REPUBLIC OF LEBANON
TELECOMMUNICATIONS
REGULATORY AUTHORITY

LEBANESE NATIONAL FREQUENCY ALLOCATION TABLE

LNFT

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LEBANESE NATIONAL FREQUENCY ALLOCATION TABLE
IN THE FREQUENCY RANGE 9 kHz to 275 GHz

1. INTRODUCTION

The radio frequency spectrum is a scarce national resource; it is therefore highly desirable that the spectrum resource is utilized in an efficient and effective manner, in order to realize the national spectrum mission and policy objectives.

The Lebanese National Frequency allocation Table (LNFT) divides Lebanon's radiofrequency spectrum into a number of frequency bands and specifies the general purposes for which the bands may be used. This process is referred to as the allocation of frequency bands to radiocommunication services. This chapter provides general information on the development and application of the LNFT and is provided for informative purposes only.

The radio spectrum is by international agreement subdivided into nine frequency bands, which are designated accordingly as shown here below. As the unit of frequency is hertz (Hz), frequencies shall be expressed:

- VLF (Very Low Frequency) : 3 to 30 kHz
- LF (Low Frequency) : 30 to 300 kHz
- MF (Medium Frequency) : 300 to 3000 kHz
- HF (High Frequency) : 3 to 30 MHz
- VHF (Very High Frequency) : 30 to 300 MHz
- UHF (Ultra High Frequency) : 300 to 3000 MHz
- SHF (Super High Frequency) : 3 to 30 GHz
- EHF (Extra High Frequency) : 30 to 300 GHz
- (No Symbol designated): 300 to 3000 GHz

The following prefixes shall be used to designate frequencies:

kHz (kilohertz) = 1,000 Hz, up to and including 3000 kHz.
MHz (Megahertz) = 1,000,000 Hz, up to and including 3000 MHz.
GHz (Gigahertz) = 1,000,000,000 Hz, up to and including 3000 GHz.

2. OBJECTIVES

The use of the radio spectrum needs to be strategically planned in order to create an environment, which allows for the long term planning and harmonization with international trends concerning radio services. In this regard Lebanon follows closely the

work of the International Telecommunication Union (ITU) and the local Regional Organization, the League of Arab States (LAS), as well as the neighboring regional organizations with competence in the field, the European Conference of Postal and Telecommunications administrations (CEPT) and the European Union (EU). The activities of other United Nations specialized agencies are also relevant, in particular the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO). Since electromagnetic radiation of radio frequencies do not respect national borders it is also necessary to take account of spectrum usage in neighboring States.

The extent to which the full benefits of the radio spectrum are realized depends on the actual use that is made of it and how efficiently it is managed. The primary objectives to be achieved with the radio spectrum include the following:

- To allow the development of new services to meet governmental and non-governmental demand for radio services
- To manage the radio spectrum within Lebanon taking account of governmental requirements and the needs of the various commercial sectors
- To harmonize spectrum use with international developments (ITU, League of Arab States, CEPT and the EU)
- To enable liberalization of telecommunication (including radiocommunications) services and sector.
- To enable the realization of public policy objectives on safety (including emergency services), cultural (including TV and Radio broadcasting) and social issues
- To stimulate technological innovation and competitiveness
- To support economic growth, create employment and to promote general welfare
- To support national security and defense.

The LNFT will be modified from time to time dependent on international and national decisions and recommendations. It is also envisaged that public consultation will feature in some future decisions on spectrum utilization and subsequent changes to the LNFT.

The LNFT will be a key tool for the Government of Lebanon and its telecommunications regulatory officials, to manage the spectrum to the benefit of stakeholders and other interested parties.

3. LNFT DETAILS

Structure of the Table

The structure of the LNFT was chosen from a design already in use, its 'easy to understand' approach and its ability to be published on the World Wide Web as pdf file with minimal problems.

The main source documentation used in the development of this version of LNFT was the ITU Radio Regulations, the Provisional Final Acts of the ITU World Radiocommunication Conference (Geneva, 2007) and the European Common table of frequency Allocations and spectrum utilizations.

Categories of Services and Allocations

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

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

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

Stations of a secondary service:

- shall not cause harmful interference to stations of primary service to which frequencies are already assigned or to which frequencies may be assigned at a later date;
- Cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date;
- Can claim protection, however, from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date.

Whenever no regulatory footnote has been associated with a particular frequency band, the relevant footnote(s) in the current ITU Table of Frequency Allocations shall apply.

Construction of the Table

The structure of the table is as follows:

Column 1: Frequency Band

Denotes the frequency band in kHz, MHz or GHz

Column 2: RR Region 1 allocations and relevant footnotes

This column contains details of the allocations to radiocommunication services pertaining to the frequency band in question within the ITU Radio Regulations (RR) for Region 1, the geographical (ITU) region in which Lebanon is located. Included are:

- Current RR Article 5 allocations which correspond to Region 1 and
- Current RR Article 5 footnotes relevant to Lebanon in particular which are underlined.

See also Annex 3 for details of the RR Article 5 footnotes mentioned in Column 3 which are relevant to Lebanon.

Column 3: The Lebanese National Frequency Allocations

For each frequency band:

- . Expected allocations to radiocommunications services in Lebanon
- RR Art. 5 footnotes affecting Lebanon which are underlined.
- Lebanese national footnotes relevant to the frequency band in question e.g. LBN 1 etc.

Column 3 reflects the services allocated in the Column 2 band as determined in the ITU Radio Regulations, a treaty based document. Column 3 indicates the services in a particular band planned for Lebanon. In the majority of cases they are the same or a sub-set of the Column 2 ITU designated services. Where they are not, details are generally found in a national footnote (LBN etc).

See also Annex 2 for details of Lebanese National footnotes mentioned in Column 3.

Column 4: Main application

This column includes where appropriate in each frequency band and for the services allocated in the LNFT the major uses in Lebanon expected in the next upcoming years. However mentioning specific utilizations within a specific radio communications service does not preclude the use of other applications or services mentioned in the LNFT i.e. Column 3.

Column 5: Notes

In this column, details are provided of frequency plans and channel arrangements utilized in Lebanon as well as any pairing arrangements between bands. Reference is also made to European, ITU or other regulatory texts, where the contents have been adopted in Lebanon. In addition other relevant information may also be included in this Column.

4. RADIO SERVICES DEFINITION

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 specified fixed points when one or more *satellites* are used; in some cases this service includes satellite-to-satellite links, which may also be affected in the inter-satellite service; the fixed satellite service may also include feeder links for other radiocommunication services.

Aeronautical Fixed Service: A *radiocommunication service* between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air transport.

Inter-Satellite Service: A radiocommunication service providing links between artificial satellites.

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 radio beacon 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(R=Route).

Aeronautical mobile-satellite (OR) Service: An aeronautical mobile-satellite service intended for communication, including those relating to flight co-ordination, primarily outside national and international civil air routes. (OR= Off Route)

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

Broadcasting-Satellite Service: A *radiocommunication service* in which signals transmitted or retransmitted by *space stations* are intended for direct reception by the

general public. In the broadcasting-satellite service, the term "direct reception" shall encompass both *individual reception* and *community reception.*

Radiodetermination Service: A *radiocommunication service* for the purpose of *radiodetermination*.

Radiodetermination-Satellite Service: A *radiocommunication service* for the purpose of *radiodetermination* involving the use of one or more *space stations*. This service may also include *feeder links* necessary for its own operation.

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

Radionavigation - Satellite Service: A *radiodetermination-satellite service* used for the purpose of *radionavigation*. This service may also include *feeder links* necessary for its operation.

Maritime Radionavigation Service: A *radionavigation service* intended for the benefit and for the safe operation of ships.

Maritime Radionavigation-Satellite Service: A *radionavigation - satellite service* in which *earth stations* are located on board ships.

Aeronautical Radionavigation Service: A *radionavigation service* intended for the benefit and for the safe operation of aircraft.

Aeronautical Radionavigation-Satellite Service: A *radionavigation-satellite service* in which *earth stations* are located on board aircraft.

Radiolocation Service: A *radiodetermination service* for the purpose of *radiolocation*.

Meteorological Aids Service: A *radiocommunication service* used for meteorological, including hydrological observations and exploration.

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

Earth Exploration-Satellite Service: A *radiocommunication service* between *earth stations* and one or more *space stations*, which may include links between space stations, in which:

• Information relating to the characteristics of the earth and its natural phenomena, including data relating to the state of the environment, is obtained from active sensors on earth satellites;

• Similar information is collected from airborne or earth based platforms;

• Such information may be distributed to earth stations within the system concerned;

• Platform interrogation may be included.

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

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*. This service may also include *feeder links* necessary for it's operation.

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.*

Radiolocation Satellite service*:* A *radiodetermination service* used for the purpose of *radiolocation*

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

Mobile service*: A radiocommunication service* between *mobile* and *land* stations or between *mobile stations*

Mobile Satellite service*:* A *radiocommunications 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 associated *onboard 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, movement and safety of ships, and in emergency, to 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 (R=Route)

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 (OR means off-route)

5. PERTINENT ITU DEFINITIONS

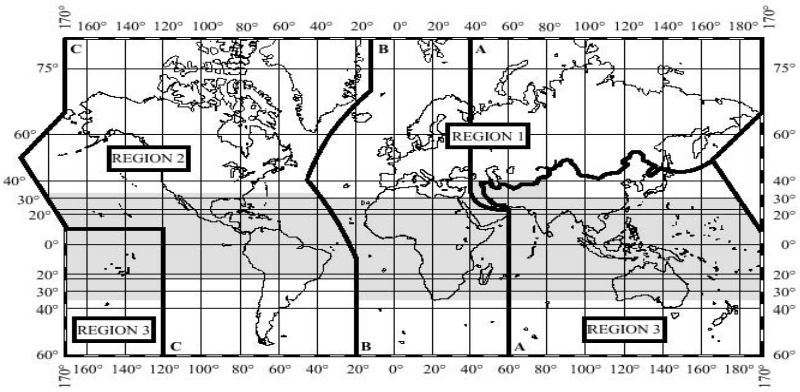
The following definitions are reproduced from the ITU Radio Regulations (RR) and are relevant in the context of the LNFT:

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.

