SATELLITE**	MOBILE MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE		
5.554			
47-47.2 GHz			
AMATEUR **AMATEUR-SATELLITE**	AMATEUR AMATEUR-SATELLITE		
47.2-47.5 GHz			
FIXED **FIXED-SATELLITE (Earth-to-space)** **5.550C 5.552** **MOBILE 5.553B**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		– This band is identified for IMT. **(5.553B)** – The allocation to the fixed service in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz is identified for use by high-altitude platform stations (HAPS) and shall be in accordance with the provisions of Resolution **122** (Rev.WRC-19). **(5.552A)**
5.552A	EG06, EG08		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
47.5-47.9 GHz			
FIXED **FIXED-SATELLITE** **(Earth-to-space) 5.550C 5.552** **(space-to-Earth) 5.516B 5.554A** **MOBILE 5.553B**	FIXED FIXED-SATELLITE (Earth-to-space)(space-to-Earth) MOBILE		This band is identified for IMT. **(5.553B)**
	EG06, EG08		
47.9-48.2 GHz			
FIXED **FIXED-SATELLITE (Earth-to-space)** **5.550C 5.552** **MOBILE 5.553B**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		– This band is identified for IMT. **(5.553B)** – The allocation to the fixed service in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz is identified for use by high-altitude platform stations (HAPS) and shall be in accordance with the provisions of Resolution **122** (Rev.WRC-19). **(5.552A)**
5.552A	**EG06, EG08**		
48.2-48.54 GHz			
FIXED **FIXED-SATELLITE** **(Earth-to-space) *5.550C* 5.552** **(space-to-Earth) 5.516B 5.554A** **5.555B** **MOBILE**	FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) MOBILE		
	EG08		
48.54-49.44 GHz			
FIXED **FIXED-SATELLITE (Earth-to-space)** **5.550C 5.552** **MOBILE**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		All emissions are prohibited in this band. **(5.340)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.149 5.340 5.555	EG08, EG09, EG11, EG12		
49.44-50.2 GHz			
FIXED **FIXED-SATELLITE** **(Earth-to-space) 5.338A 5.550C 5.552** **(space-to-Earth) 5.516B 5.554A** **5.555B** **MOBILE**	FIXED FIXED-SATELLITE (Earth-to-space)(space-to-Earth) MOBILE		Resolution **750** (Rev.WRC-19) applies. **(5.338A)**.
	EG08		
50.2-50.4 GHz			
EARTH EXPLORATION-SATELLITE (passive) **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive)		All emissions are prohibited in this band. **(5.340)**
5.340	EG11		
50.4-51.4 GHz			
FIXED **FIXED-SATELLITE (Earth-to-space)** **5.338A 5.550C** **MOBILE** **Mobile-satellite (Earth-to-space)**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Mobile-satellite (Earth-to-space)	– Fixed links – Fixed satellite systems	Resolution **750** (Rev.WRC-19) applies. **(5.338A)**.
	EG03, EG08		
51.4-52.4 GHz			
FIXED **FIXED-SATELLITE (Earth-to-space)** **5.555C** **MOBILE**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		– Resolution **750** (Rev.WRC-19) applies. **(5.338A)**. – This band is available for high-density applications in the fixed service. Resolution **75** (WRC-2000) applies. **(5.547)**
5.338A 5.547 5.556	EG08, EG09		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
52.4-52.6 GHz			
FIXED 5.338A **MOBILE** **5.547 5.556**	FIXED MOBILE EG09		– Resolution 750 (Rev.WRC-19) applies. **(5.338A)** – This band is available for high-density applications in the fixed service. Resolution 75 (WRC-2000) applies. **(5.547)**
52.6-54.25 GHz			
EARTH EXPLORATION-SATELLITE (passive) **SPACE RESEARCH (passive)** **5.340 5.556**	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) EG09, EG11		All emissions are prohibited in this band. **(5.340)**
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)		
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)		This band is available for high-density applications in the fixed service. Resolution 75 (WRC-2000) applies. **(5.547)**
56.9-57 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
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)		This band is available for high-density applications in the fixed service. Resolution **75** (WRC-2000) applies. **(5.547)**
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) **EG01, EG03**	– Fixed links – SRD: ▪ Multiple GIGABIT wireless systems WAS/RLANS ▪ Tank Level Probing Radar (TLPR)	This band is available for high-density applications in the fixed service. Resolution **75** (WRC-2000) applies. **(5.547)**
58.2-59 GHz			
EARTH EXPLORATION-SATELLITE (passive) **FIXED** **MOBILE** **SPACE RESEARCH (passive)** **5.547 5.556**	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) **EG01, EG09**	SRD: ▪ Multiple GIGABIT wireless systems WAS/RLANS ▪ Tank Level Probing Radar (TLPR)	This band is available for high-density applications in the fixed service. Resolution **75** (WRC-2000) applies**. (5.547)**
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)	SRD: ▪ Multiple GIGABIT wireless systems WAS/RLANS ▪ Tank Level Probing Radar (TLPR)	

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
	EG01		
59.3-64 GHz			
FIXED **INTER-SATELLITE** **MOBILE 5.558** **RADIOLOCATION 5.559**	FIXED INTER-SATELLITE MOBILE RADIOLOCATION	SRD: ▪ Measurement and Remote-control equipment ▪ Multiple GIGABIT wireless systems WAS/RLANS ▪ Tank Level Probing Radar (TLPR)	ISM usage in 61-61.5 GHz is subject to authorization from NTRA. **(5.138)**
5.138	EG01		
64-65 GHz			
FIXED **INTER-SATELLITE** **MOBILE except aeronautical mobile**	FIXED INTER-SATELLITE MOBILE except aeronautical mobile	SRD: ▪ Multiple GIGABIT wireless systems WAS/RLANS	This band is available for high-density applications in the fixed service. Resolution **75** (WRC-2000) applies. **(5.547)**
5.547 5.556	EG01, EG09		
65-66 GHz			
EARTH EXPLORATION-SATELLITE **FIXED** **INTER-SATELLITE** **MOBILE except aeronautical mobile** **SPACE RESEARCH**	EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH	SRD: ▪ Multiple GIGABIT wireless systems WAS/RLANS	This band is available for high-density applications in the fixed service. Resolution **75** (WRC-2000) applies. **(5.547)**
5.547	EG01		
66-71 GHz			
INTER-SATELLITE **MOBILE 5.553 5.558 5.559AA** **MOBILE-SATELLITE** **RADIONAVIGATION** **RADIONAVIGATION-SATELLITE**	INTER-SATELLITE MOBILE MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE		This band is identified for the terrestrial component of IMT. **(5.559AA)**
5.554	EG06		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
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)		
	EG03		
74-76 GHz			
FIXED **FIXED-SATELLITE (space-to-Earth)** **MOBILE** **BROADCASTING** **BROADCASTING-SATELLITE** **Space research (space-to-Earth)**	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth)	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	
5.561	**EG01, EG03**		
76-77.5 GHz			
RADIO ASTRONOMY **RADIOLOCATION** **Amateur** **Amateur-satellite** **Space research (space-to-Earth)**	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth)	SRD: ▪ Tank Level Probing Radar (TLPR) ▪ Vehicle radar Sensor	
5.149	**EG01, EG12**		
77.5-78 GHz			
AMATEUR **AMATEUR-SATELLITE** **RADIOLOCATION 5.559B** **Radio astronomy** **Space research (space-to-Earth)**	AMATEUR AMATEUR-SATELLITE RADIOLOCATION Radio astronomy Space research (space-to-Earth)	SRD: ▪ Tank Level Probing Radar (TLPR)	The use of the band by the radiolocation service shall be limited to short-range radar for ground-based applications, including automotive radars. **(5.559B)**
5.149	**EG01, EG12**		
78-79 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
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) **EG01, EG12**	SRD: ▪ Tank Level Probing Radar (TLPR)	
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) **EG01, EG12**	SRD: ▪ Tank Level Probing Radar (TLPR)	
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) **EG01, EG03, EG12**	SRD: ▪ Tank Level Probing Radar (TLPR)	– Resolution **750** (Rev.WRC-19) applies **(5.338A)**. – This band is also allocated to the amateur and amateur-satellite services on a secondary basis. **(5.561A)**
84-86 GHz			
FIXED 5.338A **FIXED-SATELLITE (Earth-to-space)** **5.561B** **MOBILE** **RADIO ASTRONOMY** **5.149**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY **EG01, EG03, EG12**	– Fixed links – SRD: ▪ Tank Level Probing Radar (TLPR)	Resolution **750** (Rev.WRC-19) applies. **(5.338A)**.
86-92 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		All emissions are prohibited in this band. **(5.340)**
5.340	EG11		
92-94 GHz			
FIXED 5.338A **MOBILE** **RADIO ASTRONOMY** **RADIOLOCATION**	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION		Resolution **750** (Rev.WRC-19) applies. **(5.338A)**
5.149	EG12		
94-94.1 GHz			
EARTH EXPLORATION-SATELLITE (active) **RADIOLOCATION** **SPACE RESEARCH (active)** **Radio astronomy**	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy		
5.562 5.562A			
94.1-95 GHz			
FIXED **MOBILE** **RADIO ASTRONOMY** **RADIOLOCATION**	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION		
5.149	EG12		
95-100 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED	FIXED		
MOBILE	MOBILE		
RADIO ASTRONOMY	RADIO ASTRONOMY		
RADIOLOCATION	RADIOLOCATION		
RADIONAVIGATION	RADIONAVIGATION		
RADIONAVIGATION-SATELLITE	RADIONAVIGATION-SATELLITE		
5.149 5.554	EG12		
100-102 GHz			
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)		All emissions are prohibited in this band. (5.340)
RADIO ASTRONOMY	RADIO ASTRONOMY		
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)		
5.340 5.341	EG11		
102-105 GHz			
FIXED	FIXED		
MOBILE	MOBILE		
RADIO ASTRONOMY	RADIO ASTRONOMY		
5.341 5.149	EG12		
105-109.5 GHz			
FIXED	FIXED		
MOBILE	MOBILE		
RADIO ASTRONOMY	RADIO ASTRONOMY		
SPACE RESEARCH (passive) 5.562B	SPACE RESEARCH (passive)		
5.341 5.149	EG09, EG12		
109.5-111.8 GHz			
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)		All emissions are prohibited in this band. (5.340)
RADIO ASTRONOMY	RADIO ASTRONOMY		
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.340 5.341	EG11		
111.8-114.25 GHz			
FIXED **MOBILE** **RADIO ASTRONOMY** **SPACE RESEARCH (passive) 5.562B**	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive)		
5.149 5.341	EG09, EG12		
114.25-116 GHz			
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		All emissions are prohibited in this band. **(5.340)**
5.340 5.341	EG11		
116-119.98 GHz			
EARTH EXPLORATION-SATELLITE (passive) **INTER-SATELLITE 5.562C** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE SPACE RESEARCH (passive)		The use of this band by the inter-satellite service is limited to satellites in the geostationary satellite orbit. **(5.562C)**
5.341			
119.98-122.25 GHz			
EARTH EXPLORATION-SATELLITE (passive) **INTER-SATELLITE 5.562C** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE SPACE RESEARCH (passive)		– ISM usage in 122-123 GHz is subject to authorization from NTRA. **(5.138)** – The use of this band by the inter-satellite service is limited to satellites in the geostationary satellite orbit. **(5.562C)**
5.138 5.341			
122.25-123 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **INTER-SATELLITE** **MOBILE 5.558** **Amateur** **5.138**	FIXED INTER-SATELLITE MOBILE Amateur		ISM usage in 122-123 GHz is subject to authorization from NTRA. **(5.138)**
123-130 GHz			
FIXED-SATELLITE (space-to-Earth) **MOBILE-SATELLITE (space-to-Earth)** **RADIONAVIGATION** **RADIONAVIGATION-SATELLITE** **Radio astronomy 5.562D** **5.149 5.554**	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy EG12		
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 EG12		
134-136 GHz			
AMATEUR **AMATEUR-SATELLITE** **Radio astronomy**	AMATEUR AMATEUR-SATELLITE Radio astronomy		
136-141 GHz			
RADIO ASTRONOMY **RADIOLOCATION** **Amateur** **Amateur-satellite**	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.149	EG12		
141-148.5 GHz			
FIXED **MOBILE** **RADIO ASTRONOMY** **RADIOLOCATION**	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION		
5.149	EG12		
148.5-151.5 GHz			
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		All emissions are prohibited in this band. **(5.340)**
5.340	EG11		
151.5-155.5 GHz			
FIXED **MOBILE** **RADIO ASTRONOMY** **RADIOLOCATION**	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION		
5.149	EG12		
155.5-158.5 GHz			
FIXED **MOBILE** **RADIO ASTRONOMY**	FIXED MOBILE RADIO ASTRONOMY		
5.149	EG09, EG12		
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)		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
164-167 GHz			
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		All emissions are prohibited in this band. **(5.340)**
5.340	EG11		
167-174.5 GHz			
FIXED **FIXED-SATELLITE (space-to-Earth)** **INTER-SATELLITE** **MOBILE 5.558**	FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE		
5.149 5.562D	EG12		
174.5-174.8 GHz			
FIXED **INTER-SATELLITE** **MOBILE 5.558**	FIXED INTER-SATELLITE MOBILE		
174.8-182 GHz			
EARTH EXPLORATION-SATELLITE (passive) **INTER-SATELLITE 5.562H** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE SPACE RESEARCH (passive)		
182-185 GHz			
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		All emissions are prohibited in this band. **(5.340)**

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.340	EG11		
185-190 GHz			
EARTH EXPLORATION-SATELLITE (passive) **INTER-SATELLITE 5.562H** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE SPACE RESEARCH (passive)		
190-191.8 GHz			
EARTH EXPLORATION-SATELLITE (passive) **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive)		All emissions are prohibited in this band. **(5.340)**
5.340	EG11		
191.8-200 GHz			
FIXED **INTER-SATELLITE** **MOBILE 5.558** **MOBILE-SATELLITE** **RADIONAVIGATION** **RADIONAVIGATION-SATELLITE**	FIXED INTER-SATELLITE MOBILE MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE		
5.149 5.341 5.554	EG12		
200-209 GHz			
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		All emissions are prohibited in this band. **(5.340)**
5.340 5.341 5.563A	EG11		
209-217 GHz			

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
FIXED **FIXED-SATELLITE (Earth-to-space)** **MOBILE** **RADIO ASTRONOMY**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY		
5.149 5.341	EG12		
217-226 GHz			
FIXED **FIXED-SATELLITE (Earth-to-space)** **MOBILE** **RADIO ASTRONOMY** **SPACE RESEARCH (passive) 5.562B**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive)		
5.341 5.149	EG09, EG12		
226-231.5 GHz			
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		All emissions are prohibited in this band. **(5.340)**
5.340	EG11		
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		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
235-238 GHz			
FIXED-SATELLITE (space-to-Earth) **EARTH EXPLORATION-SATELLITE (passive)** **SPACE RESEARCH (passive)**	FIXED-SATELLITE (space-to-Earth) EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive)		
5.563A 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 **RADIOLOCATION** **Amateur** **Amateur-satellite**	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite		ISM usage in 244-246 GHz is subject to authorization from NTRA. **(5.138)**
5.138 5.149	EG12		
248-250 GHz			
AMATEUR **AMATEUR-SATELLITE** **Radio astronomy**	AMATEUR AMATEUR-SATELLITE Radio astronomy		