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, 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, 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.

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.

6. THE LEBANESE NATIONAL FREQUENCY ALLOCATION TABLE

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
9-14 kHz	RADIONAVIGATION	RADIONAVIGATION	SRD ISM Ultra Low Power Active Medical Implants	ERC REC 70-03
14-19.95	FIXED MARITIME MOBILE 5.57 5.55 5.56	FIXED MARITIME MOBILE 5.57 5.56	SRD Maritime applications Ultra Low Power Active Medical Implants	ERC REC 70-03
19.95-20.05	STANDARD FREQUENCY AND TIME SIGNAL (20kHz)	STANDARD FREQUENCY AND TIME SIGNAL (20kHz)		
20.05-70	FIXED MARITIME MOBILE 5.57 5.56 5.58	FIXED MARITIME MOBILE 5.57 5.56	SRD Maritime applications Ultra Low Power Active Medical Implants	ERC REC 70-03
70-72	RADIONAVIGATION 5.60	RADIONAVIGATION 5.60	SRD Ultra Low Power Active Medical Implants	ERC REC 70-03
72-84	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56	SRD Maritime applications Ultra Low Power Active Medical Implants	ERC REC 70-03 DCF time signal 77.5 kHz
84-86	RADIONAVIGATION 5.60	RADIONAVIGATION 5.60	SRD Ultra Low Power Active Medical Implants	ERC REC 70-03
86-90 kHz	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56	SRD Maritime applications Ultra Low Power Active Medical Implants	ERC REC 70-03

Frequency Band (kHz MHz or GHz)	**International Region 1 Allocation**	**National Allocation**	**Main application**	**Notes**
90-110 kHz	RADIONAVIGATION 5.62 Fixed 5.64	RADIONAVIGATION 5.62 Fixed 5.64	SRD LORAN-C Ultra Low Power Active Medical Implants	ERC REC 70-03
110-112	FIXED MARITIME MOBILE RADIONAVIGATION 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.64	SRD Maritime applications Ultra Low Power Active Medical Implants	ERC REC 70-03
112-115	RADIONAVIGATION 5.60	RADIONAVIGATION 5.60	SRD Maritime applications Ultra Low Power Active Medical Implants	ERC REC 70-03
115-117.6	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.66	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64	SRD Maritime applications Ultra Low Power Active Medical Implants	ERC REC 70-03
117.6-126	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	SRD Maritime applications Ultra Low Power Active Medical Implants	ERC REC 70-03
126-129 kHz	RADIONAVIGATION 5.60	RADIONAVIGATION 5.60	SRD Maritime applications Ultra Low Power Active Medical Implants	ERC REC 70-03
129-130	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	SRD Maritime applications Ultra Low Power Active Medical Implants	ERC REC 70-03
130-135.7 kHz	FIXED MARITIME MOBILE 5.64 5.67	FIXED MARITIME MOBILE 5.64	SRD Maritime applications Ultra Low Power Active Medical Implants	ERC REC 70-03

Frequency Band (kHz MHz or GHz)	**International Region 1 Allocation**	**National Allocation**	**Main application**	**Notes**
135.7-137.8 kHz	FIXED MARITIME MOBILE Amateur 5.4C03 5.64 5.67 5.4C04	FIXED MARITIME MOBILE 5.64 5.67 5.4C04	SRD Maritime applications Ultra Low Power Active Medical Implants	ERC REC 62-01
137.8-148.5	FIXED MARITIME MOBILE 5.64 5.67	FIXED MARITIME MOBILE 5.64	SRD Maritime applications Ultra Low Power Active Medical Implants	
148.5-255	BROADCASTING 5.68 5.69 5.70	BROADCASTING	Broadcasting Ultra Low Power Active Medical Implants	ERC REC 70-03 Assignment plan GE75 Digital systems to be introduced
255-283.5	AERONAUTICAL RADIONAVIGATION BROADCASTING 5.70 5.71	AERONAUTICAL RADIONAVIGATION BROADCASTING	Aeronautical Radio Beacons Broadcasting Ultra Low Power Active Medical Implants	ERC REC 70-03 Frequency assignment plan GE75 Digital systems to be introduced
283.5-315	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacon) 5.73 5.72 5.74	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacon) 5.73 5.74	Aeronautical Radio Beacons Maritime Radio Beacons Ultra Low Power Active Medical Implants	Frequency assignment plan GE85 NDB Frequency assignment plan GE85 IALA-plan to allow differential GPS ERC REC 70-03
315-325	AERONAUTICAL RADIONAVIGATION Maritime Radionavigation (radiobeacons) 5.73 5.72 5.75	AERONAUTICAL RADIONAVIGATION Maritime Radionavigation (radiobeacons) 5.73	Aeronautical Radio Beacons Maritime Radio Beacons	Non directional Beacon NDB IALA-plan to allow differential GPS
325-405	AERONAUTICAL RADIONAVIGATION 5.72	AERONAUTICAL RADIONAVIGATION	Aeronautical Radio Beacons Maritime Radio Beacons	
405-415 kHz	AERONAUTICAL RADIONAVIGATION 5.76 5.72	AERONAUTICAL RADIONAVIGATION 5.76	Aeronautical Radio Beacons Maritime Radio Beacons	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
415-435 kHz	AERONAUTICAL RADIONAVIGATION MARITIME MOBILE 5.79 5.72	AERONAUTICAL RADIONAVIGATION MARITIME MOBILE 5.79	Aeronautical Radio Beacons Maritime Radio Beacons	Frequency assignment plan GE85
435-495	MARITIME MOBILE 5.79 5.79A Aeronautical Radionavigation 5.72 5.82	MARITIME MOBILE 5.79 5.79A Aeronautical Radionavigation 5.82	Detection of avalanche victims 457kHz Maritime applications Navtex transmissions national language 490kHz Receiver IF 455-457 kHz	ERC REC 70-03 Frequency assignment plan GE85 The frequency 490 kHz used for navigational and meteorological warnings Articles 31 and 52 Res.339 (rev. WRC07)
495-505	MOBILE 5.79B 5.4C01	MOBILE 5.79B 5.4C01	Maritime GMDSS	RADIOTELEGRAPHY Articles 31 & 52
505-526.5 kHz	AERONAUTICAL RADIONAVIGATION MARITIME MOBILE 5.79 5.79A 5.84 5.72	AERONAUTICAL RADIONAVIGATION MARITIME MOBILE 5.79 5.79A 5.84	Aeronautical Radio Beacons Maritime applications Navtex transmissions International 518kHz	Frequency assignment plan GE85 518 kHz see Res. 339 (rev. WRC07), Articles 31 and 52
526.5-1606.5	BROADCASTING 5.87 5.87A	BROADCASTING	Broadcasting	Assignment plan GE75 Digital systems to be introduced
1606.5-1625	FIXED LAND MOBILE MARITIME MOBILE 5.90 5.92	FIXED LAND MOBILE MARITIME MOBILE 5.90 5.92	Maritime applications Radiodetermination applications	Frequency assignment plan GE85
1625-1635	RADIOLOCATION 5.93	RADIOLOCATION	Radiodetermination applications	Brussels Agreement 67
1635-1800	FIXED LAND MOBILE MARITIME MOBILE 5.90 5.92 5.96	FIXED LAND MOBILE MARITIME MOBILE 5.90 5.92 5.96	Radiodetermination applications Maritime applications	Brussels Agreement 67 Frequency assignment plan GE85
1800-1810 kHz	RADIOLOCATION 5.93	RADIOLOCATION	Radiodetermination applications	Brussels Agreement 67