ITU RR Region 1 Allocations	National Allocations	Main Usage	Remarks
5.149	EG12		
250-252 GHz			
EARTH EXPLORATION-SATELLITE (passive) **RADIO ASTRONOMY** **SPACE RESEARCH (passive)**	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		All emissions are prohibited in this band. **(5.340)**
5.340 5.563A	EG11		
252-265 GHz			
FIXED **MOBILE** **MOBILE-SATELLITE (Earth-to-space)** **RADIO ASTRONOMY** **RADIONAVIGATION** **RADIONAVIGATION-SATELLITE**	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE		
5.149 5.554	EG12		
265-275 GHz			
FIXED **FIXED-SATELLITE (Earth-to-space)** **MOBILE** **RADIO ASTRONOMY**	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY		
5.149 5.563A	EG12		
275-3000 GHz			
(Not allocated) 5.564A 5.565	(Not allocated)		The frequency bands 275-296 GHz, 306-313 GHz, 318-333 GHz and 356-450 GHz are identified for use by administrations for the implementation of land mobile and fixed service applications. **(5.564A)**
	EG09		

11. Egypt National Footnotes

EG01 Short Range Devices (SRD)

The frequency ranges for SRD are the followings bands. Refer to NTRA SRD guidelines for more details:

9 – 600 kHz	401 – 406 MHz	863 – 870 MHz	13.4 – 14 GHz
3.155 – 3.4 MHz	417.9 – 418.1 MHz	1880 – 1900 MHz	24.05 – 27 GHz
5 – 49.98 MHz	433.04 – 434.79 MHz	2400 – 2483.5 MHz	57 – 66 GHz
87.5 – 108 MHz	458.5 – 459.5 MHz	4500 – 7000 MHz	75 – 85 GHz
169.4 – 216 MHz	470 – 610 MHz	8500 – 1060 MHz	

EG02 Private Mobile Radio (PMR)

The frequency ranges for PMR are the followings bands. Refer to NTRA PMR guidelines for more details:

1.81– 3.9 MHz	13.4 – 14 MHz	235 – 399.9 MHz
4.488–5.95 MHz	25 – 87.5 MHz	400.05– 406 MHz
7.1 – 8.1 MHz	146 – 223 MHz	406.1 – 470 MHz

EG03 Fixed links

The frequency ranges for Fixed links are the followings bands. Refer to NTRA Fixed links guidelines for more details

1350 – 1530 MHz	9.8 – 14.3 GHz	24.45 – 31.3 GHz	71 – 76 GHz
2290 – 2500 MHz	14.4 – 15.4 GHz	31.5 – 43.5 GHz	81 – 86 GHz
3400 – 5000 MHz	15.7 – 17.3 GHz	50.4 – 51.4 GHz	
5650 – 8750 MHz	17.7 –23.6 GHz	57 – 58.2 GHz	

EG04 Maritime radiocommunications and radionavigation

The frequency ranges for Maritime applications are the followings bands. Refer to NTRA Maritime Radio systems guidelines for more details:

283.5 – 526.5 kHz	16.36 – 17.41 MHz	2900 – 3100 MHz
1.6 – 5.25 MHz	22 – 27.5 MHz	5470 – 5650 MHz
6.2 – 13.2 MHz	154 – 174 MHz	8750 – 9500 MHz

EG05 Aeronautical radiocommunications and radionavigation

The frequency ranges for Aeronautical applications are the followings bands. Refer to NTRA Aeronautical Radio systems guidelines for more details:

325 – 405 kHz	17.9 – 17.97 MHz	108 – 137 MHz	960 – 1215 MHz
3.4 – 3.5 MHz	74.8 – 75.2 MHz	328.6 – 335.4 MHz	2700 – 2900 MHz

9000 – 9200 MHz	9300 – 9500 MHz

EG06 International Mobile Telecommunications (IMT)

The followings frequency bands are identified in the Radio Regulations for IMT:

450 – 470 MHz	1427 – 1518 MHz	2500 – 2690 MHz	47.2 – 48.2 GHz
694 – 790 MHz	1710 – 2025 MHz	3300 – 3600 MHz	66 – 71 GHz
790 – 862 MHz	2110 – 2200 MHz	24.25 – 27.5 GHz	
862 – 960 MHz	2300 – 2400 MHz	37 – 43.5 GHz	

EG07 Amateur

The frequency ranges for Amateur applications are the followings bands:

1.83 – 1.85 MHz	10.1 – 10.15 MHz	21 – 21.45 MHz
3.5 – 3.8 MHz	14 – 14.35 MHz	24.89 – 24.99 MHz
7 – 7.1 MHz	18.068 – 18.168 MHz	28 – 29.7 MHz

EG08 Satellite Earth Stations

The frequency ranges for Satellite Earth Stations are the followings bands:

Amateur satellite

144 – 146 MHz	432 – 438 MHz

Mobile satellite

1518 – 1559 MHz	1610 – 1660 MHz

Earth Exploration satellite

432 – 438 MHz	2200 – 2290 MHz
2025 – 2110 MHz	8025 – 8400 MHz

Fixed satellite

3400 – 4200 MHz	7900 – 8400 MHz	17.3 – 21.2 GHz	47.2 – 50.2 GHz
4500 – 4800 MHz	10.7 – 13.25 GHz	24.65 – 25.25 GHz	50.4 – 52.4 GHz
5725 – 7025 MHz	13.4 – 13.65 GHz	27.5 – 31 GHz	
7250 – 7750 GHz	13.75 – 14.8 GHz	37.5 – 43.5 GHz	

Broadcasting satellite

11.7 – 12.5 GHz	21.4 – 22 GHz

EG09 Radio Astronomy

48.94 – 49.04 GHz

Also allocated to the Radio Astronomy Service on a primary basis. (Refer to ITU Radio Regulations Article **5.555**)

51.4 – 54.25 GHz 58.2 – 59 GHz 64 – 65 GHz

Radio Astronomy observations may be carried out under national arrangements. (Refer to ITU Radio Regulations Article **5.556**)

105 – 109.5 GHz 111.8 – 114.25 GHz 155.5 – 158.5 GHz 217 – 226 GHz

The use of this allocation is limited to space–based Radio Astronomy only (Refer to ITU Radio Regulations Article **5.562B**)

275 – 1 000 GHz

Band portions as given in ITU Radio Regulations Article **5.565** are identified for various active and passive services, which need protection.

EG10 Exclusive Frequency bands usage

960 – 1 215 MHz

Used by the 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. (Refer to ITU Radio Regulation Article **5.328**)

1 610 – 1 626.5 MHz

This band is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground–based or satellite–borne facilities. Such satellite use is subject to agreement obtained under No. **9.21**. (Refer to ITU Radio Regulations Article **5.366**)

EG11 Prohibited frequency ranges for transmitting

To protect the passive services, all emissions are prohibited in the following bands:

1 400 – 1 427 MHz

2 690 – 2 700 MHz except those provided for by ITU Radio Regulation Article **5.422**

10.68 – 10.7 GHz except those provided for by ITU Radio Regulation Article **5.483**

15.35 – 15.4 GHz except those provided for by ITU Radio Regulation Article **5.511**

23.6 – 24 GHz 31.3 – 31.5 GHz

48.94 – 49.04 GHz from airborne stations

50.2 – 50.4 GHz 52.6 – 54.25 GHz 86 – 92 GHz 100 – 102 GHz

109.5 – 111.8 GHz	164 – 167 GHz	200 – 209 GHz
114.25 – 116 GHz	182 – 185 GHz	226 – 231.5 GHz
148.5 – 151.5 GHz	190 – 191.8 GHz	250 – 252 GHz

(Refer to ITU Radio Regulation Article **5.340)**

Aircraft transmissions are prohibited in the following bands:

- 1 664.4 – 1 668.4 MHz for air to ground transmissions (ITU Radio Regulation Article **5.379A**)
- 8 025 – 8 400 MHz (ITU Radio Regulation Article **5.463**)

EG12 Restrictive Frequency bands usage

- To protect Radio Astronomy due attention shall be made while assigning frequencies in the following bands:

13 360 – 13 410 kHz	1 718.8 – 1 722.2 MHz	22.81 – 22.86 GHz	128.33 – 128.59 GHz
25 550 – 25 670 kHz	2 655 – 2 690 MHz	23.07 – 23.12 GHz	129.23 – 129.49 GHz
37.5 – 38.25 MHz	3 260 – 3 267 MHz	31.2 – 31.3 GHz	130 – 134 GHz
73 – 74.6 MHz in Regions 1 and 3	3 332 – 3 339 MHz	31.5 – 31.8 GHz in Regions 1 and 3	136 – 148.5 GHz
150.05 – 153 MHz in Region 1	3 345.8 – 3 352.5 MHz	36.43 – 36.5 GHz	151.5 – 158.5 GHz
322 – 328.6 MHz	4 825 – 4 835 MHz	42.5 – 43.5 GHz	168.59 – 168.93 GHz
406.1 – 410 MHz	4 950 – 4 990 MHz	48.94 – 49.04 GHz	171.11 – 171.45 GHz
608 – 614 MHz in Regions 1	4 990 – 5 000 MHz	76 – 86 GHz	172.31 – 172.65 GHz
1 330 – 1 400 MHz	6 650 – 6 675.2 MHz	92 – 94 GHz	173.52 – 173.85 GHz
1 610.6 – 1 613.8 MHz	10.6 – 10.68 GHz	94.1 – 100 GHz	195.75 – 196.15 GHz
1 660 – 1 670 MHz	14.47 – 14.5 GHz	102 – 109.5 GHz	209 – 226 GHz
	22.01 – 22.21 GHz	111.8 – 114.25 GHz	241 – 250 GHz
	22.21 – 22.5 GHz		252 – 275 GHz

(Refer to ITU Radio Regulations Articles **5.149**, **5.458A**)

- The following frequency band is used for passive measurements, which need protection, due attention shall be made while assigning frequencies in this band:

6 650 – 6 675.2 MHz

This band is used by Radio Astronomy for spectral line observations and needs protection from space stations of Fixed Satellite Service in 6 700 – 7 075 MHz

(Refer to ITU Radio Regulations Article **5.458A**)

12. ITU Radio Regulations Footnotes applicable to Egypt (Article 5-Section IV)

5.53 Administrations authorizing the use of frequencies below 8.3 kHz shall ensure that no harmful interference is caused to services to which the bands above 8.3 kHz are allocated. (WRC 12)

5.54 Administrations conducting scientific research using frequencies below 8.3 kHz are urged to advise other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference. (WRC 12)

5.54A Use of the 8.3-11.3 kHz frequency band by stations in the meteorological aids service is limited to passive use only. In the band 9-11.3 kHz, meteorological aids stations shall not claim protection from stations of the radionavigation service submitted for notification to the Bureau prior to 1 January 2013. For sharing between stations of the meteorological aids service and stations in the radionavigation service submitted for notification after this date, the most recent version of Recommendation ITU R RS.1881 should be applied. (WRC 12)

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

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, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC 12)

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.

5.62 Administrations which operate stations in the radionavigation service in the band 90-110 kHz are urged to coordinate technical and operating characteristics in such a way as to avoid harmful interference to the services provided by these stations.

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.

5.67A 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.) and shall not cause harmful interference to stations of the radionavigation service operating in countries listed in No. 5.67. (WRC-07)

5.67B The use of the frequency band 135.7-137.8 kHz in Algeria, Egypt, Iraq, Lebanon, Syrian Arab Republic, Sudan, South Sudan and Tunisia is limited to the fixed and maritime mobile services. The amateur service shall not be used in the above-mentioned countries in the frequency band 135.7-137.8 kHz, and this should be taken into account by the countries authorizing such use. (WRC-19)

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. (WRC-97)

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 radiobeacons) on a primary basis.

5.76 The frequency 410 kHz is designated for radio direction-finding in the maritime radionavigation service. The other radionavigation services to which the band 405-415 kHz is allocated shall not cause harmful interference to radio direction-finding in the band 406.5-413.5 kHz.

5.79 In the maritime mobile service, the frequency bands 415-495 kHz and 505-526.5 kHz are limited to radiotelegraphy and may also be used for the NAVDAT system in accordance with the most recent version of Recommendation ITU-R M.2010, subject to agreement between interested and affected administrations. NAVDAT transmitting stations are limited to coast stations. (WRC-19)

5.79A When establishing coast stations in the NAVTEX service on the frequencies 490 kHz, 518 kHz and 4 209.5 kHz, administrations are strongly recommended to coordinate the operating characteristics in accordance with the procedures of the International Maritime Organization (IMO) (see Resolution 339 (Rev.WRC-07)). (WRC 07)

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. (WRC 12)

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. (WRC 12)

5.82 In the maritime mobile service, the frequency 490 kHz is to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles 31 and 52. In using the frequency band 415-495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz. In using the frequency band 472-479 kHz for the amateur service, administrations shall ensure that no harmful interference is caused to the frequency 490 kHz. (WRC 12)

5.82C The frequency band 495-505 kHz is used for the international NAVDAT system as described in the most recent version of Recommendation ITU-R M.2010. NAVDAT transmitting stations are limited to coast stations. (WRC-19)

5.84 The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles 31 and 52. (WRC 07)

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.

5.98 *Alternative allocation*: in Armenia, Azerbaijan, Belarus, Belgium, Cameroon, Congo (Rep. of the), Denmark, Egypt, Eritrea, Spain, Ethiopia, the Russian Federation, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Tunisia, Turkmenistan and Turkey, the frequency band 1 810-1 830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC 15)

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.

5.108 The carrier frequency 2 182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2 173.5-2 190.5 kHz are prescribed in Articles 31 and 52. (WRC 07)

5.109 The frequencies 2 187.5 kHz, 4 207.5 kHz, 6 312 kHz, 8 414.5 kHz, 12 577 kHz and 16 804.5 kHz are international distress frequencies for digital selective calling. The conditions for the use of these frequencies are prescribed in Article 31.

5.110 The frequencies 2 174.5 kHz, 4 177.5 kHz, 6 268 kHz, 8 376.5 kHz, 12 520 kHz and 16 695 kHz are international distress frequencies for narrow-band direct-printing telegraphy. The conditions for the use of these frequencies are prescribed in Article 31.

5.111 The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 MHz, 156.525 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article 31.

The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of ± 3 kHz about the frequency. (WRC 07)

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.

5.115 The carrier (reference) frequencies 3 023 kHz and 5 680 kHz may also be used, in accordance with Article 31, by stations of the maritime mobile service engaged in coordinated search and rescue operations. (WRC 07)

5.116 Administrations are urged to authorize the use of the band 3 155-3 195 kHz to provide a common worldwide channel for low power wireless hearing aids. Additional channels for these devices may be assigned by administrations in the bands between 3 155 kHz and 3 400 kHz to suit local needs.

It should be noted that frequencies in the range 3 000 kHz to 4 000 kHz are suitable for hearing aid devices which are designed to operate over short distances within the induction field.

5.117 *Alternative allocation*: in Côte d'Ivoire, **Egypt**, Liberia, Sri Lanka and Togo, the frequency band 3 155-3 200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

5.127 The use of the band 4 000-4 063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. 52.220 and Appendix 17).

5.128 Frequencies in the frequency bands 4 063-4 123 kHz and 4 130-4 438 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W, on condition that harmful interference is not caused to the maritime mobile service. In addition, in Afghanistan, Argentina, Armenia, Belarus, Botswana, Burkina Faso, the Central African Rep., China, the Russian Federation, Georgia, India, Kazakhstan, Mali, Niger, Pakistan, Kyrgyzstan, Tajikistan, Chad, Turkmenistan and Ukraine, in the frequency bands 4 063-4 123 kHz, 4 130-4 133 kHz and 4 408-4 438 kHz, stations in the fixed service, with a mean power not exceeding 1 kW, can be operated on condition that they are situated at least 600 km from the coast and that harmful interference is not caused to the maritime mobile service. (WRC-19)

5.130 The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles 31 and 52. (WRC 07)

5.131 The frequency 4 209.5 kHz is used exclusively for the transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing techniques. (WRC 97)

5.132 The frequencies 4 210 kHz, 6 314 kHz, 8 416.5 kHz, 12 579 kHz, 16 806.5 kHz, 19 680.5 kHz, 22 376 kHz and 26 100.5 kHz are the international frequencies for the transmission of maritime safety information (MSI) (see Appendix 17).

5.132A Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution 612 (Rev.WRC 12). (WRC 12)

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 countries and territories within the Kingdom 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.). (WRC-19)

5.134 The use of the frequency bands 5 900-5 950 kHz, 7 300-7 350 kHz, 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 13 570-13 600 kHz, 13 800-13 870 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900 19 020 kHz by the broadcasting service is subject to the application of the procedure of Article 12. Administrations are encouraged to use these frequency bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution 517 (Rev.WRC-19). (WRC-19)

5.136 *Additional allocation*: frequencies in the band 5 900-5 950 kHz may be used by stations in the following services, communicating only within the boundary of the country in which they are located: fixed service (in all three Regions), land mobile service (in Region 1), mobile except aeronautical mobile (R) service (in Regions 2 and 3), on 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. (WRC-07)

5.137 On condition that harmful interference is not caused to the maritime mobile service, the bands 6 200 6 213.5 kHz and 6 220.5-6 525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean

power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above conditions.

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.

5.141 Alternative allocation: in **Egypt**, Eritrea, Ethiopia, Guinea, Libya, Madagascar and Niger, the band 7 000 7 050 kHz is allocated to the fixed service on a primary basis. (WRC 12)

5.141B *Additional allocation*: in Algeria, Saudi Arabia, Australia, Bahrain, Botswana, Brunei Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, **Egypt**, United Arab Emirates, Eritrea, Guinea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, Libya, Mali, Morocco, Mauritania, Niger, New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sudan, South Sudan, Tunisia, Viet Nam and Yemen, the frequency band 7 100-7 200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis. (WRC-19)

5.143 *Additional allocation*: frequencies in the band 7 300-7 350 kHz may be used by stations in the fixed service and in the land mobile service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies 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. (WRC-07)

5.143B In **Region 1**, 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 on condition that harmful interference is not caused to the broadcasting service. The total radiated power of each station shall not exceed 24 dBW. (WRC-12)

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. (WRC-12)

5.145 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. (WRC 07)

5.145A Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed service. applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution 612 (Rev.WRC 12). (WRC 12)

5.146 *Additional allocation*: frequencies in the bands 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.147 On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9 775-9 900 kHz, 11 650-11 700 kHz and 11 975-12 050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.

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, 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). (WRC 07)

5.150 The following bands:

13 553-13 567 kHz (centre frequency 13 560 kHz),

26 957-27 283 kHz (centre frequency 27 120 kHz),

40.66-40.70 MHz	(centre frequency 40.68 MHz),
902-928 MHz	in Region 2 (centre frequency 915 MHz),
2 400-2 500 MHz	(centre frequency 2 450 MHz),
5 725-5 875 MHz	(centre frequency 5 800 MHz), and
24-24.25 GHz	(centre frequency 24.125 GHz)

are also designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within these bands must accept harmful interference which may be caused by these applications. ISM equipment operating in these bands is subject to the provisions of No. **15.13**.

5.151 *Additional allocation*: frequencies in the bands 13 570-13 600 kHz and 13 800-13 870 kHz may be used by stations in the fixed service and in the mobile except aeronautical mobile (R) service, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

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

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

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

5.165 *Additional allocation*: in Angola, Cameroon, Congo (Rep. of the), **Egypt**, Madagascar, Mozambique, Niger, Somalia, Sudan, South Sudan, Tanzania and Chad, the frequency band 47-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

5.166A *Different category of service*: in Austria, Cyprus, the Vatican, Croatia, Denmark, Spain, Finland, Hungary, Latvia, the Netherlands, the Czech Republic, the United Kingdom, Slovakia and Slovenia, the frequency band 50.0- 50.5 MHz is allocated to the amateur service on a primary basis. Stations in the amateur service in these countries shall not cause harmful interference to, or claim protection from, stations of the broadcasting, fixed and mobile services operating in accordance with the Radio Regulations in the frequency band 50.0-50.5 MHz in the countries not listed in this provision. For a station of these services, the protection criteria in No. **5.169B** shall also apply. In **Region 1**, with the exception of those countries listed in No. **5.169**, wind profiler radars operating in the radiolocation service under No. **5.162A** are authorized to operate on the basis of equality with stations in the amateur service in the frequency band 50.0-50.5 MHz. (WRC-19)

5.166B In **Region 1**, stations in the amateur service operating on a secondary basis shall not cause harmful interference to, or claim protection from, stations of the broadcasting service. The field

strength generated by an amateur station in Region 1 in the frequency band 50-52 MHz shall not exceed a calculated value of +6 dB(μV/m) at a height of 10 m above ground for more than 10% of time along the border of a country with operational analogue broadcasting stations in Region 1 and of neighbouring countries with broadcasting stations in Region 3 listed in Nos. 5.167 and 5.168. (WRC-19)

5.166C In Region 1, stations in the amateur service in the frequency band 50-52 MHz, with the exception of those countries listed in No. 5.169, shall not cause harmful interference to, or claim protection from, wind profiler radars operating in the radiolocation service under No. 5.162A. (WRC-19)

5.169A *Alternative allocation*: in the following countries in Region 1: Angola, Saudi Arabia, Bahrain, Burkina Faso, Burundi, the United Arab Emirates, Gambia, Jordan, Kenya, Kuwait, Mauritius, Mozambique, Oman, Uganda, Qatar, South Sudan and Tanzania, the frequency band 50-54 MHz is allocated to the amateur service on a primary basis. In Guinea-Bissau, the frequency band 50.0-50.5 MHz is allocated to the amateur service on a primary basis. In Djibouti, the frequency band 50-52 MHz is allocated to the amateur service on a primary basis. With the exception of those countries listed in No. 5.169, stations in the amateur service operating in Region 1 under this footnote, in all or part of the frequency band 50-54 MHz, shall not cause harmful interference to, or claim protection from, stations of other services operating in accordance with the Radio Regulations in Algeria, Egypt, Iran (Islamic Republic of), Iraq, Israel, Libya, Palestine, the Syrian Arab Republic, the Dem. People's Republic of Korea, Sudan and Tunisia. The field strength generated by an amateur station in the frequency band 50-54 MHz shall not exceed a value of +6 dB(μV/m) at a height of 10 m above ground for more than 10% of time along the borders of listed countries requiring protection. (WRC-19)

5.169B Except countries listed under No. 5.169, stations in the amateur service used in Region 1, in all or part of the 50-54 MHz frequency band, shall not cause harmful interference to, or claim protection from, stations of other services used in accordance with the Radio Regulations in Algeria, Armenia, Azerbaijan, Belarus, Egypt, Russian Federation, Iran (Islamic Republic of), Iraq, Kazakhstan, Kyrgyzstan, Libya, Uzbekistan, Palestine, the Syrian Arab Republic, Sudan, Tunisia and Ukraine. The field strength generated by an amateur station in the frequency band 50-54 MHz shall not exceed a value of +6 dB(μV/m) at a height of 10 m above ground for more than 10% of time along the borders of the countries listed in this provision. (WRC-19)

5.180 The frequency 75 MHz is assigned to marker beacons. Administrations shall refrain from assigning frequencies close to the limits of the guardband to stations of other services which, because of their power or geographical position, might cause harmful interference or otherwise place a constraint on marker beacons.

Every effort should be made to improve further the characteristics of airborne receivers and to limit the power of transmitting stations close to the limits 74.8 MHz and 75.2 MHz.

5.181 *Additional allocation*: in Egypt, Israel and the Syrian Arab Republic, the band 74.8-75.2 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. 9.21. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no

longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. 9.21. (WRC 03)

5.197A *Additional allocation*: the band 108-117.975 MHz is also allocated on a primary basis to the aeronautical mobile (R) service, limited to systems operating in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution 413 (Rev.WRC 07). The use of the band 108-112 MHz by the aeronautical mobile (R) service shall be limited to systems composed of ground-based transmitters and associated receivers that provide navigational information in support of air navigation functions in accordance with recognized international aeronautical standards. (WRC-07)

5.200 In the band 117.975-137 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Article 31 for distress and safety purposes with stations of the aeronautical mobile service. (WRC 07)

5.203C The use of the space operation service (space-to-Earth) with non-geostationary satellite short-duration mission systems in the frequency band 137-138 MHz is subject to Resolution 660 (WRC-19). Resolution 32 (WRC-19) applies. These systems shall not cause harmful interference to, or claim protection from, the existing services to which the frequency band is allocated on a primary basis. (WRC-19)

5.206 *Different category of service*: in Armenia, Azerbaijan, Belarus, Bulgaria, Egypt, the Russian Federation, Finland, France, Georgia, Greece, Kazakhstan, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Syrian Arab Republic, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 137-138 MHz to the aeronautical mobile (OR) service is on a primary basis (see No. 5.33). (WRC 2000)

5.208 The use of the band 137-138 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. (WRC-97)

5.208A In making assignments to space stations in the mobile-satellite service in the frequency bands 137-138 MHz, 387-390 MHz and 400.15-401 MHz and in the maritime mobile-satellite service (space-to-Earth) in the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the frequency bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions as shown in the most recent version of Recommendation ITU-R RA.769. (WRC-19)

5.208B In the frequency bands:

137-138 MHz,

157.1875-157.3375 MHz,

161.7875-161.9375 MHz,

387-390 MHz,

400.15-401 MHz,

1 452-1 492 MHz,

1 525-1 610 MHz,

1 613.8-1 626.5 MHz,

2 655-2 690 MHz,

21.4-22 GHz,

Resolution 739 (Rev.WRC-19) applies. (WRC-19)

5.209 The use of the bands 137-138 MHz, 148-150.05 MHz, 399.9-400.05 MHz, 400.15-401 MHz, 454 456 MHz and 459-460 MHz by the mobile-satellite service is limited to non geostationary-satellite systems. (WRC 97)

5.209A The use of the frequency band 137.175-137.825 MHz by non-geostationary-satellite systems in the space operation service identified as short-duration mission in accordance with Appendix 4 is not subject to No. **9.11A**. (WRC-19)

5.218 *Additional allocation*: the band 148-149.9 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **9.21**. The bandwidth of any individual transmission shall not exceed ±25 kHz.

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

5.219 The use of the frequency band 148-149.9 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the frequency band 148-149.9 MHz. The use of the frequency band 148-149.9 MHz by nongeostationary-satellite systems in the space operation service identified as short-duration mission is not subject to No. 9.11A. (WRC-19)

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

5.221 Stations of the mobile-satellite service in the frequency band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Djibouti, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Eswatini, Ethiopia, the Russian Federation, Finland, France, Gabon, Georgia, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Tanzania, Chad, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-19)

5.225A *Additional allocation*: in Algeria, Armenia, Azerbaijan, Belarus, China, the Russian Federation, France, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and Viet Nam, the frequency band 154-156 MHz is also allocated to the radiolocation service on a primary basis. The usage of the frequency band 154-156 MHz by the radiolocation service shall be limited to space-object detection systems operating from terrestrial locations. The operation of stations in the radiolocation service in the frequency band 154-156 MHz shall be subject to agreement obtained under No. 9.21. For the identification of potentially affected administrations in Region 1, the instantaneous field-strength value of 12 dB(μV/m) for 10% of the time produced at 10 m above ground level in the 25 kHz reference frequency band at the border of the territory of any other administration shall be used. For the identification of potentially affected administrations in Region 3, the interference-to-noise ratio (I/N) value of −6 dB (N = −161 dBW/4 kHz), or −10 dB for applications with greater protection requirements, such as public protection and disaster relief (PPDR (N = −161 dBW/4 kHz)), for 1% of the time produced at 60 m above ground level at the border of the territory of any other administration shall be used. In the frequency bands 156.7625-156.8375 MHz, 156.5125 156.5375 MHz, 161.9625-161.9875 MHz, 162.0125-162.0375 MHz, out-of-band e.i.r.p. of space surveillance radars shall not exceed −16 dBW. Frequency assignments to the radiolocation service under this allocation in Ukraine shall not be used without the agreement of Moldova. (WRC 12)

5.226 The frequency 156.525 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service using digital selective calling (DSC). The conditions for the use of this frequency and the band 156.4875-156.5625 MHz are contained in Articles 31 and 52, and in Appendix 18.

The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency and the band 156.7625-156.8375 MHz are contained in Article 31 and Appendix 18.

In the bands 156-156.4875 MHz, 156.5625-156.7625 MHz, 156.8375-157.45 MHz, 160.6-160.975 MHz and 161.475-162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles 31 and 52, and Appendix 18).

Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.