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
1810-1830 kHz	AMATEUR 5.98 5.99 5.100 5.101	AMATEUR FIXED 5.98 MOBILE except aeronautical mobile 5.100	Amateur applications	
1830-1850		AMATEUR	Amateur applications	
1850-2000	FIXED MOBILE except aeronautical mobile 5.925.96 5.103	FIXED MOBILE 5.92 5.96 5.103	Radiodetermination applications Maritime applications	Brussels Agreement 67
2000-2025	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	Radiodetermination applications Maritime applications	Brussels Agreement 67
2025-2045	FIXED MOBILE except aeronautical mobile (R) Meteorological Aids 5.104 5.92 5.103	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	Radiodetermination applications Maritime applications	Brussels Agreement 67
2045-2160	FIXED LAND MOBILE MARITIME MOBILE 5.92	FIXED LAND MOBILE MARITIME MOBILE 5.92	International Merchant shipping Maritime applications	International telephony frequencies(ship TX) in accordance with RR 52.202-52.204 Frequency assignment plan GE85
2160-2170	RADIOLOCATION 5.93 5.107	RADIOLOCATION	Radiodetermination applications	Brussels Agreement 67
2170-2173.5	MARITIME MOBILE	MARITIME MOBILE	Maritime applications	Frequency assignment plan GE85
2173.5-2190.5 kHz	MOBILE (distress and calling) 5.108 5.109 5.110 5.111	MOBILE (distress and calling) 5.108 5.109 5.110 5.111	Maritime GMDSS applications	2182 kHz used for international distress and calling frequency for radiotelephony Articles 31 and 52 (WRC07)
2190.5-2194	MARITIME MOBILE	MARITIME MOBILE	Maritime applications	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
2194-2300 kHz	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.112	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	Maritime applications	
2300-2498 kHz	BROADCASTING 5.113 FIXED MOBILE except aeronautical mobile (R) 5.103	FIXED MOBILE except aeronautical mobile (R) 5.103	Maritime applications	
2498-2501	STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)	STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)		
2501-2502	STANDARD FREQUENCY AND TIME SIGNAL Space Research	STANDARD FREQUENCY AND TIME SIGNAL Space Research		
2502-2625	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.114	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	Radiodetermination applications	
2625-2650	MARITIME MOBILE MARITIME RADIONAVIGATION 5.92	MARITIME MOBILE MARITIME RADIONAVIGATION 5.92	Maritime applications	
2650-2850	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	Radiodetermination applications	
2850-3025	AERONAUTICAL MOBILE (R) 5.111 5.115	AERONAUTICAL MOBILE (R) 5.111 5.115	Aeronautical Mobile (R) applications Telephony distress traffic and calling by rescue centres 3023kHz	Appendix 27 Allotment Plan 3023 kHz see Article 31
3025-3155	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile (R) applications	Appendix 26 Allotment Plan
3155-3200 kHz	FIXED MOBILE except aeronautical mobile (R) 5.116 5.117	FIXED MOBILE except aeronautical mobile (R) 5.116	SRD Maritime applications	ERC REC 70-03

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
3200-3230 kHz	BROADCASTING 5.113 FIXED MOBILE except aeronautical mobile (R) 5.116	FIXED MOBILE except aeronautical mobile (R) 5.116	SRD Maritime applications	ERC REC 70-03
3230-3400	BROADCASTING 5.113 FIXED MOBILE except aeronautical mobile (R) 5.116 5.118	FIXED MOBILE except aeronautical mobile (R) 5.116	SRD Maritime applications	ERC REC 70-03
3400-3500	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Aeronautical Mobile (R) applications	Appendix 27 Allotment Plan Including HF Data Links
3500-3800	AMATEUR FIXED MOBILE except aeronautical mobile 5.92	AMATEUR FIXED MOBILE except aeronautical mobile 5.92	Amateur applications	
3800-3900	AERONAUTICAL MOBILE (OR) FIXED LAND MOBILE	AERONAUTICAL MOBILE (OR) FIXED LAND MOBILE	Aeronautical Mobile (OR) applications	
3900-3950	AERONAUTICAL MOBILE (OR) 5.123	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile (OR) applications	Appendix 26 Allotment Plan
3950-4000	BROADCASTING FIXED	BROADCASTING FIXED	Broadcasting	Digital systems to be introduced
4000-4063 kHz	FIXED MARITIME MOBILE 5.127	FIXED MARITIME MOBILE 5.127	Maritime applications	Appendix 17 channeling plan Appendix 25 allotment plan

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
4063-4438 kHz	MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128	MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132	Maritime applications DSC calling 4208,4208.5,4209,4219.5 ,4220,4220.5 kHz DSC distress traffic 4207.5 kHz Maritime Safety Information 4210 kHz Meteorological and navigational warnings 4209.5 kHz Telephony distress traffic and calling by rescue centres 4125 kHz Telex distress traffic 4177.5 kHz	Appendix 17 channeling plan Appendix 25 allotment plan Article 31
4438-4650	FIXED MOBILE except aeronautical mobile (R)	FIXED MOBILE except aeronautical mobile (R)		ERC REC 70-03
4650-4700	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Aeronautical Mobile (R) applications	Appendix 27 allotment plan Including HF Data Links
4700-4750 kHz	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile (OR) applications	Appendix 26 allotment plan
4750-4850	AERONAUTICAL MOBILE (OR) BROADCASTING 5.113 FIXED LAND MOBILE	AERONAUTICAL MOBILE (OR) FIXED LAND MOBILE	Aeronautical Mobile (OR) applications	
4850-4995	BROADCASTING 5.113 FIXED LAND MOBILE	FIXED LAND MOBILE		
4995-5003	STANDARD FREQUENCY AND TIME SIGNAL (5000kHz)	STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)		
5003-5005 kHz	STANDARD FREQUENCY AND TIME SIGNAL Space Research	STANDARD FREQUENCY AND TIME SIGNAL Space Research		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
5005-5060 kHz	BROADCASTING 5.113 FIXED	FIXED		
5060-5250	FIXED Mobile except aeronautical mobile 5.133	FIXED Mobile except aeronautical mobile		
5250-5450	FIXED MOBILE except aeronautical mobile	FIXED MOBILE except aeronautical mobile		
5450-5480	AERONAUTICAL MOBILE (OR) FIXED LAND MOBILE	AERONAUTICAL MOBILE (OR) FIXED LAND MOBILE	Aeronautical Mobile (OR) applications	
5480-5680	AERONAUTICAL MOBILE (R) 5.111 5.115	AERONAUTICAL MOBILE (R) 5.111 5.115	Aeronautical Mobile (R) applications Telephony distress traffic and calling by rescue centers 5680kHz	Appendix 27 Allotment plan Including HF Data Links Article 31
5680-5730	AERONAUTICAL MOBILE (OR) 5.111 5.115	AERONAUTICAL MOBILE (OR) 5.111 5.115	Aeronautical Mobile (OR) applications Telephony distress traffic and calling by rescue centers 5680kHz	Appendix 26 Allotment plan 5680 kHz see Article 31
5730-5900	FIXED LAND MOBILE	FIXED LAND MOBILE		
5900-5950 kHz	BROADCASTING 5.134 5.136	BROADCASTING 5.134 5.136	Broadcasting	Res. 517 (Rev. WRC07) WARC92 bands to be implemented 2007 Digital systems to be introduced
5950-6200 kHz	BROADCASTING	BROADCASTING	Broadcasting	Article 12 planning procedure Digital systems to be introduced