However, the frequencies 156.8 MHz and 156.525 MHz and the frequency bands in which priority is given to the maritime mobile service may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations and taking into account current frequency usage and existing agreements. (WRC 07)

5.227 *Additional allocation*: the bands 156.4875-156.5125 MHz and 156.5375-156.5625 MHz are also allocated to the fixed and land mobile services on a primary basis. The use of these bands by the fixed and land mobile services shall not cause harmful interference to nor claim protection from the maritime mobile VHF radiocommunication service. (WRC 07)

5.228 The use of the frequency bands 156.7625-156.7875 MHz and 156.8125-156.8375 MHz by the mobile-satellite service (Earth-to-space) is limited to the reception of automatic identification system (AIS) emissions of long-range AIS broadcast messages (Message 27, see the most recent version of Recommendation ITU R M.1371). With the exception of AIS emissions, emissions in these frequency bands by systems operating in the maritime mobile service for communications shall not exceed 1 W. (WRC 12)

5.228A The frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz may be used by aircraft stations for the purpose of search and rescue operations and other safety-related communications. (WRC 12)

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

5.228AB The use of the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz by the maritime mobile-satellite service (Earth-to-space) is limited to non-geostationary-satellite systems operating in accordance with Appendix 18. (WRC-19)

5.228AC The use of the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz by the maritime mobile-satellite service (space-to-Earth) is limited to non-geostationary-satellite systems operating in accordance with Appendix 18. Such use is subject to agreement obtained under No. 9.21 with respect to the terrestrial services in Azerbaijan, Belarus, China, Korea (Rep. of), Cuba, the Russian

Federation, the Syrian Arab Republic, the Dem. People's Rep. of Korea, South Africa and Viet Nam. (WRC-19)

5.228B The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the fixed and land mobile services shall not cause harmful interference to, or claim protection from, the maritime mobile service. (WRC 12)

5.228C The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the maritime mobile service and the mobile-satellite (Earth-to-space) service is limited to the automatic identification system (AIS). The use of these frequency bands by the aeronautical mobile (OR) service is limited to AIS emissions from search and rescue aircraft operations. The AIS operations in these frequency bands shall not constrain the development and use of the fixed and mobile services operating in the adjacent frequency bands. (WRC 12)

5.228D The frequency bands 161.9625-161.9875 MHz (AIS 1) and 162.0125-162.0375 MHz (AIS 2) may continue to be used by the fixed and mobile services on a primary basis until 1 January 2025, at which time this allocation shall no longer be valid. Administrations are encouraged to make all practicable efforts to discontinue the use of these bands by the fixed and mobile services prior to the transition date. During this transition period, the maritime mobile service in these frequency bands has priority over the fixed, land mobile and aeronautical mobile services. (WRC 12)

5.228E The use of the automatic identification system in the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the aeronautical mobile (OR) service is limited to aircraft stations for the purpose of search and rescue operations and other safety-related communications. (WRC 12)

5.228F The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the mobile-satellite service (Earth-to-space) is limited to the reception of automatic identification system emissions from stations operating in the maritime mobile service. (WRC 12)

5.237 *Additional allocation*: in Congo (Rep. of the), Egypt, Eritrea, Ethiopia, Gambia, Guinea, Libya, Mali, Sierra Leone, Somalia and Chad, the band 174-223 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC 12)

5.254 The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. 9.21, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations except for the additional allocation made in footnote No. 5.256A. (WRC-03)

5.255 The bands 312-315 MHz (Earth-to-space) and 387-390 MHz (space-to-Earth) in the mobile-satellite service may also be used by non-geostationary-satellite systems. Such use is subject to coordination under No. 9.11A.

5.256 The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes. (WRC 07)

5.257 The band 267-272 MHz may be used by administrations for space telemetry in their countries on a primary basis, subject to agreement obtained under No. 9.21.

5.258 The use of the band 328.6-335.4 MHz by the aeronautical radionavigation service is limited to Instrument Landing Systems (glide path).

5.259 *Additional allocation:* in Egypt and the Syrian Arab Republic, the band 328.6-335.4 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. 9.21. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. 9.21. (WRC-12)

5.260A In the frequency band 399.9-400.05 MHz, the maximum e.i.r.p. of any emission of earth stations in the mobile-satellite service shall not exceed 5 dBW in any 4 kHz band and the maximum e.i.r.p. of each earth station in the mobile-satellite service shall not exceed 5 dBW in the whole 399.9-400.05 MHz frequency band. Until 22 November 2022, this limit shall not apply to satellite systems for which complete notification information has been received by the Radiocommunication Bureau by 22 November 2019 and that have been brought into use by that date. After 22 November 2022, these limits shall apply to all systems within the mobile-satellite service operating in this frequency band.

In the frequency band 399.99-400.02 MHz, the e.i.r.p. limits as specified above shall apply after 22 November 2022 to all systems within the mobile-satellite service. Administrations are requested that their mobile satellite service satellite links in the 399.99-400.02 MHz frequency band comply with the e.i.r.p. limits as specified above, after 22 November 2019. (WRC-19)

5.260B In the frequency band 400.02-400.05 MHz, the provisions of No. 5.260A are not applicable for telecommand uplinks within the mobile-satellite service. (WRC-19)

5.261 Emissions shall be confined in a band of ± 25 kHz about the standard frequency 400.1 MHz.

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. (WRC-12)

5.263 The band 400.15-401 MHz is also allocated to the space research service in the space-to-space direction for communications with manned space vehicles. In this application, the space research service will not be regarded as a safety service.

5.264 The use of the band 400.15-401 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. The power flux-density limit indicated in Annex 1 of Appendix 5 shall apply until such time as a competent world radiocommunication conference revises it.

5.264A In the frequency band 401-403 MHz, the maximum e.i.r.p. of any emission of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 22 dBW in any 4 kHz band for geostationary-satellite systems and non-geostationary-satellite systems with an orbit of apogee equal or greater than 35 786 km.

The maximum e.i.r.p. of any emission of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 7 dBW in any 4 kHz band for non-geostationary-satellite systems with an orbit of apogee lower than 35 786 km.

The maximum e.i.r.p. of each earth station in the meteorological-satellite service and the Earth exploration- satellite service shall not exceed 22 dBW for geostationary-satellite systems and non-geostationary-satellite systems with an orbit of apogee equal or greater than 35 786 km in the whole 401-403 MHz frequency band. The maximum e.i.r.p. of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 7 dBW for non-geostationary-satellite systems with an orbit of apogee lower than 35 786 km in the whole 401-403 MHz frequency band.

Until 22 November 2029, these limits shall not apply to satellite systems for which complete notification information has been received by the Radiocommunication Bureau by 22 November 2019 and that have been brought into use by that date. After 22 November 2029, these limits shall apply to all systems within the meteorological-satellite service and the Earth exploration-satellite service operating in this frequency band. (WRC-19)

5.264B Non-geostationary-satellite systems in the meteorological-satellite service and the Earth exploration- satellite service for which complete notification information has been received by the Radiocommunication Bureau before 28 April 2007 are exempt from provisions of No. **5.264A** and may continue to operate in the frequency band 401.898- 402.522 MHz on a primary basis without exceeding a maximum e.i.r.p. level of 12 dBW. (WRC-19)

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

5.266 The use of the band 406-406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radiobeacons (see also Article **31**). (WRC-07)

5.267 Any emission capable of causing harmful interference to the authorized uses of the band 406-406.1 MHz is prohibited.

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

5.276 *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Djibouti, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Jordan, Kenya, Kuwait, Libya, Malaysia, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Switzerland, Thailand, Togo, Turkey and Yemen, the

frequency band 430-440 MHz is also allocated to the fixed service on a primary basis and the frequency bands 430-435 MHz and 438-440 MHz are also allocated, except in Ecuador, to the mobile, except aeronautical mobile, service on a primary basis. (WRC-15)

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

5.282 In the bands 435-438 MHz, 1 260-1 270 MHz, 2 400-2 450 MHz, 3 400-3 410 MHz (in Regions 2 and 3 only) and 5 650-5 670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. 5.43). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. 25.11. The use of the bands 1 260-1 270 MHz and 5 650-5 670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.

5.286 The band 449.75-450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), subject to agreement obtained under No. 9.21.

5.286A The use of the bands 454-456 MHz and 459-460 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. (WRC-97)

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

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

5.289 Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460-470 MHz and 1 690-1 710 MHz for space-to-Earth transmissions subject to not causing harmful interference to stations operating in accordance with the Table.

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

5.296 *Additional allocation:* in Albania, Germany, Angola, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Vatican, Congo

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

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

5.304 *Additional allocation:* in the African Broadcasting Area (see Nos. **5.10** to **5.13**), the band 606-614 MHz is also allocated to the radio astronomy service on a primary 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 **760 (WRC-15)**. See also Resolution **224 (Rev.WRC-15)**. (WRC-15)

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

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

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, Burundi, Egypt, Spain,

Lesotho, Libya, Morocco, Malawi, Namibia, Nigeria, South Africa, Tanzania, Zimbabwe and Zambia, subject to agreement obtained under No. **9.21**. (WRC-12)

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)**. (WRC-15)

5.328 The use of the band 960-1 215 MHz by the 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. (WRC-2000)

5.328A Stations in the radionavigation-satellite service in the band 1 164-1 215 MHz shall operate in accordance with the provisions of Resolution **609 (Rev.WRC-07)** and shall not claim protection from stations in the aeronautical radionavigation service in the band 960-1 215 MHz. No. **5.43A** does not apply. The provisions of No. **21.18** shall apply. (WRC-07)

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. (WRC-15)

5.328B The use of the bands 1 164-1 300 MHz, 1 559-1 610 MHz and 5 010-5 030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the Radiocommunication Bureau after 1 January 2005 is subject to the application of the provisions of Nos. **9.12**, **9.12A** and **9.13**. Resolution **610 (WRC-03)** shall also apply; however, in the case of radionavigation-satellite service (space-to-space) networks and systems, Resolution **610 (WRC-03)** shall only apply to transmitting space stations. In accordance with No. **5.329A**, for systems and networks in the radionavigation-satellite service (space-to-space) in the bands 1 215-1 300 MHz and 1 559-1 610 MHz, the provisions of Nos. **9.7**, **9.12**, **9.12A** and **9.13** shall only apply with respect to other systems and networks in the radionavigation-satellite service (space-to-space). (WRC-07)

5.329 Use of the radionavigation-satellite service in the band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. **5.331**. Furthermore, the use of the radionavigation-satellite service in the band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. No. **5.43** shall not apply in respect of the radiolocation service. Resolution **608 (WRC-03)** shall apply. (WRC-03)

5.329A Use of systems in the radionavigation-satellite service (space-to-space) operating in the bands 1 215-1 300 MHz and 1 559-1 610 MHz is not intended to provide safety service applications, and shall not impose any additional constraints on radionavigation-satellite service (space-to-Earth) systems or on other services operating in accordance with the Table of Frequency Allocations. (WRC-07)

5.330 *Additional allocation:* in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Nepal, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Somalia, Sudan, South 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. (WRC-12)

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. (WRC-12)

5.332 In the band 1 215-1 260 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the radionavigation-satellite service and other services allocated on a primary basis. (WRC-2000)

5.335A In the band 1 260-1 300 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service and other services allocated by footnotes on a primary basis. (WRC-2000)

5.337 The use of the bands 1 300-1 350 MHz, 2 700-2 900 MHz and 9 000-9 200 MHz by the aeronautical radionavigation service is restricted to ground-based radars and to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.

5.337A The use of the band 1 300-1 350 MHz by earth stations in the radionavigation-satellite service and by stations in the radiolocation service shall not cause harmful interference to, nor constrain the operation and development of, the aeronautical-radionavigation service. (WRC-2000)

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. (WRC-15)

5.339 The bands 1 370-1 400 MHz, 2 640-2 655 MHz, 4 950-4 990 MHz and 15.20-15.35 GHz are also allocated to the space research (passive) and Earth exploration-satellite (passive) services on a secondary basis.

5.340 All emissions are prohibited in the following bands:

1 400-1 427 MHz,	
2 690-2 700 MHz,	except those provided for by No. **5.422**,
10.68-10.7 GHz,	except those provided for by No. **5.483**,
15.35-15.4 GHz,	except those provided for by No. **5.511**,
23.6-24 GHz,	
31.3-31.5 GHz,	
31.5-31.8 GHz,	in Region 2,
48.94-49.04 GHz,	from airborne stations
50.2-50.4 GHz,	
52.6-54.25 GHz,	
86-92 GHz,	
100-102 GHz,	
109.5-111.8 GHz,	
114.25-116 GHz,	
148.5-151.5 GHz,	
164-167 GHz,	
182-185 GHz,	
190-191.8 GHz,	
200-209 GHz,	
226-231.5 GHz,	
250-252 GHz. (WRC-03)	

5.341 In the bands 1 400-1 727 MHz, 101-120 GHz and 197-220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.

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. (WRC-15)

5.345 Use of the band 1 452-1 492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (WARC-92).

5.346 In Algeria, Angola, Saudi Arabia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Kenya, Kuwait, Lesotho, Lebanon, Liberia, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Palestine, Qatar, Dem. Rep. of the Congo, Rwanda, Senegal, Seychelles, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Tunisia, Zambia, and Zimbabwe, the frequency band 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. See also Resolution 761 (WRC-15). (WRC-15)

5.348 The use of the band 1 518-1 525 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from the stations in the fixed service. No. 5.43A does not apply. (WRC-03)

5.349 *Different category of service:* in Saudi Arabia, Azerbaijan, Bahrain, Cameroon, Egypt, France, Iran (Islamic Republic of), Iraq, Israel, Kazakhstan, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Morocco, Qatar, Syrian Arab Republic, Kyrgyzstan, 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). (WRC-07)

5.351 The bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 626.5-1 645.5 MHz and 1 646.5-1 660.5 MHz shall not be used for feeder links of any service. In exceptional circumstances, however, an earth station at a specified fixed point in any of the mobile-satellite services may be authorized by an administration to communicate via space stations using these bands.

5.351A For the use of the bands 1 518-1 544 MHz, 1 545-1 559 MHz, 1 610-1 645.5 MHz, 1 646.5-1 660.5 MHz, 1 668-1 675 MHz, 1 980-2 010 MHz, 2 170-2 200 MHz, 2 483.5-2 520 MHz and 2 670-2 690 MHz by the mobile-satellite service, see Resolutions 212 (Rev.WRC-07) and 225 (Rev.WRC-07). (WRC-07)

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. (WRC-15)

5.353A In applying the procedures of Section II of Article **9** to the mobile-satellite service in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS). Maritime mobile-satellite distress, urgency and safety communications shall have priority access and immediate availability over all other mobile satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution **222 (WRC-2000)** shall apply.) (WRC-2000)

5.354 The use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite services is subject to coordination under No. **9.11A**.

5.355 *Additional allocation:* in Bahrain, Bangladesh, Congo (Rep. of the), Djibouti, **Egypt**, Eritrea, Iraq, Israel, Kuwait, Qatar, Syrian Arab Republic, Somalia, Sudan, South 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. (WRC-12)

5.356 The use of the band 1 544-1 545 MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications (see Article **31**).

5.357 Transmissions in the band 1 545-1 555 MHz from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorized when such transmissions are used to extend or supplement the satellite-to-aircraft links.

5.357A In applying the procedures of Section II of Article **9** to the mobile-satellite service in the frequency bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **44**. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44** shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution **222 (Rev.WRC-12)** shall apply.) (WRC-12)

5.364 The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. **9.11A**. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of -15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. **5.366** (to which No. **4.10** applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed –3 dB(W/4 kHz). Stations of the mobile-satellite service shall

not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. 5.366 and stations in the fixed service operating in accordance with the provisions of No. 5.359. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. 5.366.

5.365 The use of the band 1 613.8-1 626.5 MHz by the mobile-satellite service (space-to-Earth) is subject to coordination under No. 9.11A.

5.366 The band 1 610-1 626.5 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is subject to agreement obtained under No. 9.21.

5.367 *Additional allocation*: The frequency band 1 610-1 626.5 MHz is also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. 9.21. (WRC-12)

5.368 With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. 4.10 do not apply in the band 1 610-1 626.5 MHz, with the exception of the aeronautical radionavigation-satellite service.

5.371 *Additional allocation:* in Region 1, the band 1 610-1 626.5 MHz (Earth-to-space) is also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. 9.21. (WRC-12)

5.372 Harmful interference shall not be caused to stations of the radio astronomy service using the frequency band 1 610.6-1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. 29.13 applies). The equivalent power flux-density (epfd) produced in the frequency band 1 610.6-1 613.8 MHz by all space stations of a non-geostationary-satellite system in the mobile-satellite service (space-to-Earth) operating in frequency band 1 613.8-1 626.5 MHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, using the methodology given in Recommendation ITU-R M.1583-1, and the radio astronomy antenna pattern described in Recommendation ITU-R RA.1631-0. (WRC-19)

5.373 Maritime mobile earth stations receiving in the frequency band 1 621.35-1 626.5 MHz shall not impose additional constraints on earth stations operating in the maritime mobile-satellite service or maritime earth stations of the radiodetermination-satellite service operating in accordance with the Radio Regulations in the frequency band 1 610- 1 621.35 MHz or on earth stations operating in the maritime mobile-satellite service operating in accordance with the Radio Regulations in the frequency band 1 626.5-1 660.5 MHz, unless otherwise agreed between the notifying administrations. (WRC-19)

5.373A Maritime mobile earth stations receiving in the frequency band 1 621.35-1 626.5 MHz shall not impose constraints on the assignments of earth stations of the mobile-satellite service (Earth-to-space) and the radiodetermination satellite service (Earth-to-space) in the frequency band 1 621.35-1 626.5 MHz in networks for which complete coordination information has been received by the Radiocommunication Bureau before 28 October 2019. (WRC-19)

5.374 Mobile earth stations in the mobile-satellite service operating in the bands 1 631.5-1 634.5 MHz and 1 656.5-1 660 MHz shall not cause harmful interference to stations in the fixed service operating in the countries listed in No. 5.359. (WRC-97)

5.375 The use of the band 1 645.5-1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article 31).

5.376 Transmissions in the band 1 646.5-1 656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.

5.376A Mobile earth stations operating in the band 1 660-1 660.5 MHz shall not cause harmful interference to stations in the radio astronomy service. (WRC-97)

5.379A Administrations are urged to give all practicable protection in the band 1 660.5-1 668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1 664.4-1 668.4 MHz as soon as practicable.

5.379B The use of the band 1 668-1 675 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. In the band 1 668-1 668.4 MHz, Resolution 904 (WRC-07) shall apply. (WRC-07)

5.379C In order to protect the radio astronomy service in the band 1 668-1 670 MHz, the aggregate power flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed –181 dB(W/m^2) in 10 MHz and –194 dB(W/m^2) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2 000 s. (WRC-03)

5.379D For sharing of the band 1 668.4-1 675 MHz between the mobile-satellite service and the fixed and mobile services, Resolution 744 (Rev.WRC-07) shall apply. (WRC-07)

5.379E In the band 1 668.4-1 675 MHz, stations in the mobile-satellite service shall not cause harmful interference to stations in the meteorological aids service in China, Iran (Islamic Republic of), Japan and Uzbekistan. In the band 1 668.4-1 675 MHz, administrations are urged not to implement new systems in the meteorological aids service and are encouraged to migrate existing meteorological aids service operations to other bands as soon as practicable. (WRC-03)

5.380A In the band 1 670-1 675 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, existing earth stations in the meteorological-satellite service notified before 1 January 2004. Any new assignment to these earth stations in this band shall also be protected from harmful interference from stations in the mobile-satellite service. (WRC-07)

5.382 *Different category of service*: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, North Macedonia, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Turkmenistan, Ukraine and Yemen, the allocation of the frequency band 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. (WRC-19)

5.384A The frequency bands 1 710-1 885 MHz, 2 300-2 400 MHz and 2 500-2 690 MHz, or portions thereof, are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.385 *Additional allocation:* 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. (WRC-2000)

5.388 The frequency bands 1 885-2 025 MHz and 2 110-2 200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications (IMT). Such use does not preclude the use of these frequency bands by other services to which they are allocated. The frequency bands should be made available for IMT in accordance with Resolution **212 (Rev.WRC-15)** (see also Resolution **223 (Rev.WRC-15)**). (WRC-15)

5.388A In Regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz and, in Region 2, the bands 1 885-1 980 MHz and 2 110-2 160 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications (IMT), in accordance with Resolution **221 (Rev.WRC-07)**. Their use by IMT applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-12)

5.388B In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire, China, Cuba, Djibouti, **Egypt**, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lebanon, Libya, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, South Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT base station in neighbouring countries, in the frequency bands referred to in 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. (WRC-19)

5.389A The use of the bands 1 980-2 010 MHz and 2 170-2 200 MHz by the mobile-satellite service is subject to coordination under No. **9.11A** and to the provisions of Resolution **716 (Rev.WRC-2000)**. (WRC-07)

5.389B The use of the frequency band 1 980-1 990 MHz by the mobile-satellite service shall not cause harmful interference to or constrain the development of the fixed and mobile services in Argentina, Brazil, Canada, Chile, Ecuador, the United States, Honduras, Jamaica, Mexico, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay and Venezuela. (WRC-19)

5.389E The use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz by the mobile-satellite service in Region 2 shall not cause harmful interference to or constrain the development of the fixed and mobile services in Regions 1 and 3.

5.389F In Algeria, Cape Verde, Egypt, Iran (Islamic Republic of), Mali, Syrian Arab Republic and Tunisia, the use of the frequency bands 1 980-2 010 MHz and 2 170-2 200 MHz by the mobile-satellite service shall neither cause harmful interference to the fixed and mobile services, nor hamper the development of those services prior to 1 January 2005, nor shall the former service request protection from the latter services. (WRC-19)

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. (WRC-15)

5.392 Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2 025-2 110 MHz and 2 200-2 290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.

5.398 In respect of the radiodetermination-satellite service in the band 2 483.5-2 500 MHz, the provisions of No. 4.10 do not apply.

5.399 Except for cases referred to in No. 5.401, stations of the radiodetermination-satellite service operating in the frequency band 2 483.5-2 500 MHz for which notification information is received by the Bureau after 17 February 2012, and the service area of which includes Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Ukraine, shall not cause harmful interference to, and shall not claim protection from stations of the radiolocation service operating in these countries in accordance with No. 5.398A. (WRC-12)

5.402 The use of the band 2 483.5-2 500 MHz by the mobile-satellite and the radiodetermination-satellite services is subject to the coordination under No. 9.11A. Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2 483.5-2 500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4 990-5 000 MHz band allocated to the radio astronomy service worldwide.

5.403 Subject to agreement obtained under No. 9.21, the band 2 520-2 535 MHz may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The provisions of No. 9.11A apply. (WRC-07)

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. No. 9.21 does not apply to tropospheric scatter links situated entirely outside Region 1. Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in this band. When planning new tropospheric scatter radio-relay links in

this band, all possible measures shall be taken to avoid directing the antennas of these links towards the geostationary-satellite orbit. (WRC-12)

5.413 In the design of systems in the broadcasting-satellite service in the bands between 2 500 MHz and 2 690 MHz, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2 690-2 700 MHz.

5.414 The allocation of the frequency band 2 500-2 520 MHz to the mobile-satellite service (space-to-Earth) is subject to coordination under No. 9.11A. (WRC-07)

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. (WRC-07)

5.416 The use of the band 2 520-2 670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. 9.21. The provisions of No. 9.19 shall be applied by administrations in this band in their bilateral and multilateral negotiations. (WRC-07)

5.418B Use of the band 2 630-2 655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418, for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. 9.12. (WRC-03)

5.418C Use of the band 2 630-2 655 MHz by geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000 is subject to the application of the provisions of No. 9.13 with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418 and No. 22.2 does not apply. (WRC-03)

5.419 When introducing systems of the mobile-satellite service in the band 2 670-2 690 MHz, administrations shall take all necessary steps to protect the satellite systems operating in this band prior to 3 March 1992. The coordination of mobile-satellite systems in the band shall be in accordance with No. 9.11A. (WRC-07)

5.420 The band 2 655-2 670 MHz may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite, service for operation limited to within national boundaries, subject to agreement obtained under No. 9.21. The coordination under No. 9.11A applies. (WRC-07)

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. (WRC-12)

5.423 In the band 2 700-2 900 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the aeronautical radionavigation service.

5.424A In the band 2 900-3 100 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the radionavigation service. (WRC-03)

5.425 In the band 2 900-3 100 MHz, the use of the shipborne interrogator-transponder (SIT) system shall be confined to the sub-band 2 930 -2 950 MHz.

5.426 The use of the band 2 900-3 100 MHz by the aeronautical radionavigation service is limited to ground-based radars.

5.427 In the bands 2 900-3 100 MHz and 9 300-9 500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. 4.9.

5.429 *Additional allocation*: in Saudi Arabia, Bahrain, Bangladesh, Benin, Brunei Darussalam, Cambodia, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Egypt, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, New Zealand, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Sudan and Yemen, the frequency band 3 300-3 400 MHz is also allocated to the fixed and mobile services on a primary basis. New Zealand and the countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-19)

5.429B In the following countries of Region 1 south of 30° parallel north: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Congo (Rep. of the), Côte d'Ivoire, Egypt, Eswatini, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Uganda, the Dem. Rep. of the Congo, Rwanda, Sudan, South Sudan, South Africa, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300- 3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). The use of this frequency band shall be in accordance with Resolution 223 (Rev.WRC-19). The use of the frequency band 3 300- 3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to protect operations within the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-19)

5.430A 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. This frequency band is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The provisions of Nos. 9.17 and 9.18 shall also apply in the coordination phase.

Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m^2 · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) and with the assistance of the Bureau if so requested. In case of disagreement, calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 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). (WRC-15)

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). (WRC-15)

5.437 Passive sensing in the Earth exploration-satellite and space research services may be authorized in the frequency band 4 200-4 400 MHz on a secondary basis. (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. (WRC-15)

5.440 The standard frequency and time signal-satellite service may be authorized to use the frequency 4 202 MHz for space-to-Earth transmissions and the frequency 6 427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of ± 2 MHz of these frequencies, subject to agreement obtained under No. 9.21.

5.441 The use of the bands 4 500-4 800 MHz (space-to-Earth), 6 725-7 025 MHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix 30B. The use of the bands 10.7-10.95 GHz (space-to-Earth), 11.2-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by geostationary-satellite systems in the fixed-satellite service shall be in accordance with the provisions of Appendix 30B. The use of the bands 10.7-10.95 GHz (space-to-Earth), 11.2-11.45 GHz (space-to-Earth) and 12.75-13.25 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. (WRC-2000)

5.442 In the frequency bands 4 825-4 835 MHz and 4 950-4 990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service. In Region 2 (except Brazil, Cuba, Guatemala, Mexico, Paraguay, Uruguay and Venezuela), and in Australia, the frequency band 4 825-4 835 MHz is also allocated to the aeronautical mobile service, limited to aeronautical mobile telemetry for flight testing by aircraft stations. Such use shall be in accordance with Resolution 416 (WRC-07) and shall not cause harmful interference to the fixed service. (WRC-15)

5.443AA In the frequency bands 5 000-5 030 MHz and 5 091-5 150 MHz, the aeronautical mobile-satellite (R) service is subject to agreement obtained under No. **9.21**. The use of these bands by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems. (WRC-12)

5.443B In order not to cause harmful interference to the microwave landing system operating above 5 030 MHz, the aggregate power flux-density produced at the Earth's surface in the frequency band 5 030-5 150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the frequency band 5 010-5 030 MHz shall not exceed −124.5 dB(W/m^2) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the frequency band 4 990-5 000 MHz, radionavigation-satellite service systems operating in the frequency band 5 010-5 030 MHz shall comply with the limits in the frequency band 4 990-5 000 MHz defined in Resolution **741 (Rev.WRC-15)**. (WRC-15)

5.443C The use of the frequency band 5 030-5 091 MHz by the aeronautical mobile (R) service is limited to internationally standardized aeronautical systems. Unwanted emissions from the aeronautical mobile (R) service in the frequency band 5 030-5 091 MHz shall be limited to protect RNSS system downlinks in the adjacent 5 010-5 030 MHz band. Until such time that an appropriate value is established in a relevant ITU-R Recommendation, the e.i.r.p. density limit of −75 dBW/MHz in the frequency band 5 010-5 030 MHz for any AM(R)S station unwanted emission should be used. (WRC-12)

5.443D In the frequency band 5 030-5 091 MHz, the aeronautical mobile-satellite (R) service is subject to coordination under No. **9.11A**. The use of this frequency band by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems. (WRC-12)

5.444 The frequency band 5 030-5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. In the frequency band 5 030-5 091 MHz, the requirements of this system shall have priority over other uses of this frequency band. For the use of the frequency band 5 091-5 150 MHz, No. **5.444A** and Resolution **114 (Rev.WRC-15)** apply. (WRC-15)

5.444A The use of the allocation to the fixed-satellite service (Earth-to-space) in the frequency band 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. (WRC-15)

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

5.446 *Additional allocation:* in the countries listed in No. **5.369**, the frequency 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 (except in Mexico), the frequency band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in No. **5.369** and Bangladesh, the frequency band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the frequency bands 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. (WRC-15)

5.446A The use of the frequency bands 5 150-5 350 MHz and 5 470-5 725 MHz by the stations in the mobile, except aeronautical mobile, service shall be in accordance with Resolution 229 (Rev.WRC-19). (WRC-19)

5.446B In the band 5 150-5 250 MHz, stations in the mobile service shall not claim protection from earth stations in the fixed-satellite service. No. **5.43A** does not apply to the mobile service with respect to fixed-satellite service earth stations. (WRC-03)

5.447 *Additional allocation*: in Côte d'Ivoire, Egypt, Lebanon, the Syrian Arab Republic and Tunisia, the frequency band 5 150-5 250 MHz is also allocated to the mobile service, on a primary basis, subject to agreement obtained under No. **9.21**. In this case, the provisions of Resolution 229 (Rev.WRC-19) do not apply. (WRC-19)

5.447A The allocation to the fixed-satellite service (Earth-to-space) in the band 5 150-5 250 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**.

5.447B *Additional allocation*: the band 5 150-5 216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to provisions of No. **9.11A**. The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the

space-to-Earth direction in the band 5 150-5 216 MHz shall in no case exceed –164 dB(W/m^2) in any 4 kHz band for all angles of arrival.

5.447C Administrations responsible for fixed-satellite service networks in the band 5 150-5 250 MHz operated under Nos. 5.447A and 5.447B shall coordinate on an equal basis in accordance with No. 9.11A with administrations responsible for non-geostationary-satellite networks operated under No. 5.446 and brought into use prior to 17 November 1995. Satellite networks operated under No. 5.446 brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. 5.447A and 5.447B.