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
6200-6525 kHz	MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137	MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137	Maritime applications	6215 kHz Article 31 & 52 (WRC07) 6268 kHz: International distress frequency, Article 31 Appendix 25 allotment plan DSC distress traffic 6312 kHz 6314 kHz used for MSI (Appendix 17)
6525-6685	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)		Appendix 27 Allotment plan including HF Data Links
6685-6765	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		Appendix 26 Allotment plan
6765-7000	FIXED MOBILE except aeronautical mobile Land Mobile 5.139 5.138 5.138A	FIXED MOBILE except aeronautical mobile Land Mobile 5.138 5.138A	SRD ISM	ERC REC 70-03 6765-6795 kHz designated for ISM
7000-7100	AMATEUR AMATEUR-SATELLITE 5.140 5.141 5.141A	AMATEUR AMATEUR-SATELLITE	Amateur applications	
7100-7200	AMATEUR 5.141A 5.141B 5.141C 5.142	Amateur LBN 3 BROADCASTING 5.141C		
7200-7300	BROADCASTING	BROADCASTING		
7300-7400	BROADCASTING 5.134 5.143 5.143A 5.143B 5.143C 5.143D	BROADCASTING 5.134 5.143 5.143B		
7400-7450	BROADCASTING 5.134 5.143 B 5.143C	BROADCASTING 5.134 5.143B		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
7450-8100 kHz	FIXED 5.143E MOBILE except aeronautical mobile (R) 5.144	FIXED 5.143E MOBILE except aeronautical mobile (R)	SRD 7400-8800 kHz	ERC REC 70-03
8100-8195 kHz	FIXED MARITIME MOBILE	FIXED MARITIME MOBILE	SRD 7400-8800 kHz Maritime applications	ERC REC 70-03 Appendix 17 channeling plan
8195-8815 kHz	MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111	MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111	SRD 7400-8800 kHz Maritime applications 8364 kHz used for search & rescue operations, Article 31 (WRC07) DSC calling 8415, 8415.5, 8416, 8436.5, 8437, 8437.5 kHz DSC distress traffic 8364 and 8414.5 kHz Maritime Safety Information 6416.5 kHz Telephony distress traffic and calling by rescue centres 8291 kHz Telex distress traffic 8376.5 kHz	ERC REC 70-03 Appendix 17 channeling plan Appendix 25 allotment plan
8815-8965	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE(R)		Appendix 27 Allotment Plan Including HF Data Links
8965-9040	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		Appendix 26 Allotment Plan
9040-9400	FIXED	FIXED		
9400-9500	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146		
9500-9900	BROADCASTING 5.147	BROADCASTING 5.147		Article 12 planning procedure
9900-9995	FIXED	FIXED		
9995-10003	STANDARD FREQUENCY AND TIME SIGNAL (10000 kHz) 5.111	STANDARD FREQUENCY AND TIME SIGNAL (10000 kHz) 5.111		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
10003-10005 kHz	STANDARD FREQUENCY AND TIME SIGNAL Space Research 5.111	STANDARD FREQUENCY AND TIME SIGNAL Space Research 5.111		
10005-10100 kHz	AERONAUTICAL MOBILE (R) 5.111	AERONAUTICAL MOBILE (R) 5.111		Appendix 27 Allotment Plan Including HF Data Links
10100-10150	FIXED Amateur	FIXED Amateur		
10150-11175	FIXED Mobile except aeronautical mobile (R)	FIXED Mobile except aeronautical mobile (R)	SRD 10.2-11 MHz	ERC REC 70-03
11175-11275	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		Appendix 26 Allotment Plan
11275-11400	AERONAUTICAL MOBILE(R)	AERONAUTICAL MOBILE(R)		Appendix 27 Allotment Plan Including HF Data Links
11400-11600 kHz	FIXED	FIXED		
11600-11650	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146	Broadcasting	
11650-12050	BROADCASTING 5.147	BROADCASTING 5.147	Broadcasting	Article 12 planning procedure
12050-12100	BROADCASTING 5.134 5.146	BROADCASTING 5.146	Broadcasting	
12100-12230	FIXED	FIXED		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
12230-13200	MARITIME MOBILE 5.109 5.110 5.132 5.145	MARITIME MOBILE 5.109 5.110 5.132 5.145	Maritime applications Maritime Safety Information 12579 kHz DSC calling 12577.5, 12578, 12578.5, 12657, 12657.5, 12658 kHz DSC distress traffic 12577 kHz Telephony distress traffic and calling by rescue centres 12290 kHz Telex distress traffic 12520 kHz	
13200-13260 kHz	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		Appendix 26 Allotment Plan
13260-13360 kHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)		Appendix 27 Allotment Plan Including HF Data Links
13360-13410	FIXED RADIO ASTRONOMY 5.149	FIXED RADIO ASTRONOMY 5.149	Radioastronomy	
13410-13570	FIXED Mobile except aeronautical mobile (R) 5.150	FIXED Mobile except aeronautical mobile (R) 5.150	13553-13567 kHz designated for ISM 13553-13567 kHz for SRD	ERC REC 70-03
13570-13600	BROADCASTING 5.134 5.151	BROADCASTING 5.134 5.151		
13600-13800	BROADCASTING	BROADCASTING		Article 12 planning procedure Digital systems to be introduced
13800-13870	BROADCASTING 5.134 5.151	BROADCASTING 5.134 5.151		
13870-14000	FIXED Mobile except aeronautical mobile (R)	FIXED Mobile except aeronautical mobile (R)		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
14000-14250 kHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE		
14250-14350	AMATEUR 5.152	AMATEUR		
14350-14990	FIXED Mobile except aeronautical mobile (R)	FIXED Mobile except aeronautical mobile (R)		
14990-15005 kHz	STANDARD FREQUENCY AND TIME SIGNAL (15000 kHz) 5.111	STANDARD FREQUENCY AND TIME SIGNAL (15000 kHz) 5.111		
15005-15010 kHz	STANDARD FREQUENCY AND TIME SIGNAL Space research	STANDARD FREQUENCY AND TIME SIGNAL Space research		
15010-15100	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		Appendix 26 Allotment Plan
15100-15600	BROADCASTING	BROADCASTING		Article 12 planning procedure Digital systems to be introduced
15600-15800	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146		
15800-16360	FIXED 5.153	FIXED		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
16360-17410	MARITIME MOBILE 5.109 5.110 5.132 5.145	MARITIME MOBILE 5.109 5.110 5.132 5.145	Maritime applications Maritime Safety Information 16806.5 kHz DSC calling 16805, 16805.5, 16806, 16903, 16903.5, 16904 kHz DSC distress traffic 16804.5 kHz Telephony distress traffic and calling by rescue centres 16420 kHz Telex distress traffic 16695 kHz	ERC REC 70-03 Appendix 17 channeling plan Appendix 25 allotment plan
17410-17480	FIXED	FIXED		
17480-17550	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146		
17550-17900	BROADCASTING	BROADCASTING		Article 12 planning procedure Digital systems to be introduced
17900-17970	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)		Appendix 27 Allotment Plan Including HF Data Links
17970-18030 kHz	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)		Appendix 26 Allotment Plan
18030-18052 kHz	FIXED	FIXED		
18052-18068	FIXED Space Research	FIXED Space Research		
18068-18168	AMATEUR AMATEUR-SATELLITE 5.154	AMATEUR AMATEUR-SATELLITE		
18168-18780	FIXED Mobile except aeronautical mobile	FIXED Mobile except aeronautical mobile		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
18780-18900	MARITIME MOBILE	MARITIME MOBILE	Maritime applications DSC calling 18898.5, 18899, 18899.5 kHz	Appendix 17 channeling plan
18900-19020	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146		
19020-19680	FIXED	FIXED		
19680-19800	MARITIME MOBILE 5.132	MARITIME MOBILE 5.132	Maritime applications DSC calling 19703.5, 19704, 19704.5 kHz Maritime Safety Information 19680.5 kHz	Appendix 17 channeling plan Appendix 25 allotment plan
19800-19990	FIXED	FIXED		
19990-19995	STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111	STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111	Search and rescue applications 19993 kHz (+/-3 kHz) concerning manned space vehicles.	
19995-20010	STANDARD FREQUENCY AND TIME SIGNAL (20000kHz) 5.111	STANDARD FREQUENCY AND TIME SIGNAL (20000kHz) 5.111		
20010-21000 kHz	FIXED Mobile	FIXED Mobile		
21000-21450 kHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE		
21450-21850	BROADCASTING	BROADCASTING		Article 12 planning procedure Digital systems to be introduced
21850-21870	FIXED 5.155A 5.155	FIXED		
21870-21924 kHz	FIXED 5.155B	FIXED 5.155B		Used for aircraft flight safety

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
21924-22000	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)		Appendix 27 Allotment Plan Including HF Data Links
22000-22855	MARITIME MOBILE (R) 5.132 5.156	MARITIME MOBILE (R) 5.132	DSC calling 22374.5, 22375, 22375.5, 22444, 22444.5, 22445 kHz. Maritime applications Maritime Safety Information 22376 kHz	Appendix 25 allotment plan
22855-23000	FIXED	FIXED		
23000-23200	FIXED Mobile except aeronautical mobile (R) 5.156	FIXED Mobile except aeronautical mobile (R)		FS related to aircraft flight safety
23200-23350	AERONAUTICAL MOBILE (OR) FIXED 5.156A	AERONAUTICAL MOBILE (OR) FIXED 5.156A		
23350-24000	FIXED Mobile except aeronautical mobile 5.157	FIXED Mobile except aeronautical mobile 5.157		
24000-24890	FIXED LAND MOBILE	FIXED LAND MOBILE		
24890-24990 kHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE		
24990-25005 kHz	STANDARD FREQUENCY AND TIME SIGNAL (25000kHz)	STANDARD FREQUENCY AND TIME SIGNAL (25000kHz)		
25005-25010	STANDARD FREQUENCY AND TIME SIGNAL Space Research	STANDARD FREQUENCY AND TIME SIGNAL Space Research		
25010-25070	FIXED Mobile except aeronautical mobile	FIXED Mobile except aeronautical mobile		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
25070-25210	MARITIME MOBILE	MARITIME MOBILE	Maritime applications DSC calling 25208.5, 25209, 25209.5 kHz	Appendix17 channeling plan
25210-25550	FIXED Mobile except aeronautical mobile	FIXED Mobile except aeronautical mobile		
25550-25670	RADIO ASTRONOMY 5.149	RADIO ASTRONOMY 5.149		
25670-26100 kHz	BROADCASTING	BROADCASTING		Article 12 planning procedure Digital systems to be introduced
26100-26175	MARITIME MOBILE 5.132	MARITIME MOBILE 5.132	26100.5 kHz used for MSI (Appendix 17) DSC calling 26121, 26121.5, 26122 kHz. Maritime applications	Appendix 25 allotment plan
26175-27500	FIXED Mobile except aeronautical mobile 5.150	FIXED Mobile except aeronautical mobile 5.150	CB 26.960-27.410 MHz SRD 26.957-27.283 MHz ISM 26.957-27.283 MHz Model Control SRD 26.995, 27.045, 27.095, 27.145, 27.195 MHz	ERC REC 70-03 ERC REC T/R 20-09
27500-28000 kHz	FIXED METEOROGICAL AIDS MOBILE	FIXED METEOROGICAL AIDS MOBILE		
28000-29700 kHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE		
29.7000 - 30.0000 MHz	FIXED MOBILE	MOBILE		ERC/REC 70-03
30.0000 – 30.0050	FIXED MOBILE	MOBILE LBN 1, LBN 2		ERC/REC 70-03

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
30.0050 - 30.0100	FIXED MOBILE SPACE OPERATION (satellite identification) SPACE RESEARCH	MOBILE LBN 1, LBN 2		ERC/REC 70-03
30.0100 – 31.0000	FIXED MOBILE	MOBILE LBN1, LBN 2		ERC/REC 70-03 The bands 30.3-30.5 MHz and 32.15-32.45 MHz are harmonised military bands
31.0000-32.0000			UNDESIGNATED	
32.0000 – 33.0000			Military harmonized band	
33.0000 - 34.9950			UNDESIGNATED	
34.9950 – 35.2250 MHz			Model Aircraft	
35.2250-37.5000			PMR	
37.5000 – 38.2500	FIXED MOBILE Radio Astronomy 5.149	MOBILE except Aeronautical Mobile Radio Astronomy 5.149	PMR	RA continuum measurements ERC/REC 70-03
38.2500 - 39.9860	FIXED MOBILE	MOBILE	PMR 39.0-39.2 MHz is a harmonised band for meteor scatter applications	ERC/REC 70-03
39.9860 - 40.0200 MHz	FIXED MOBILE Space Research	MOBILE Space Research	PMR	ERC/REC 70-03
40.02 - 40.66 MHz	FIXED MOBILE	MOBILE	PMR	ERC/REC 70-03
40.66-40.7	FIXED MOBILE 5.150	MOBILE 5.150	ISM Non specific SRD Model control	ERC/REC 70-03 40.66-40.70 MHz designated for ISM
40.7-40.98	FIXED MOBILE	MOBILE	PMR	ERC/REC 70-03

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
40.9800 - 41.0150	FIXED MOBILE Space Research 5.160 5.161	MOBILE Space Research	PMR	ERC/REC 70-03
41.0150 - 41.0000	FIXED MOBILE	MOBILE LBN 1, LBN 2	PMR	ERC/REC 70-03
41.0000 - 44.0000			41 – 44 MHz is a harmonised military band.	ERC/REC 70-03
44.0000 - 46.4000	FIXED MOBILE 5.162A 5.162	MOBILE LBN 1, LBN 2	44 – 44.4 MHz is a harmonised military band	Geographical sharing with wind profiler radars in the range 46-68 MHz ERC/REC 70-03
46.4000 – 47.0000 MHz	FIXED MOBILE 5.162A	MOBILE except Aeronautical Mobile LBN 1, LBN 2, LBN 4	44.4 – 47 MHz is a harmonised military band	Geographical sharing with wind profiler radars in the range 46-68 MHz ERC/REC 70-03
47.0000 – 48.0000	BROADCASTING 5.163 5.164	LAND MOBILE BROADCASTING 5.164 LBN 4, LBN 5	PMR Onsite paging 47.0-47.25 MHz	Geographical sharing with wind profiler radars in the range 46-68 MHz
48.0000 – 48.5000	BROADCASTING 5.164 5.163 5.164	BROADCASTING LAND MOBILE 5.164 LBN 4 LBN 5	PMR	Geographical sharing with wind profiler radars in the range 46-68 MHz
48.5000 – 50.0000 MHz	BROADCASTING 5.164 5.163 5.164	BROADCASTING LAND MOBILE 5.164 LBN 4 LBN 5	PMR SRD	Geographical sharing with wind profiler radars in the range 46-68 MHz
50.0000 - 52.0000 MHz	BROADCASTING 5.164 5.162A	BROADCASTING LAND MOBILE 5.164 Amateur LBN 4, LBN 6		Geographical sharing with wind profiler radars in the range 46-68 MHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
52.0000 - 54.0000	BROADCASTING 5.164 5.162A	BROADCASTING LAND MOBILE 5.164 LBN1, LBN 4, LBN 5		Geographical sharing with wind profiler radars in the range 46-68 MHz
54.0000 – 57.5000	BROADCASTING 5.164 5.162A	BROADCASTING LAND MOBILE 5.164 LBN 1, LBN 4, LBN 5		Annex 1, ML, paired with 61-64.5 MHz Geographical sharing with wind profiler radars in the range 46-68 MHz
57.5000 – 61.0000		BROADCASTING LAND MOBILE 5.164 LBN 4, LBN 5	PMR SAB	Annex 1, ML, paired with 64.5-68 MHz Geographical sharing with wind profiler radars in the range 46-68 MHz
61.0000 – 64.5000	BROADCASTING 5.164 5.162A	BROADCASTING LAND MOBILE 5.164		Annex 1, FB, paired with 54-57.5 MHz Geographical sharing with wind profiler radars in the range 46-68 MHz
64.5000 – 68.0000 MHz		BROADCASTING LAND MOBILE 5.164	PMR	Annex 1, FB, paired with 57.5 - 61 MHz Geographical sharing with wind profiler radars in the range 46-68 MHz
68.0000 – 69.2000	FIXED MOBILE except aeronautical mobile 5.149	MOBILE	PMR	Annex 1, ML, paired with 77.80-79.0 MHz
69.2000 – 70.0000	FIXED MOBILE except aeronautical mobile 5.149	MOBILE LBN 1		Annex 1, Unpaired spectrum
70.0000 – 70.5000 MHz	FIXED MOBILE except aeronautical mobile	FIXED MOBILE except aeronautical mobile		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
70.5000 – 72.5000 MHz	FIXED MOBILE except aeronautical mobile	MOBILE except Aeronautical Mobile	PMR	Annex 1, ML, paired with 80.3 – 82.3 MHz
72.5.000 - 74.8000	FIXED MOBILE except aeronautical mobile 5.149	MOBILE except Aeronautical Mobile Radio Astronomy 5.149 LBN1		Annex 1, ML, paired with 82.3 – 84.6 MHz 73.3 - 74.1 MHz is a harmonised military band RA continuum measurements RA : 73.00 - 74.60 MHz for solar wind monitoring
74.8000 - 75.2000	AERONAUTICAL RADIONAVIGATION 5.180 5.181	AERONAUTICAL RADIONAVIGATION 5.180		Marker beacons
75.2000 – 77.7000	FIXED MOBILE except aeronautical mobile 5.175 5.179 5.184 5.187	MOBILE		Annex 1, ML, paired with 85.0-87.5 MHz
77.7000 - 77.8000	FIXED MOBILE except aeronautical mobile 5.175 5.179 5.184 5.187	MOBILE LBN1		Annex 1, Single frequency
77.8000 – 79.0000	FIXED MOBILE except aeronautical mobile 5.175 5.179 5.184 5.187	MOBILE	PMR	Annex 1, FB, paired with 68.0-69.2 MHz
79.0000 – 80.3000 MHz		MOBILE LBN1		Unpaired Spectrum Harmonised military band 79.0-79.7 MHz
80.3000 – 82.3000		MOBILE	PMR	Annex 1, FB, paired with 70.5 – 72.5 MHz
82.3000-84.6000		MOBILE LBN1		Annex 1, FB, paired with 72.5 – 74.8 MHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
84.6000 - 85.0000 MHz	FIXED MOBILE except aeronautical mobile 5.175 5.179 5.184 5.187	MOBILE LBN1		Annex 1, Single frequency
85.0000 - 87.5000 MHz	FIXED MOBILE except aeronautical mobile 5.175 5.179 5.184 5.187	MOBILE		Annex 1, FB, paired with 75.2-77.7 MHz
87.5000 – 108	BROADCASTING 5.194	BROADCASTING	FM sound broadcasting	Broadcasting Band II
108- 117.975	AERONAUTICAL RADIONAVIGATION 5.197 5.197A	AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE (R) 5.197A	ILS VOR	RES. 413 (Rev. WRC07)
117.975-136	AERONAUTICAL MOBILE(R) 5.200	AERONAUTICAL MOBILE(R) 5.200 LBN 7	121.5 MHz aeronautical emergency frequency EPIRB	Article 31 Appendix 13 (WRC07) Aeronautical mobile communications for safety and regularity of flights, airline business and airport mobile communications
136-137 MHz	AERONAUTICAL MOBILE(R) 5.202	AERONAUTICAL MOBILE(R) AERONAUTICAL MOBILE(OR) LBN 8		Aeronautical mobile communications for safety and regularity of flights, airline business and airport mobile communications

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
137-137.025 MHz	SPACE OPERATION (S/E) METEOROLOGICAL – SATELLITE (S/E) MOBILE- SATELLITE (S/E) 5.208A 5.209 5.347A SPACE RESEARCH (S/E) Fixed Mobile except Aeronautical mobile (R) 5.204 5.206 5.208	AERONAUTICAL MOBILE (OR) 5.206 METEOROLOGICAL – SATELLITE (S/E) MOBILE MOBILE- SATELLITE (S/E) 5.208A 5.209 Space Operation (S/E) Space Research (S/E) 5.208	Low earth orbiting satellites Meteorological Satellite Mobile applications Air Sport Activities	
137.025-137.175 MHz	SPACE OPERATION (S/E) METEOROLOGICAL – SATELLITE (S/E) SPACE RESEARCH (S/E) Fixed Mobile except Aeronautical mobile (R) Mobile-Satellite (S/E) 5.208A 5.209 5.204 5.206 5.208	AERONAUTICAL MOBILE (OR) 5.206 METEOROLOGICAL – SATELLITE (S/E) MOBILE Mobile-Satellite (S/E) 5.208A 5.209 Space Research (S/E) Space Operation (S/E) 5.208		Aeronautical and Aircraft stations and Base and mobile stations in support of aviation