5.447D The allocation of the band 5 250-5 255 MHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis. (WRC-97)

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

5.448A The Earth exploration-satellite (active) and space research (active) services in the frequency band 5 250-5 350 MHz shall not claim protection from the radiolocation service. No. 5.43A does not apply. (WRC-03)

5.448B The Earth exploration-satellite service (active) operating in the band 5 350-5 570 MHz and space research service (active) operating in the band 5 460-5 570 MHz shall not cause harmful interference to the aeronautical radionavigation service in the band 5 350-5 460 MHz, the radionavigation service in the band 5 460-5 470 MHz and the maritime radionavigation service in the band 5 470-5 570 MHz. (WRC-03)

5.448C The space research service (active) operating in the band 5 350-5 460 MHz shall not cause harmful interference to nor claim protection from other services to which this band is allocated. (WRC-03)

5.448D In the frequency band 5 350-5 470 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the aeronautical radionavigation service operating in accordance with No. 5.449. (WRC-03)

5.449 The use of the band 5 350-5 470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.

5.450A In the frequency band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. The radiodetermination services shall not impose more stringent conditions upon the mobile service than those stipulated in Resolution 229 (Rev.WRC-19). (WRC-19)

5.450B In the frequency band 5 470-5 650 MHz, stations in the radiolocation service, except ground-based radars used for meteorological purposes in the band 5 600-5 650 MHz, shall not cause harmful

interference to, nor claim protection from, radar systems in the maritime radionavigation service. (WRC-03)

5.452 Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.

5.453 *Additional allocation*: in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Eswatini, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Niger, Nigeria, Oman, Uganda, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the frequency band 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-19) do not apply. In addition, in Afghanistan, Angola, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Dem. Rep. of the Congo, Fiji, Ghana, Kiribati, Lesotho, Malawi, Maldives, Mauritius, Micronesia, Mongolia, Mozambique, Myanmar, Namibia, Nauru, New Zealand, Papua New Guinea, Rwanda, Solomon Islands, South Sudan, South Africa, Tonga, Vanuatu, Zambia and Zimbabwe, the frequency band 5 725-5 850 MHz is allocated to the fixed service on a primary basis, and stations operating in the fixed service shall not cause harmful interference to and shall not claim protection from other primary services in the frequency band. (WRC-19)

5.457A In the frequency bands 5 925-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution **902 (WRC-03)**. In the frequency band 5 925-6 425 MHz, earth stations located on board vessels and communicating with space stations of the fixed-satellite service may employ transmit antennas with minimum diameter of 1.2 m and operate without prior agreement of any administration if located at least 330 km away from the low-water mark as officially recognized by the coastal State. All other provisions of Resolution **902 (WRC-03)** shall apply. (WRC-15)

5.457B In the frequency bands 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)**. (WRC-15)

5.458 In the band 6 425-7 075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7 075-7 250 MHz, passive microwave sensor measurements are carried out. Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6 425-7 075 MHz and 7 075-7 250 MHz.

5.458A In making assignments in the band 6 700-7 075 MHz to space stations of the fixed-satellite service, administrations are urged to take all practicable steps to protect spectral line observations of the radio astronomy service in the band 6 650-6 675.2 MHz from harmful interference from unwanted emissions.

5.458B The space-to-Earth allocation to the fixed-satellite service in the band 6 700-7 075 MHz is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service and is subject to coordination under No. 9.11A. The use of the band 6 700-7 075 MHz (space-to-Earth) by feeder links for non-geostationary satellite systems in the mobile-satellite service is not subject to No. 22.2.

5.460 No emissions from space research service (Earth-to-space) systems intended for deep space shall be effected in the frequency band 7 190-7 235 MHz. Geostationary satellites in the space research service operating in the frequency band 7 190-7 235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. 5.43A does not apply. (WRC-15)

5.460A The use of the frequency band 7 190-7 250 MHz (Earth-to-space) by the Earth exploration-satellite service shall be limited to tracking, telemetry and command for the operation of spacecraft. Space stations operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7 190-7 250 MHz shall not claim protection from existing and future stations in the fixed and mobile services, and No. 5.43A does not apply. No. 9.17 applies. Additionally, to ensure protection of the existing and future deployment of fixed and mobile services, the location of earth stations supporting spacecraft in the Earth exploration-satellite service in non-geostationary orbits or geostationary orbit shall maintain a separation distance of at least 10 km and 50 km, respectively, from the respective border(s) of neighbouring countries, unless a shorter distance is otherwise agreed between the corresponding administrations. (WRC-15)

5.460B Space stations on the geostationary orbit operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7 190-7 235 MHz shall not claim protection from existing and future stations of the space research service, and No. 5.43A does not apply. (WRC-15)

5.461 *Additional allocation:* the bands 7 250-7 375 MHz (space-to-Earth) and 7 900-8 025 MHz (Earth-to-space) are also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. 9.21.

5.461A The use of the band 7 450-7 550 MHz by the meteorological-satellite service (space-to-Earth) is limited to geostationary-satellite systems. Non-geostationary meteorological-satellite systems in this band notified before 30 November 1997 may continue to operate on a primary basis until the end of their lifetime. (WRC-97)

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. (WRC-15)

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. (WRC-15)

5.461B The use of the band 7 750-7 900 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems. (WRC-12)

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 values for angles of arrival (θ), without the consent of the affected administration:

-135 dB(W/m^2) in a 1 MHz band	for	$0 \leq \theta < 5°$
$-135 + 0.5\,(\theta - 5)$ dB(W/m^2) in a 1 MHz band	for	$5 \leq \theta < 25°$
-125 dB(W/m^2) in a 1 MHz band	for	$25 \leq \theta \leq 90°$ (WRC-12)

5.463 Aircraft stations are not permitted to transmit in the band 8 025-8 400 MHz. (WRC-97)

5.465 In the space research service, the use of the band 8 400-8 450 MHz is limited to deep space.

5.468 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Djibouti, Egypt, the United Arab Emirates, Eswatini, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Sudan, Chad, Togo, Tunisia and Yemen, the frequency band 8 500-8 750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-19)

5.469A In the band 8 550-8 650 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radiolocation service. (WRC-97)

5.470 The use of the band 8 750-8 850 MHz by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8 800 MHz.

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. (WRC-15)

5.472 In the bands 8 850-9 000 MHz and 9 200-9 225 MHz, the maritime radionavigation service is limited to shore-based radars.

5.473A In the band 9 000-9 200 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, systems identified in No. 5.337 operating in the aeronautical radionavigation service, or radar systems in the maritime radionavigation service operating in this band on a primary basis in the countries listed in No. 5.471. (WRC-07)

5.474 In the band 9 200-9 500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article 31).

5.474A The use of the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz by the Earth exploration-satellite service (active) is limited to systems requiring necessary bandwidth greater than 600 MHz that cannot be fully accommodated within the frequency band 9 300-9 900 MHz. Such use is subject to agreement to be obtained under No. 9.21 from Algeria, Saudi Arabia, Bahrain, Egypt,

Indonesia, Iran (Islamic Republic of), Lebanon and Tunisia. An administration that has not replied under No. 9.52 is considered as not having agreed to the coordination request. In this case, the notifying administration of the satellite system operating in the Earth exploration-satellite service (active) may request the assistance of the Bureau under Sub-Section IID of Article 9. (WRC-15)

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

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

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

5.475 The use of the band 9 300-9 500 MHz by the aeronautical radionavigation service is limited to airborne weather radars and ground-based radars. In addition, ground-based radar beacons in the aeronautical radionavigation service are permitted in the band 9 300-9 320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. (WRC-07)

5.475A The use of the band 9 300-9 500 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 300 MHz that cannot be fully accommodated within the 9 500-9 800 MHz band. (WRC-07)

5.475B In the band 9 300-9 500 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, radars operating in the radionavigation service in conformity with the Radio Regulations. Ground-based radars used for meteorological purposes have priority over other radiolocation uses. (WRC-07)

5.476A In the band 9 300-9 800 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from, stations of the radionavigation and radiolocation services. (WRC-07)

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). (WRC-15)

5.478A The use of the band 9 800-9 900 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 500 MHz that cannot be fully accommodated within the 9 300-9 800 MHz band. (WRC-07)

5.478B In the band 9 800-9 900 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from stations of the fixed service to which this band is allocated on a secondary basis. (WRC-07)

5.479 The band 9 975-10 025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.

5.481 *Additional allocation*: in Algeria, Germany, Angola, Brazil, China, Côte d'Ivoire, Egypt, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Pakistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania, Tunisia and Uruguay, the frequency band 10.45-10.5 GHz is also allocated to the fixed and mobile services on a primary basis. In Costa Rica, the frequency band 10.45-10.5 GHz is also allocated to the fixed service on a primary basis. (WRC-19)

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. (WRC-07)

5.482A For sharing of the band 10.6-10.68 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile, except aeronautical mobile, services, Resolution 751 (WRC-07) applies. (WRC-07)

5.483 *Additional allocation*: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, China, Colombia, Korea (Rep. of), Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, Tajikistan, Turkmenistan and Yemen, the frequency band 10.68-10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-19)

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. (WRC-2000)

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

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. (WRC-03)

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. (WRC-03)

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. (WRC-2000)

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

5.497 The use of the band 13.25-13.4 GHz by the aeronautical radionavigation service is limited to Doppler navigation aids.

5.498A The Earth exploration-satellite (active) and space research (active) services operating in the band 13.25-13.4 GHz shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service. (WRC-97)

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

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

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

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

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

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

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

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

5.501A The allocation of the frequency band 13.65-13.75 GHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the frequency band by the space research service are on a secondary basis. (WRC-15)

5.501B In the band 13.4-13.75 GHz, the Earth exploration-satellite (active) and space research (active) services shall not cause harmful interference to, or constrain the use and development of, the radiolocation service. (WRC-97)

5.502 In the band 13.75-14 GHz, an earth station of a geostationary fixed-satellite service network shall have a minimum antenna diameter of 1.2 m and an earth station of a non-geostationary fixed-satellite service system shall have a minimum antenna diameter of 4.5 m. In addition, the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services shall not exceed 59 dBW for elevation angles above 2° and 65 dBW at lower angles. Before an administration brings into use an earth station in a geostationary-satellite network in the fixed-satellite service in this band with an antenna diameter smaller than 4.5 m, it shall ensure that the power flux-density produced by this earth station does not exceed:

– 115 dB(W/(m^2 · 10 MHz)) for more than 1% of the time produced at 36 m above sea level at the low water mark, as officially recognized by the coastal State;

– 115 dB(W/(m^2 · 10 MHz)) for more than 1% of the time produced 3 m above ground at the border of the territory of an administration deploying or planning to deploy land mobile radars in this band, unless prior agreement has been obtained.

For earth stations within the fixed-satellite service having an antenna diameter greater than or equal to 4.5 m, the e.i.r.p. of any emission should be at least 68 dBW and should not exceed 85 dBW. (WRC-03)

5.503 In the band 13.75-14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. Until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band:

– in the band 13.77-13.78 GHz, the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in geostationary-satellite orbit shall not exceed:

  i) 4.7*D* + 28 dB(W/40 kHz), where *D* is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 1.2 m and less than 4.5 m;

  ii) 49.2 + 20 log(*D*/4.5) dB(W/40 kHz), where *D* is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 4.5 m and less than 31.9 m;

  iii) 66.2 dB(W/40 kHz) for any fixed-satellite service earth station for antenna diameters (m) equal to or greater than 31.9 m;

  iv) 56.2 dB(W/4 kHz) for narrow-band (less than 40 kHz of necessary bandwidth) fixed-satellite service earth station emissions from any fixed-satellite service earth station having an antenna diameter of 4.5 m or greater;

– the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in non-geostationary-satellite orbit shall not exceed 51 dBW in the 6 MHz band from 13.772 to 13.778 GHz.

Automatic power control may be used to increase the e.i.r.p. density in these frequency ranges to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use by an earth station of an e.i.r.p. meeting the above limits in clear-sky conditions. (WRC-03)

5.504 The use of the band 14-14.3 GHz by the radionavigation service shall be such as to provide sufficient protection to space stations of the fixed-satellite service.

5.504A In the band 14-14.5 GHz, aircraft earth stations in the secondary aeronautical mobile-satellite service may also communicate with space stations in the fixed-satellite service. The provisions of Nos. **5.29**, **5.30** and **5.31** apply. (WRC-03)

5.504C In the frequency band 14-14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, Côte d'Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Kuwait, Nigeria, Oman, the Syrian Arab Republic and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-15)

5.505 *Additional allocation*: in Algeria, Saudi Arabia, Bahrain, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Djibouti, Egypt, the United Arab Emirates, Eswatini, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Chad, Viet Nam and Yemen, the frequency band 14-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-19)

5.506 The band 14-14.5 GHz may be used, within the fixed-satellite service (Earth-to-space), for feeder links for the broadcasting-satellite service, subject to coordination with other networks in the fixed-satellite service. Such use of feeder links is reserved for countries outside Europe.

5.506A In the band 14-14.5 GHz, ship earth stations with an e.i.r.p. greater than 21 dBW shall operate under the same conditions as earth stations located on board vessels, as provided in Resolution **902 (WRC-03)**. This footnote shall not apply to ship earth stations for which the complete Appendix **4** information has been received by the Bureau prior to 5 July 2003. (WRC-03)

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

5.508A In the frequency band 14.25-14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom and

Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-15)

5.509A In the frequency band 14.3-14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Morocco, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom, Sri Lanka, Tunisia and Viet Nam by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-15)

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

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

5.509D Before an administration brings into use an earth station in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service in the frequency bands 14.5-14.75 GHz (in countries listed in Resolution **163 (WRC-15)**) and 14.5-14.8 GHz (in countries listed in Resolution **164 (WRC-15)**), it shall ensure that the power flux-density produced by this earth station does not exceed −151.5 dB(W/(m^2 · 4 kHz)) produced at all altitudes from 0 m to 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. (WRC-15)

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

5.509F In the frequency bands 14.50-14.75 GHz in countries listed in Resolution **163 (WRC-15)** and 14.50-14.8 GHz in countries listed in Resolution **164 (WRC-15)**, earth stations in the fixed-satellite

service (Earth-to-space) not for feeder links for the broadcasting-satellite service shall not constrain the future deployment of the fixed and mobile services. (WRC-15)

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

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

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. (WRC-12)

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

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

5.511E In the frequency band 15.4-15.7 GHz, stations operating in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the aeronautical radionavigation service. (WRC-12)

5.511F In order to protect the radio astronomy service in the frequency band 15.35-15.4 GHz, radiolocation stations operating in the frequency band 15.4-15.7 GHz shall not exceed the power flux-density level of −156 dB(W/m^2) in a 50 MHz bandwidth in the frequency band 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2 per cent of the time. (WRC-12)

5.512 *Additional allocation:* in Algeria, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Congo (Rep. of the), Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Montenegro, Nepal, Nicaragua, Niger, Oman, Pakistan, Qatar,

Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)

5.513A Spaceborne active sensors operating in the band 17.2-17.3 GHz shall not cause harmful interference to, or constrain the development of, the radiolocation and other services allocated on a primary basis. (WRC-97)

5.515 In the band 17.3-17.8 GHz, sharing between the fixed-satellite service (Earth-to-space) and the broadcasting-satellite service shall also be in accordance with the provisions of § 1 of Annex 4 of Appendix 30A.