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
137.175-137.825 MHz	SPACE OPERATION (S/E) METEOROLOGICAL–SATELLITE (S/E) SPACE RESEARCH (S/E) MOBILE- SATELLITE (S/E) 5.208A 5.209 Fixed Mobile except Aeronautical mobile (R) 5.204 5.206 5.208	AERONAUTICAL MOBILE (OR) 5.206 METEOROLOGICAL–SATELLITE (S/E) MOBILE MOBILE- SATELLITE (S/E) 5.208A 5.209 Space Research (S/E) Space Operation (S/E) 5.208		Aeronautical and Aircraft stations and Base and mobile stations in support of aviation
137.825-138	SPACE OPERATION (S/E) METEOROLOGICAL–SATELLITE (S/E) SPACE RESEARCH (S/E) Mobile-Satellite (S/E) 5.208A 5.209 Fixed Mobile except Aeronautical mobile (R) 5.204 5.206 5.208	AERONAUTICAL MOBILE (OR) 5.206 METEOROLOGICAL–SATELLITE (S/E) MOBILE Mobile-Satellite (S/E) 5.208A 5.209 Space Research (S/E) Space Operation (S/E) 5.208		Aeronautical and Aircraft stations and Base and mobile stations in support of aviation
138-143.6 MHz	AERONAUTICAL MOBILE (OR) 5.210 5.211 5.214	AERONAUTICAL MOBILE (OR) LAND MOBILE 5.211 Space Research (S/E)	PMR	
143.6-143.65	AERONAUTICAL MOBILE (OR) SPACE RESEARCH (S/E) 5.211 5.212 5.214	AERONAUTICAL MOBILE (OR) LAND MOBILE 5.211 SPACE RESEARCH (S/E)	PMR	
143.65-144 MHz	AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	AERONAUTICAL MOBILE (OR) LAND MOBILE 5.211	PMR	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
144-146 MHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE	Amateur	
146-148	FIXED MOBILE except aeronautical mobile (R)	MOBILE	PMR	146-146.9 : Annex 1, Single frequency applications 146.8-148: Annex 1, ML paired with 151.4-152.6 MHz
148-148.4	FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (E/S) 5.209 5.218 5.219 5.221	MOBILE-SATELLITE (E/S) 5.209 MOBILE 5.221 5.218 5.219		Annex 1, ML paired with 152.6-153 MHz
148.4-149.9				Annex1, ML paired with 153-154.5 MHz
149.90-150.05	MOBILE-SATELLITE (E/S) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223	MOBILE MOBILE-SATELLITE (E/S) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223	PMR	Annex 1, Single Frequency BUT NOTE 5.223
150.05-151.4	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	PMR	Annex 1, ML paired with 154.65-156.0 MHz
151.4-153				Annex 1, FB paired with 146.8-148.4 MHz
153-154	FIXED MOBILE except Aeronautical Mobile (R) Meteorological Aids	MOBILE except Aeronautical Mobile		Annex 1, FB paired with 148.4-149.4MHz
154-154.5 MHz	FIXED MOBILE except Aeronautical Mobile (R)	MOBILE except Aeronautical Mobile		Annex 1, FB paired with 149.4-149.9 MHz
154.5-154.65			PMR	Annex 1, Single frequency applications

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
154.65-156 MHz			PMR	Annex 1, FB paired with 150.05-151.4 MHz
156-156.4875				ITU RR Appendix 18 Ship stations paired with 160.6-160.625 Single frequency use in 156.375-156.500 MHz
156.4875-156.5625	MARITIME MOBILE 5.111 5.226 5.227	MARITIME MOBILE 5.111 5.226 5.227		Distress and calling via DSC 156.525 MHz Article 31&52 Appendix 18
156.5625-156.7625	FIXED MOBILE except Aeronautical Mobile (R) 5.226	MOBILE except Aeronautical Mobile 5.226		ITU RR Appendix 18 Single frequency applications
156.7625-156.8375	MARITIME MOBILE (distress and calling) 5.111 5.226	MARITIME MOBILE (distress and calling) 5.111 5.226		156.8 MHz: International distress safety and calling frequency + guard bands
156.8375-157.45	FIXED MOBILE except Aeronautical Mobile 5.226 5.229 5.4C02	MOBILE except Aeronautical Mobile 5.226 5.4C02 LBN 9	Ship stations paired with 161.5-162.0 MHz and Single frequency use	ITU RR Appendix 18
157.45-160.6			PMR	Annex 1, ML paired with 162.05-165.2 MHz
160.6-160.975			Coast stations, paired with 156.250-156.350 MHz	ITU RR Appendix 18
160.975-161.475			PMR	Annex 1, Single frequency applications
161.475-162.05			MSS for AIS Appendix 18 Coast stations, paired with 156.9-157.4 MHz for DSC	161.9625-161.9875 MHz ITU RR Appendix 18
162.05-165.2			PMR	Annex 1, FB paired with 157.45-160.6 MHz
165.2-165.225			PMR	Annex 1,Single frequency applications

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
165.225-169.4			PMR	Annex 1, ML paired with 169.825-174.0 MHz
169.4-169.825			PMR	Annex 1, Single frequency applications
169.825-174			PMR	Annex 1, FB paired with 165.225-169.4 MHz
174-216 MHz	BROADCASTING 5.235	BROADCASTING	Broadcasting band III Channels 5 to 12	TV Stockholm Agreement 1961.
216-223 MHz	BROADCASTING 5.235			T-DAB Digital sound broadcasting Wiesbaden Special Arrangement 1995 revised Maastricht 2002
223-225	BROADCASTING Fixed Mobile 5.246			
225-230				
230-235	FIXED MOBILE	MOBILE		
235-240 MHz	FIXED MOBILE 5.254	MOBILE 5.254 LBN1		
240-242.95	FIXED MOBILE 5.254	MOBILE 5.254 LBN1		
242.95-243.055	FIXED MOBILE 5.111 5.199 5.254 5.256	MOBILE-SATELLITE (E/S) AERONAUTICAL MOBILE 5.111 5.199 5.254 5.256	Band only available for distress and safety purposes	Frequency 243 MHz available for distress and safety purposes
243.055-267	FIXED MOBILE except aeronautical mobile 5.254 5.256A	MOBILE 5.254 LBN1		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
267-272	FIXED MOBILE Space Operation (S/E) 5.254 5.257	MOBILE 5.254 LBN1		
272-273	SPACE OPERATION (S/E) FIXED MOBILE 5.254	MOBILE 5.254 LBN 10		
273-312 MHz	FIXED MOBILE 5.254	MOBILE LBN 10		
312-315 MHz	FIXED MOBILE Mobile-Satellite (E/S) 5.254 5.255	MOBILE 5.254 5.255 LBN 10		
315-322	FIXED MOBILE 5.254	MOBILE 5.254 LBN 10		
322-328.6 MHz	FIXED MOBILE RADIO ASTRNOMY 5.149	MOBILE RADIO ASTRNOMY 5.149 LBN 10		
328.6-335.4	AERONAUTICAL RADIONAVIGATION 5.258 5.259	AERONAUTICAL RADIONAVIGATION 5.258 5.259	ILS/Glide path	328.6-335.4 limited to ILS
335.4-387	FIXED MOBILE 5.254	MOBILE 5.254 LBN 11	PMR TETRA	380-385/390-395 MHz reserved for Interior Security Annex 1, ML paired with 390.0-395.0 MHz
			Civil trunked Digital PMR	385-387 MHz ERC REC T/R 02-02, ML paired with 395-397 MHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
387-390	FIXED MOBILE Mobile-Satellite (S/E) 5.208A 5.254 5.255 5.347A	MOBILE 5.254 5.255 5.347A LBN 11	TETRA	ERC REC T/R 02-02, ML paired with 397.00-399.90 MHz. Res. 739 (rev. WRC07)
390-395	FIXED MOBILE 5.254	MOBILE 5.254 LBN 11	TETRA	ERC REC T/R 02-02, FB paired with 380-385 MHz
395-399.9 MHz	FIXED MOBILE 5.254	MOBILE 5.254 LBN 11	TETRA	ERC REC T/R 02-02, FB paired with 385-389.9 MHz
399.9-400.05 MHz	MOBILE-SATELLITE (E/S) 5.209 5.224A 5.220 RADIONAVIGATION - SATELLITE 5.222 5.224B 5.260	RADIONAVIGATION - SATELLITE 5.224B 5.260 MOBILE-SATELLITE (E/S) 5.209 5.224A 5.220		
400.05-400.150 MHz	STANDARD FREQUENCY AND TIME SIGNAL SATELLITE (400.1 MHz) 5.261 5.262	STANDARD FREQUENCY AND TIME SIGNAL SATELLITE (400.1 MHz)		
400.15-401.00	METEOROGICAL AIDS METEOROLOGICAL-SATELLITE (S/E) SPACE RESEARCH (S/E)5.263 MOBILE-SATELLITE (S/E) 5.208A 5.209 5.347A Space Operation (S/E) 5.262 5.264	METEOROGICAL AIDS METEOROLOGICAL-SATELLITE (S/E) SPACE RESEARCH (S/E) 5.263 MOBILE-SATELLITE (S/E) 5.208A 5.209 5.264		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
401-402 MHz	METEOROGICAL AIDS EARTH EXPLORATION SAT (S/E) METEOROGICAL SATELLITE (E/S) SPACE OPERATION (S/E) Fixed Mobile except aeronautical mobile	EARTH EXPLORATION SAT (S/E) METEOROGICAL AIDS METEOROGICAL SATELLITE (E/S)	Medical devices	
402-403 MHz	METEOROGICAL AIDS EARTH EXPLORATION SAT (E/S) METEOROGICAL SATELLITE (E/S) Fixed Mobile except aeronautical mobile	METEOROGICAL AIDS EARTH EXPLORATION SAT (E/S) METEOROGICAL SATELLITE (E/S)	Medical devices	CEPT/ERC/REC 70-03, Ultra low power medical implants (3MHz within the band 401-406 MHz under study)
403-406	METEOROGICAL AIDS Fixed Mobile except aeronautical mobile	METEOROGICAL AIDS		CEPT/ERC/REC 70-03, Ultra low power medical implants (3MHz within the band 401-406 MHz under study)
406.0-406.1	MOBILE-SATELLITE (E/S) 5.266 5.267	MOBILE-SATELLITE (E/S) 5.266 5.267	Band only available for distress and safety purposes (Article 31)	
406.1-410 MHz	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	LAND MOBILE RADIO ASTRONOMY 5.149	PMR	Single frequency operation. RA continuum measurement and pulsar observation. Annex 1, Single frequency applications
410-420	FIXED MOBILE except Aeronautical Mobile SPACE RESEARCH (S/S) 5.268	MOBILE except Aeronautical Mobile LBN1 LBN 12	PMR	Annex 1, ML paired with 420-430 MHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
420-430	FIXED MOBILE except Aeronautical Mobile Radiolocation 5.269 5.271	MOBILE except Aeronautical Mobile Radiolocation LBN1 LBN 12	PMR	Annex 1, FB paired with 410-420 MHz
430-432 MHz	AMATEUR RADIOLOCATION 5.271 5.272 5.273 5.274 5.275 5.276 5.277	FIXED 5.276 MOBILE except aeronautical mobile AMATEUR RADIOLOCATION		
432-433.05 MHz	AMATEUR RADIOLOCATION Earth Exploration Satellite (active) 5.279A 5.138 5.271 5.272 5.273 5.274 5.275 5.276 5.277 5.280 5.281 5.282	FIXED MOBILE except aeronautical mobile AMATEUR RADIOLOCATION Earth Exploration Satellite (active) 5.279A 5.276 5.277		
433.05-434.79 MHz	AMATEUR RADIOLOCATION Earth Exploration-Satellite (active) 5.279A 5.138 5.271 5.272 5.276 5.277 5.280 5.281	FIXED MOBILE except aeronautical mobile AMATEUR RADIOLOCATION Land Mobile Earth Exploration-Satellite (active) 5.279A 5.138 5.276	ISM SRD	
434.79-435	AMATEUR RADIOLOCATION Earth Exploration-Satellite (active) 5.279A 5.138 5.271 5.272 5.276 5.277 5.280 5.281 5.282	FIXED MOBILE except Aeronautical Mobile AMATEUR AMATEUR-SATELLITE RADIOLOCATION Earth Exploration-Satellite (active) 5.279A 5.276		Amateur Satellite Service restricted to 435-438 MHz.

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
435-438		FIXED AMATEUR AMATEUR-SATELLITE RADIOLOCATION 5.276		
438-440 MHz	AMATEUR RADIOLOCATION 5.271 5.273 5.274 5.275 5.276 5.277 5.283	FIXED MOBILE except aeronautical mobile AMATEUR RADIOLOCATION 5.276		
440-450 MHz	FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.271 5.286	MOBILE except aeronautical mobile Radiolocation	Analog and digital PMR	Annex 1, Single frequency applications PMR 446 446-446.1 MHz DMO 445.2-445.3 MHz On-site paging Call-out & answer-back
450-455	FIXED MOBILE 5.XXX 5.209 5.271 5.286 5.286A 5.286B	MOBILE 5.XXX	Analog and digital PMR	Annex 1, ML paired with 460-465 MHz 450-470 MHz identified for IMT (WRC07) Res. 224 (rev. WRC07)
455-456 MHz	FIXED MOBILE 5.209 5.271 5.286A5.286B	MOBILE 5.XXX	Analog and digital PMR	Annex 1, ML paired with 465-466 MHz 450-470 MHz identified for IMT (WRC07) Res. 224 (rev. WRC07)
456-459	FIXED MOBILE 5.271 5.287	MOBILE 5.XXX 5.287	Analog and digital PMR Maritime on board communications	Annex 1, ML paired with 466-469 MHz 450-470 MHz identified for IMT (WRC07) Res. 224 (rev. WRC07) Maritime on board communications 457.525-457.575 MHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
459-460	FIXED MOBILE 5.209 5.271 5.286A 5.286B	MOBILE 5.XXX	Analog and digital PMR	Annex 1, ML paired with 469-470 MHz 450-470 MHz identified for IMT (WRC07) Res. 224 (rev. WRC07)
460-470 MHz	FIXED MOBILE Meteorological-Satellite (S/E) 5.287 5.289 5.290	MOBILE 5.XXX 5.287 5.289	Analog and digital PMR Maritime on board communications	Annex 1, FB paired with 450-460 MHz 450-470 MHz identified for IMT (WRC07) Res. 224 (rev. WRC07) Maritime on board communications 467.525-467.575MHz
470-790 MHz	BROADCASTING 5.291A 5.149 5.296 5.302 5.306 5.311A	BROADCASTING 5.291A 5.296 5.311A LBN 12	Defense (ch.21-ch.26) Analog TV DVB-T	Stockholm Agreement 1961 GE06 Agreement Band 620-790 MHz see Res. COM4/1 (WRC07)
790-862	FIXED BROADCASTING MOBILE except aeronautical mobile 5.XXX 5.312 5.314 5.315 5.316 5.319 5.317A	BROADCASTING MOBILE 5.XXX 5.317A LBN 12 bis	Analog TV DVB-T	Stockholm Agreement 1961 GE06 Agreement Band 790-862 MHz proposed for IMT from June 2015 after WRC11
862-870	FIXED MOBILE except Aeronautical Mobile 5.317A BROADCASTING 5.322 5.319 5.323	MOBILE LBN 13 LBN 14	Narrow band analogue voice devices Radio microphones Alarms Wireless Audio General SRD	ERC REC 70-03
870-876			Digital PMR 870-915/915-960	Annex 1, ML paired with 915-921 MHz identified for Digital Land Mobile PMR systems.
876-880		MOBILE LBN 14		Annex 1, ML paired with 921-925 MHz Reserve band for digital wideband mobile digital expansion, cordless telephones or fixed links for sound broadcasting applications.

Frequency Band (kHz MHz or GHz)	**International Region 1 Allocation**	**National Allocation**	**Main application**	**Notes**
880-890		MOBILE	E-GSM 900 system	Annex 1, ML paired with 925-935 MHz GSM extended band
890-915	FIXED MOBILE except Aeronautical Mobile 5.317A	MOBILE LBN 14 BIS	GSM 900 system	Annex 1, ML paired with 935-960 MHz GSM core band
915-921 MHz	BROADCASTING 5.322 Radiolocation 5.323	MOBILE LBN 14	Digital PMR	Annex 1, FB paired with 870-876 MHz Identified for Digital Land Mobile PMR systems.
921-925 MHz	FIXED MOBILE except Aeronautical Mobile 5.317A BROADCASTING 5.322 Radiolocation 5.323	MOBILE Fixed LBN 14		Annex 1, FB paired with 876-880 MHz Identified for Digital Land Mobile PMR systems.
925-935	FIXED MOBILE except Aeronautical Mobile 5.317A BROADCASTING 5.322 Radiolocation 5.323	MOBILE	E-GSM	Annex 1, FB paired with 880-890 MHz Identified for digital wideband mobile digital systems
935-942 MHz	FIXED MOBILE except Aeronautical Mobile 5.317A BROADCASTING 5.322 Radiolocation 5.323	MOBILE LBN 14 BIS	GSM 900 system	Annex 1, FB paired with 890-897 MHz
942-960	FIXED MOBILE except Aeronautical Mobile 5.317A BROADCASTING 5.322 5.323			Annex 1, FB paired with 897-915 MHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
960-1164	AERONAUTICAL RADIONAVIGATION 5.328 AERONAUTICAL MOBILE (R) 5.4B06	AERONAUTICAL RADIONAVIGATION 5.328 AERONAUTICAL MOBILE (R) 5.4B06		Res. COM4/5 (WRC07)
1164-1215 MHz	AERONAUTICAL RADIONAVIGATION 5.328	AERONAUTICAL RADIONAVIGATION 5.328		The band 1164-1215 MHz is reserved for distance measurement equipment (DME)
1215-1240 MHz	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION RADIONAVIGATION SATELLITE (S/E)(S/S) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332	RADIOLOCATION RADIONAVIGATION SATELLITE (S/E) 5.328B 5.329 5.329A EARTH EXPLORATION SATELLITE (active) SPACE RESEARCH (active) RADIONAVIGATION 5.330 5.331 5.332		The frequency 1224 MHz is protected to Galileo position system (GPS) The frequency 1227.6 MHz is protected for Military GPS
1240-1300 MHz	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) RADIONAVIGATION-SATELLITE (S/E)(S/S) 5.329 5.329A 5.328B Amateur 5.282 5.330 5.331 5.335A	RADIOLOCATION EARTH EXPLORATION SATELLITE (active) SPACE RESEARCH (active) RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.329 5.329A 5.328B Amateur Amateur-Satellite 5.282 5.330 5.331 5.335A	DME Radionavigation Amateur	This band 1260-1300 MHz is proposed to be protected to distance measurement equipment (DME) Wind profiler radars between 1270 MHz and 1295 MHz
1300-1350	AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION-SATELLITE 5.337A 5.149	AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION-SATELLITE 5.337A 5.149		RA spectral line observations 1330-1400 MHz.