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. (WRC-2000)

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. (WRC-03)

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 frequency bands by other fixed-satellite service applications or by other services to which these frequency bands are allocated on a co-primary basis and does not establish priority in these Radio Regulations among users of the frequency bands. Administrations should take this into account when considering regulatory provisions in relation to these frequency bands. See Resolution 143 (Rev.WRC-19). (WRC-19)

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

5.519 *Additional allocation:* the bands 18-18.3 GHz in Region 2 and 18.1-18.4 GHz in Regions 1 and 3 are also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Their use is limited to geostationary satellites. (WRC-07)

5.520 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. (WRC-2000)

5.522A The emissions of the fixed service and the fixed-satellite service in the band 18.6-18.8 GHz are limited to the values given in Nos. **21.5A** and **21.16.2**, respectively. (WRC-2000)

5.522B The use of the band 18.6-18.8 GHz by the fixed-satellite service is limited to geostationary systems and systems with an orbit of apogee greater than 20 000 km. (WRC-2000)

5.522C In the band 18.6-18.8 GHz, in Algeria, Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, Jordan, Lebanon, Libya, 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**. (WRC-2000)

5.523A The use of the bands 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) by geostationary and non-geostationary fixed-satellite service networks is subject to the application of the provisions of No. **9.11A** and No. **22.2** does not apply. Administrations having geostationary-satellite networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. **9.11A** with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-geostationary-satellite networks shall not cause

unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix **4** notification information is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

5.523B The use of the band 19.3-19.6 GHz (Earth-to-space) by the fixed-satellite service is limited to feeder links for non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. **9.11A**, and No. **22.2** does not apply.

5.523C No. **22.2** shall continue to apply in the bands 19.3-19.6 GHz and 29.1-29.4 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **4** coordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

5.523D The use of the band 19.3-19.7 GHz (space-to-Earth) by geostationary fixed-satellite service systems and by feeder links for non-geostationary-satellite systems in the mobile-satellite service is subject to the application of the provisions of No. **9.11A**, but not subject to the provisions of No. **22.2**. The use of this band for other non-geostationary fixed-satellite service systems, or for the cases indicated in Nos. **5.523C** and **5.523E**, is not subject to the provisions of No. **9.11A** and shall continue to be subject to Articles **9** (except No. **9.11A**) and **11** procedures, and to the provisions of No. **22.2**. (WRC-97)

5.523E No. **22.2** shall continue to apply in the bands 19.6-19.7 GHz and 29.4-29.5 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **4** coordination information, or notification information, is considered as having been received by the Bureau by 21 November 1997. (WRC-97)

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

5.525 In order to facilitate interregional coordination between networks in the mobile-satellite and fixed-satellite services, carriers in the mobile-satellite service that are most susceptible to interference shall, to the extent practicable, be located in the higher parts of the bands 19.7-20.2 GHz and 29.5-30 GHz.

5.526 In the bands 19.7-20.2 GHz and 29.5-30 GHz in Region 2, and in the bands 20.1-20.2 GHz and 29.9-30 GHz in Regions 1 and 3, networks which are both in the fixed-satellite service and in the mobile-satellite service may include links between earth stations at specified or unspecified points or while in motion, through one or more satellites for point-to-point and point-to-multipoint communications.

5.527 In the bands 19.7-20.2 GHz and 29.5-30 GHz, the provisions of No. 4.10 do not apply with respect to the mobile-satellite service.

5.527A The operation of earth stations in motion communicating with the FSS is subject to Resolution 156 (WRC-15). (WRC-15)

5.528 The allocation to the mobile-satellite service is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Administrations operating systems in the mobile-satellite service in the band 19.7-20.1 GHz in Region 2 and in the band 20.1-20.2 GHz shall take all practicable steps to ensure the continued availability of these bands for administrations operating fixed and mobile systems in accordance with the provisions of No. 5.524.

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

5.530B In the band 21.4-22 GHz, in order to facilitate the development of the broadcasting-satellite service, administrations in Regions 1 and 3 are encouraged not to deploy stations in the mobile service and are encouraged to limit the deployment of stations in the fixed service to point-to-point links. (WRC-12)

5.532 The use of the band 22.21-22.5 GHz by the Earth exploration-satellite (passive) and space research (passive) services shall not impose constraints upon the fixed and mobile, except aeronautical mobile, services.

5.532A The location of earth stations in the space research service shall maintain a separation distance of at least 54 km from the respective border(s) of neighbouring countries to protect the existing and future deployment of fixed and mobile services unless a shorter distance is otherwise agreed between the corresponding administrations. Nos. 9.17 and 9.18 do not apply. (WRC-12)

5.532AB The frequency band 24.25-27.5 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution 242 (WRC-19) applies. (WRC-19)

5.532B Use of the band 24.65-25.25 GHz in Region 1 and the band 24.65-24.75 GHz in Region 3 by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5 m. (WRC-12)

5.533 The inter-satellite service shall not claim protection from harmful interference from airport surface detection equipment stations of the radionavigation service.

5.535 In the band 24.75-25.25 GHz, feeder links to stations of the broadcasting-satellite service shall have priority over other uses in the fixed-satellite service (Earth-to-space). Such other uses shall protect

and shall not claim protection from existing and future operating feeder-link networks to such broadcasting satellite stations.

5.535A The use of the band 29.1-29.5 GHz (Earth-to-space) by the fixed-satellite service is limited to geostationary-satellite systems and feeder links to non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. 9.11A, but not subject to the provisions of No. 22.2, except as indicated in Nos. 5.523C and 5.523E where such use is not subject to the provisions of No. 9.11A and shall continue to be subject to Articles 9 (except No. 9.11A) and 11 procedures, and to the provisions of No. 22.2. (WRC-97)

5.536 Use of the 25.25-27.5 GHz band by the inter-satellite service is limited to space research and Earth exploration-satellite applications, and also transmissions of data originating from industrial and medical activities in space.

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

5.536B In Algeria, Saudi Arabia, Austria, Bahrain, Belgium, Brazil, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Estonia, Finland, Hungary, India, Iran (Islamic Republic of), Iraq, Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Slovenia, Sudan, Sweden, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the frequency band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. Resolution 242 (WRC-19) applies. (WRC-19)

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. (WRC-12)

5.537 Space services using non-geostationary satellites operating in the inter-satellite service in the band 27-27.5 GHz are exempt from the provisions of No. 22.2.

5.538 *Additional allocation:* the bands 27.500-27.501 GHz and 29.999-30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of +10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. (WRC-07)

5.539 The band 27.5-30 GHz may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service.

5.540 *Additional allocation:* the band 27.501-29.999 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control.

5.541 In the band 28.5-30 GHz, the earth exploration-satellite service is limited to the transfer of data between stations and not to the primary collection of information by means of active or passive sensors.

5.541A Feeder links of non-geostationary networks in the mobile-satellite service and geostationary networks in the fixed-satellite service operating in the band 29.1-29.5 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix 4 coordination information is considered as having been received by the Bureau after 17 May 1996 and until they are changed by a future competent world radiocommunication conference. Administrations submitting Appendix 4 information for coordination before this date are encouraged to utilize these techniques to the extent practicable. (WRC-2000)

5.542 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, 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, Oman, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, South 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. (WRC-12)

5.543 The band 29.95-30 GHz may be used for space-to-space links in the Earth exploration-satellite service for telemetry, tracking, and control purposes, on a secondary basis.

5.543B The allocation to the fixed service in the frequency band 31-31.3 GHz is identified for worldwide use by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation by HAPS shall be in accordance with the provisions of Resolution 167 (WRC-19). (WRC-19)

5.544 In the band 31-31.3 GHz the power flux-density limits specified in Article 21, Table 21-4 shall apply to the space research service.

5.546 *Different category of service*: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Lebanon, Moldova, Mongolia, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, the United Kingdom, South Africa, Tajikistan, Turkmenistan and Turkey, the allocation of the frequency band 31.5- 1.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33). (WRC-19)

5.547 The bands 31.8-33.4 GHz, 37-40 GHz, 40.5-43.5 GHz, 51.4-52.6 GHz, 55.78-59 GHz and 64-66 GHz are available for high-density applications in the fixed service (see Resolution 75 (WRC-2000)).

Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the bands 39.5-40 GHz and 40.5-42 GHz (see No. **5.516B**), administrations should further take into account potential constraints to high-density applications in the fixed service, as appropriate. (WRC-07)

5.547A Administrations should take practical measures to minimize the potential interference between stations in the fixed service and airborne stations in the radionavigation service in the 31.8-33.4 GHz band, taking into account the operational needs of the airborne radar systems. (WRC-2000)

5.548 In designing systems for the inter-satellite service in the band 32.3-33 GHz, for the radionavigation service in the band 32-33 GHz, and for the space research service (deep space) in the band 31.8-32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation **707**). (WRC-03)

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. (WRC-12)

5.549A In the band 35.5-36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed –73.3 dB(W/m^2) in this band. (WRC-03)

5.550A 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. (WRC-07)

5.550B The frequency band 37-43.5 GHz, or portions thereof, is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Because of the potential deployment of FSS earth stations within the frequency range 37.5-42.5 GHz and high-density applications in the fixed-satellite service in the frequency bands 39.5-40 GHz in Region 1, 40-40.5 GHz in all Regions and 40.5-42 GHz in Region 2 (see No. **5.516B**), administrations should further take into account potential constraints to IMT in these frequency bands, as appropriate. Resolution **243 (WRC-19)** applies. (WRC-19)

5.550C The use of the frequency bands 37.5-39.5 GHz (space-to-Earth), 39.5-42.5 GHz (space-to-Earth), 47.2- 50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed satellite service is subject to the application of the provisions of No. **9.12** for coordination with other non-geostationary satellite systems in the fixed-satellite service but not with

non-geostationary-satellite systems in other services. Resolution 770 (WRC-19) shall also apply, and No. 22.2 shall continue to apply. (WRC-19)

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

5.550E The use of the frequency bands 39.5-40 GHz and 40-40.5 GHz by non-geostationary-satellite systems in the mobile-satellite service (space-to-Earth) and by non-geostationary-satellite systems in the fixed-satellite service (space-to-Earth) is subject to the application of the provisions of No. **9.12** for coordination with other non- geostationary satellite systems in the fixed-satellite and mobile-satellite services but not with non-geostationary-satellite systems in other services. No. **22.2** shall continue to apply for non-geostationary-satellite-systems. (WRC-19)

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

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

−209 dB(W/m^2) in any 500 kHz of the frequency band 42.5-43.5 GHz at the site of any radio astronomy station registered as a very long baseline interferometry station.

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

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

– was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or

– was notified before the date of receipt of the complete Appendix **4** information for coordination or notification, as appropriate, for the space station to which the limits apply.

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC-03)** shall

apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-15)

5.551I The power flux-density in the band 42.5-43.5 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth), or the broadcasting-satellite service operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station:

–137 dB(W/m^2) in 1 GHz and –153 dB(W/m^2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and

–116 dB(W/m^2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.

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

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

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

5.552 The allocation of the spectrum for the fixed-satellite service in the bands 42.5-43.5 GHz and 47.2-50.2 GHz for Earth-to-space transmission is greater than that in the band 37.5-39.5 GHz for space-to-Earth transmission in order to accommodate feeder links to broadcasting satellites. Administrations are urged to take all practicable steps to reserve the band 47.2-49.2 GHz for feeder links for the broadcasting-satellite service operating in the band 40.5-42.5 GHz.

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

5.553 In the bands 43.5-47 GHz and 66-71 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radio communication services to which these bands are allocated (see No. **5.43**). (WRC-2000)

5.553B In Region 2 and Algeria, Angola, Saudi Arabia, Australia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Rep., Comoros, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, **Egypt**, United Arab Emirates, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lesotho, Liberia, Libya, Lithuania, Madagascar, Malaysia, Malawi, Mali, Morocco, Mauritius,

Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Singapore, Slovenia, Somalia, Sudan, South Sudan, South Africa, Sweden, Tanzania, Chad, Togo, Tunisia, Zambia and Zimbabwe, the frequency band 47.2-48.2 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated, and does not establish any priority in the Radio Regulations. Resolution 243 (WRC-19) applies. (WRC-19)

5.554 In the bands 43.5-47 GHz, 66-71 GHz, 95-100 GHz, 123-130 GHz, 191.8-200 GHz and 252-265 GHz, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service. (WRC-2000)

5.554A The use of the bands 47.5-47.9 GHz, 48.2-48.54 GHz and 49.44-50.2 GHz by the fixed-satellite service (space-to-Earth) is limited to geostationary satellites. (WRC-03)

5.555 *Additional allocation:* the band 48.94-49.04 GHz is also allocated to the radio astronomy service on a primary basis. (WRC-2000)

5.555B The power flux-density in the band 48.94-49.04 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth) operating in the bands 48.2-48.54 GHz and 49.44-50.2 GHz shall not exceed –151.8 dB(W/m^2) in any 500 kHz band at the site of any radio astronomy station. (WRC-03)

5.555C The use of the frequency band 51.4-52.4 GHz by the fixed-satellite service (Earth-to-space) is limited to geostationary-satellite networks. The earth stations shall be limited to gateway earth stations with a minimum antenna diameter of 2.4 metres. (WRC-19)

5.556 In the bands 51.4-54.25 GHz, 58.2-59 GHz and 64-65 GHz, radio astronomy observations may be carried out under national arrangements. (WRC-2000)

5.556A Use of the bands 54.25-56.9 GHz, 57-58.2 GHz and 59-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m^2 × 100 MHz)) for all angles of arrival. (WRC-97)

5.557A In the band 55.78-56.26 GHz, in order to protect stations in the Earth exploration-satellite service (passive), the maximum power density delivered by a transmitter to the antenna of a fixed service station is limited to –26 dB(W/MHz). (WRC-2000)

5.558 In the bands 55.78-58.2 GHz, 59-64 GHz, 66-71 GHz, 122.25-123 GHz, 130-134 GHz, 167-174.8 GHz and 191.8-200 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **5.43**). (WRC-2000)

5.558A Use of the band 56.9-57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single

entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m^2 × 100 MHz)) for all angles of arrival. (WRC-97)

5.559 In the band 59-64 GHz, airborne radars in the radiolocation service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **5.43**). (WRC-2000)

5.559AA The frequency band 66-71 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which this frequency band is allocated and does not establish priority in the Radio Regulations. Resolution 241 (WRC-19) applies. (WRC-19)

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. (WRC-15)

5.560 In the band 78-79 GHz radars located on space stations may be operated on a primary basis in the Earth exploration-satellite service and in the space research service.

5.561 In the band 74-76 GHz, stations in the fixed, mobile and broadcasting services shall not cause harmful interference to stations of the fixed-satellite service or stations of the broadcasting-satellite service operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service. (WRC-2000)

5.561A The 81-81.5 GHz band is also allocated to the amateur and amateur-satellite services on a secondary basis. (WRC-2000)

5.562 The use of the band 94-94.1 GHz by the Earth exploration-satellite (active) and space research (active) services is limited to spaceborne cloud radars. (WRC-97)

5.562A In the bands 94-94.1 GHz and 130-134 GHz, transmissions from space stations of the Earth exploration-satellite service (active) that are directed into the main beam of a radio astronomy antenna have the potential to damage some radio astronomy receivers. Space agencies operating the transmitters and the radio astronomy stations concerned should mutually plan their operations so as to avoid such occurrences to the maximum extent possible. (WRC-2000)

5.562B In the frequency bands 105-109.5 GHz, 111.8-114.25 GHz and 217-226 GHz, the use of this allocation is limited to space-based radio astronomy only. (WRC-19)

5.562C Use of the band 116-122.25 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 km to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed –148 dB(W/(m^2 · MHz)) for all angles of arrival. (WRC-2000)

5.562E The allocation to the Earth exploration-satellite service (active) is limited to the band 133.5-134 GHz. (WRC-2000)

5.562H Use of the bands 174.8-182 GHz and 185-190 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed -144 dB(W/(m^2 · MHz)) for all angles of arrival. (WRC-2000)

5.563A In the bands 200-209 GHz, 235-238 GHz, 250-252 GHz and 265-275 GHz, ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents. (WRC-2000)

5.563B 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. (WRC-2000)

5.564A For the operation of fixed and land mobile service applications in frequency bands in the range 275- 450 GHz:

The frequency bands 275-296 GHz, 306-313 GHz, 318-333 GHz and 356-450 GHz are identified for use by administrations for the implementation of land mobile and fixed service applications, where no specific conditions are necessary to protect Earth exploration-satellite service (passive) applications.

The frequency bands 296-306 GHz, 313-318 GHz and 333-356 GHz may only be used by fixed and land mobile service applications when specific conditions to ensure the protection of Earth exploration-satellite service (passive) applications are determined in accordance with Resolution 731 (Rev.WRC-19).

In those portions of the frequency range 275-450 GHz where radio astronomy applications are used, specific conditions (e.g. minimum separation distances and/or avoidance angles) may be necessary to ensure protection of radio astronomy sites from land mobile and/or fixed service applications, on a case-by-case basis in accordance with Resolution 731 (Rev.WRC-19).

The use of the above-mentioned frequency bands by land mobile and fixed service applications does not preclude use by, and does not establish priority over, any other applications of radio services in the range of 275-450 GHz. (WRC-19)

5.565 The following frequency bands in the range 275-1 000 GHz are identified for use by administrations for passive service applications:

- radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;
- Earth exploration-satellite service (passive) and space research service (passive): 275-286 GHz, 296-306 GHz, 313-356 GHz, 361-365 GHz, 369-392 GHz, 397-399 GHz, 409-411 GHz, 416-434 GHz, 439-467 GHz, 477-502 GHz, 523-527 GHz, 538-581 GHz, 611-630 GHz, 634-654 GHz, 657-692 GHz, 713-718 GHz, 729-733 GHz, 750-754 GHz, 771-776 GHz, 823-846 GHz, 850-854 GHz, 857-862 GHz, 866-882 GHz, 905-928 GHz, 951-956 GHz, 968-973 GHz and 985-990 GHz.

The use of the range 275-1 000 GHz by the passive services does not preclude use of this range by active services. Administrations wishing to make frequencies in the 275-1 000 GHz range available for active service applications are urged to take all practicable steps to protect these passive services from harmful interference until the date when the Table of Frequency Allocations is established in the above-mentioned 275-1 000 GHz frequency range.

All frequencies in the range 1 000-3 000 GHz may be used by both active and passive services. (WRC-12)

Annexes

Annex 1: Frequencies for distress and safety communications for the Global Maritime Distress and Safety System (GMDSS)

The frequencies to be used exclusively for Global Maritime Distress and Safety System (GMDSS) communications are given in the tables below (Appendix 15):

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	

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-indicating radio 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.
1 621.35-1 626.5	SAT-COM	In addition to its availability for routine non-safety purposes, the frequency band 1 621.35-1 626.5 MHz is used for distress and safety purposes in the Earth-to-space and space-to-Earth directions in the maritime mobile-satellite service. GMDSS distress, urgency and safety communications have priority in this band over non-safety communications within the same satellite system. (WRC-19)
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.
- DSC: These frequencies are used exclusively for distress and safety calls using digital selective calling in accordance with No. 32.5 (see Nos. 33.8 and 33.32). (WRC-07)
- 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.
- **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**, 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)

Annex 2: Frequency Allotment Plans

A2.1 Frequency allotment Plan for the Aeronautical Mobile (OR) Service (Appendix 26)

The frequencies allotted to Egypt for exclusive use for aeronautical mobile (OR) service within the area of Egypt are as follows:

S. No.	Frequency (kHz)
1	3023
2	3038
3	3074
4	3080
5	3089
6	3095
7	3101
8	3110
9	3116
10	3131
11	3137
12	3143
13	3152
14	3903
15	3912
16	3918
17	4703
18	4712
19	4724
20	4739
21	4745
22	5687
23	5696
24	5702
25	5717
26	5726
27	6685
28	6688
29	6694
30	6700
31	6706
32	6724
33	6739
34	6745
35	6754
36	8965
37	9001

38	9022
39	9025
40	11181
41	11199
42	11247
43	11265
44	13203
45	13215
46	17982

Notes:

- The carrier (reference) frequencies 3023 kHz and 5680 kHz are intended for worldwide common use
- A bandwidth of up to a maximum of 2.8 kHz, situated wholly within the frequency channel concerned should be utilizable.
- 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)}
- Power limits, class of emission and limits to unwanted emission shall be in accordance with the Appendix 26 of the Radio Regulations 2019

A2.2 Frequency allotment Plan for coast radiotelephone Stations operating in the exclusive maritime mobile bands between 4000 kHz and 27500 kHz (Appendix 25)

The frequencies allotted to Egypt for coast radiotelephone Stations operating in the exclusive maritime mobile service are as follows:

S. No.	Channel Number	Assigned Frequency (kHz)	Carrier Frequency (kHz)
1	418	4409.4	4408
2	605	6 514.4	6513
3	817	8768.4	8767
4	1216	13123.4	13122
5	1610	17270.4	17269
6	2226	22772.4	22771

A2.3 Frequency allotment Plan for BSS in the frequency band 11.7 - 12.2 GHz (Appendix 30)

Details of the allotment for Egypt as per RR Appendix 30 are as follows:

Beam ID	EGY02600
Nominal Orbital Position	-7.00°E
Longitude of Boresight	29.7°
Latitude of Boresight	26.8°
Major axis (Space Station Antenna)	2.33°

Minor axis (Space Station Antenna)	1.72°
Orientation (Space Station Antenna)	136.00
Space station: antenna gain / code	38.42 / R13TSS
Earth station: antenna gain / code	35.50 / MODRES
Polarization	CL
E.I.R.P.	58.1
Designation of Emission	27M0G7W

Notes

a. *Minimum Equivalent Protection Margin (EPM) should be as per as per Table 6B of the Appendix 30 of the RR.*

b. *Requirements of article 9 and 11 of RR to be fulfilled.*

A2.4 Frequency allotment Plan for BSS Uplink in the frequency band 17.3-18.1 GHz (Appendix 30A)

Details of the allotment for Egypt as per RR Appendix 30A are as follows:

Beam ID	EGY02600
Nominal Orbital Position	-7.00°E
Longitude of Boresight	29.7°
Latitude of Boresight	26.8°
Major axis (Space Station Antenna)	2.33°
Minor axis (Space Station Antenna)	1.72°
Orientation (Space Station Antenna)	136.00
Space station: antenna gain / code	38.42 / MODRSS
Earth station: antenna gain / code	57.00 / MODTES
Polarization	CR
E.I.R.P.	84.0
Designation of Emission	27M0G7W

Notes

a. *Minimum Equivalent Protection Margin (EPM) should be as per Table 3B2 of the Appendix 30A of the RR.*

b. *Requirements of article 9 and 11 of RR to be fulfilled.*

A2.5 Frequency allotment Plan/List for Fixed-satellite service in the frequency bands 4500-4800 MHz and 6725-7025 MHz (Appendix 30B)

Details of the allotment plan for Egypt as per RR Appendix 30B are as follows:

Allotment Name	**EGY00000**
Frequency Bands	**4500 – 4800 MHz (Space to Earth)** **6725 – 7025 MHz (Earth to Space)**
Nominal Orbital Position	67.11°E
Longitude of Boresight	30.30°

Latitude of Boresight	26.20°
Major axis of the elliptical cross-section half-power beam	2.30°
Minor axis of the elliptical cross-section half-power beam	1.60°
Orientation of the ellipse	54.00
Earth station E.I.R.P. density	-9.6 dB (W/Hz)
Satellite E.I.R.P. density	-39.2 dB (W/Hz)

A2.6 Frequency allotment Plan/List for Fixed-satellite service in the frequency bands 10.70-10.95 GHz, 11.2-11.45, GHz and 12.75-13.25 GHz (Appendix 30B)

Details of the allotment plan for Egypt as per RR Appendix 30B are as follows:

Allotment Name	EGY00000
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	67.11°E
Longitude of Boresight	30.30°
Latitude of Boresight	26.20°
Major axis of the elliptical cross-section half-power beam	2.30°
Minor axis of the elliptical cross-section half-power beam	1.50°
Orientation of the ellipse	54.00
Earth station E.I.R.P. density	- 2.7 dB (W/Hz)
Satellite E.I.R.P. density	- 28.8 dB (W/Hz)

Annex 3: Terrestrial Broadcasting Plans

Egypt 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:

A3.1 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 below

GE75 Planning area:

The countries of Region 1 and 3 for medium frequency band and Region 1 for low frequency band.

A3.2 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 assignments in VHF-FM band i.e. Band II: 87.5-108 MHz.

GE-84 planning area is shown in the below map below

A3.3 ST61 Agreement

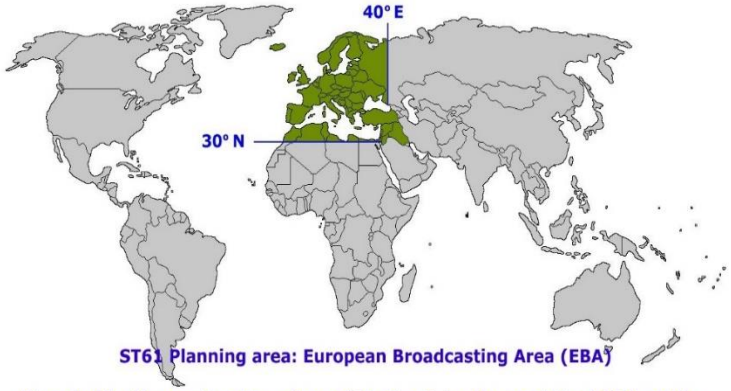
Plan for television and sound broadcasting in the European broadcasting area, Stockholm, 1961 Rev.2006 (ST61).

Band I: 41-68 MHz

Band II: 87.5-100 MHz

Band III: 162-174 MHz

ST61 planning area is shown in the below map below



Bounded by the western boundary of Region 1, by the meridian 40° E and by the parallel 30° N so as to include the northern part of Saudi Arabia and that part of those countries bordering the Mediterranean within these limits. In addition, Iraq, Jordan and that part of the territory of Syrian Arab Republic, Turkey and Ukraine lying outside the above limits are included in the EBA.

A3.4 GE-89 Agreement

Plan for VHF/UHF television broadcasting in the African Broadcasting Area and neighboring countries, Geneva, 1989 Rev. 2006 (GE89).

Band I: 47-68 MHz

Band III: 230-238 MHz, 246-254 MHz

GE-89 planning area is shown in the below map below

African Broadcasting Area (ABA) and neighbouring countries: parts of countries, territories and groups of territories situated between the parallels 40° S and 30° N; islands in the Indian Ocean west of meridian 60° E, between the parallel 40° S and the great circle arc joining the points 45° E, 11° 30' N and 60° E, 15° N; and islands in the Atlantic Ocean situated between the parallels 40° S and 30° North.

A3.5 GE-06 Agreement

Plans for VHF/UHF analogue and digital broadcasting in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz, Geneva 2006 (GE06).

Band III: 174-230 MHz

Band IV: 470-582 MHz

Band V: 582-862 MHz

GE-06 planning area is shown in the below map below

GE06 Planning Area:

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.

Annex 4: Means of identification allocated to Egypt (Article 19 of the Radio Regulations)

According to RR Article 19, all transmissions in the services: amateur service; broadcasting service; fixed service in the bands below 28 000 kHz; mobile service; standard frequency and time signal service, as well as satellite emergency position-indicating radiobeacons (EPIRBs) operating in the band 406-406.1 MHz or the band 1 645.5-1 646.5 MHz, or by EPIRBs using digital selective calling techniques should carry identification signals, except:

a) Survival craft stations when transmitting distress signals automatically.
b) Emergency position-indicating radiobeacons (except for those in No. 19.11).

A station can be identified in the following ways:

- By a call sign.
- By a maritime mobile service identity.
- By other means, such as name of station, location of station, operating agency, official registration mark, flight identification number, selective call number or signal, selective call identification number or signal, characteristic signal, characteristic of emission, etc.

A4.1 International Call Sign Series (Appendix 42 (Rev. WRC - 19))

6AA – 6AZ | 6BA – 6BZ | SSA – SSM | SUA – SUZ

Note 1: The first two characters of each call sign identify the nationality of the radio station. Individual national assignments are made by National Telecommunication Regulatory Authority in Egypt from this national allocation.

Note 2: Formation of call signs and associated stations types for identification are based on Section III of RR Article 19.

A4.2 Maritime Identification Digits (ITU Table of Maritime Identification Digits)

622

Note 1: Formation of identity resources for station operating in the maritime mobile service or the maritime mobile-satellite service is based on Section VI of RR Article 19.

Note 2: Identity types for ship stations which utilize the satellite services of the global maritime distress and safety system (GMDSS) including maritime mobile service identities (MMSI) and other types of maritime devices are based on Recommendation ITU-R M.585-8.

A4.3 Coast Station Identification Number Ranges (ITU Table of coast station identification numbers)

4820 – 4829	7800 – 7809

Note: Formation of Coast Station Identification Numbers for stations using selective calling in the maritime mobile service is based on Section V of RR Article 19.

A4.4 Ship Station Selective Call Number Ranges (ITU Table of ship station selective call numbers)

78000 – 78099	78100 – 78199

Note: Formation of Ship Station Selective Call Numbers for stations using selective calling in the maritime mobile service is based on Section V of RR Article 19.