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
1350-1400 MHz	FIXED MOBILE RADIOLOCATION 5.149 5.338 5.339 5.BA03	FIXED RADIOLOCATION MOBILE 5.149 5.339		T/R 13-01 Fixed Links: 1350-1375/1492-1517 MHz (Annex A) 1375-1400/1427-1452 MHz (Annex B). Res. COM 5/4 (WRC07)
1400-1427 MHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341		
1427-1429	SPACE OPERATION (E/S) FIXED MOBILE except aeronautical mobile 5.341 5.BA03	SPACE OPERATION (E/S) FIXED MOBILE except aeronautical mobile 5.341	Broadcasting fixed links	T/R 13-01 Fixed Links: 1375-1400/1427-1452 MHz (Annex B). Res. COM 5/4 (WRC07)
1429-1452	FIXED MOBILE except aeronautical mobile 5.341 5.342	FIXED MOBILE except aeronautical mobile 5.341 5.BA03	Broadcasting fixed links	T/R 13-01 for Fixed Links: 1375-1400/1427-1452 MHz (Annex B).
1452-1492	FIXED MOBILE except aeronautical mobile BROADCASTING 5.345 BROADCASTING-SATELLITE 5.345 5.347A 5.341 5.342	BROADCASTING 5.345 BROADCASTING-SATELLITE 5.345 Fixed Mobile except aeronautical Mobile 5.341 LBN 10	Digital audio broadcasting	T-DAB Maastricht 2002 special arrangement

Frequency Band (kHz MHz or GHz)	**International Region 1 Allocation**	**National Allocation**	**Main application**	**Notes**
1492-1518	FIXED MOBILE except aeronautical mobile 5.341 5.342	FIXED MOBILE except aeronautical mobile 5.341	Fixed	Based on T/R 13-01 Annex A Unidirectional Fixed links 1492-1517 MHz paired with 1350-1375 MHz. For MSS use: Res. 212&225 (Rev. WRC07)
1518-1525 MHz	FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE 5.348 5.348A 5.348B 5.351A 5.341 5.342	FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE 5.348 5.348A 5348B 3.351A 5.341	Unidirectional fixed links	
1525-1530 MHz	SPACE OPERATION (S/E) FIXED MOBILE-SATELLITE (S/E) 5.351A Earth exploration Satellite Mobile except aeronautical mobile 5.349 5.341 5.342 5.347A 5.350 5.351 5.352A 5.354	SPACE OPERATION (S/E) FIXED MOBILE-SATELLITE (S/E) 5.351A MOBILE except aeronautical mobile 5.349 5.341 5.351 5.354	Unidirectional fixed links Mobile satellite applications	For MSS use: Res. 212&225 (Rev. WRC07)
1530-1535	SPACE OPERATION (S/E) MOBILE-SATELLITE (S/E) 5.353A 5.351A Earth exploration Satellite Fixed Mobile except aeronautical mobile 5.341 5.342 5.351 5.354	SPACE OPERATION (S/E) MOBILE-SATELLITE (S/E) 5.353A 5.351A Earth exploration Satellite Fixed Mobile except aeronautical mobile 5.341 5.351 5.354	Mobile satellite applications	GMDSS priority For MSS use: Res. 212&225 (Rev. WRC07)

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
1535-1540	MOBILE-SATELLITE (S/E) 5.351A 5.341 5.351 5.353A 5.354 5.355 5.356	MOBILE-SATELLITE (S/E) 5.351A 5.341 5.351 5.353A 5.354		
1540-1544		MOBILE-SATELLITE (S/E) 5.351A Fixed 5.341 5.351 5.353A 5.354 5.355 LBN 15	Mobile satellite applications	
1544-1545 MHz		MOBILE-SATELLITE (S/E) Fixed 5.341 5.354 5.356 5.355 LBN 15	Mobile satellite applications limited to distress communications	MSS use limited to distress and safety communications Article 31
1545-1550 MHz		MOBILE-SATELLITE (S/E) 5.351A Fixed 5.355 5.341 5.351 5.354 5.357 5.357A LBN 15	Mobile satellite applications	
1550-1555		MOBILE-SATELLITE (S/E) 5.351A FIXED 5.359 5.341 5.351 5.354 5.355 5.357 5.357A LBN 15		
1555-1559		MOBILE-SATELLITE (S/E) 5.351A FIXED 5.359 5.341 5.351 5.354 5.355 LBN 15	Mobile satellite applications	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
1559-1610	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (S/E) 5.347A 5.341 5.362B 5362C	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (S/E) 5.341	GNSS applications	1575.42 MHz is protected for civil GPS
1610-1610.6 MHz	AERONAUTICAL RADIONAVIGATION MOBILE SATELLITE (E/S) 5.351A 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372	AERONAUTICAL RADIONAVIGATION MOBILE SATELLITE (E/S) 5.351A FIXED 5.359 RADIODETERMINATION SATELLITE (E/S) 5.341 5.364 5.366 5.367 5.368 5.369 5.371 5.372 LBN 15	Mobile satellite applications	
1610.6-1613.8 MHz	AERONAUTICAL RADIONAVIGATION MOBILE SATELLITE (E/S) 5.351A RADIO ASTRONOMY 5.149 5.341 5.355 5.359 5.363 5.364 5.366 5.367 5.368 5.369 5.371 5.372	AERONAUTICAL RADIONAVIGATION MOBILE SATELLITE (E/S) 5.351A RADIO ASTRONOMY FIXED 5.359 RADIODETERMINATION SATELLITE (E/S) 5.149 5.341 5.355 5.364 5.366 5.367 5.368 5.369 5.371 5.372 LBN 15	Mobile satellite applications	Important band for radio astronomy spectral line observations.
1613.8-1626.5	MOBILE SATELLITE (E/S) 5.351A AERONAUTICAL RADIONAVIGATION Mobile Satellite ((S/E) 5.365 5.149 5.341 5.355 5.359 5.363 5.3645.366 5.367 5.368 5.369 5.371 5.372	AERONAUTICAL RADIONAVIGATION MOBILE SATELLITE (E/S) 5.351A RADIODETERMINATION SATELLITE (E/S) FIXED 5.359 Mobile Satellite (S/E) 5.365 5.149 5.341 5.364 5.366 5.367 5.368 5.369 5.371 5.372 5.355 LBN 15	Mobile satellite applications	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
1626.5-1631.5		MOBILE-SATELLITE (E/S) 5.351A FIXED 5.359 5.341 5.351 5.353A 5.354 5.355 LBN 15		
1631.5-1636.5		MOBILE-SATELLITE (E/S) 5.351A FIXED 5.359 5.341 5.351 5.353A 5.354 5.374 5.355 LBN 15	Mobile satellite applications	
1636.5-1645.5 MHz		MOBILE-SATELLITE (E/S) 5.351A FIXED 5.359 5.341 5.351 5.353A 5.354 5.355 LBN 15	Mobile satellite applications	
1645.5-1646.5 MHz		MOBILE-SATELLITE (E/S) 5.341 5.354 5.375	Mobile satellite applications limited to distress communications	Search and rescue satellite systems including GMDSS
1646.5-1656.5		MOBILE-SATELLITE (E/S) 5.351A FIXED 5.359 5.341 5.351 5.354 5.357A 5376 5.355 LBN 15	Mobile satellite applications	
1656.5-1660		MOBILE-SATELLITE (E/S) 5.351A FIXED 5.359 5.341 5.351 5.354 5.355 5.374 LBN 15	Mobile satellite applications	
1660-1660.5	MOBILE-SATELLITE (E/S) 5.351A RADIO ASTRONOMY 5.149 5.341 5.351 5.354 5.376A	MOBILE-SATELLITE (E/S) 5.351A RADIO ASTRONOMY 5.149 5.341 5.351 5.354 5.354 5.376A	Mobile satellite applications	Important band for radio astronomy. VLBI Continuum line and VLBI Measurements

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
1660.5-1668	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379A	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379A		Important band for radio astronomy. Continuum line and VLBI measurements.
1668-1668.4 MHz	MOBILE-SATELLITE (E/S) 5.351A 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379A	MOBILE-SATELLITE (E/S) 5.379B 5.379C 5.351A RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379A		Important band for radio astronomy. Continuum line and VLBI measurements. MSS use: Res. COM5/1 (WRC07)
1668.4-1670 MHz	METEOROLOGICAL AIDS FIXED MOBILE-SATELLITE 5.379B 5.379C 5.351A MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.341 5.379D 5.379E	METEOROLOGICAL AIDS FIXED MOBILE-SATELLITE 5.379B 5.379C RADIO ASTRONOMY Mobile except aeronautical mobile 5.149 5.341 5.379D 5.379E	Meteorological applications	Important band for radio astronomy. Continuum line and VLBI measurements.
1670-1675	METEOROLOGICAL AIDS FIXED METEOROGICAL-SATELLITE (S/E) MOBILE 5.380 MOBILE-SATELLITE(E/S) 5.351A 5.379B 5.380A 5.341 5.379D 5.379E	METEOROLOGICAL AIDS METEOROGICAL-SATELLITE (S/E) MOBILE 5.380 MOBILE-SATELLITE (E/S) 5.379B Fixed 5.341 5.380A 5.379D 5.379E	Meteorological applications	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
1675-1690	METEOROLOGICAL AIDS FIXED METEOROGICAL-SATELLITE (S/E) MOBILE except aeronautical mobile 5.341	METEOROLOGICAL AIDS FIXED METEOROGICAL-SATELLITE (S/E) MOBILE except aeronautical mobile 5.341	Meteorological applications	
1690-1700	METEOROLOGICAL AIDS METEOROGICAL-SATELLITE (S/E) Fixed Mobile except aeronautical mobile 5.289 5.382 5.341	METEOROLOGICAL AIDS METEOROGICAL-SATELLITE (S/E) FIXED 5.382 MOBILE except aeronautical mobile 5.341	Meteorological applications	
1700-1710 MHz	FIXED METEOROGICAL-SATELLITE (S/E) MOBILE except aeronautical mobile 5.289 5.341	FIXED METEOROGICAL-SATELLITE (S/E) MOBILE except aeronautical mobile 5.341	Meteorological applications	
1710-1785 MHz	FIXED MOBILE 5.384 A 5.388A 5.388B 5.149 5.341 5.385 5.387 5.388	MOBILE 5.384A LBN 14 bis 5.149 5.341 5.385	GSM 1800	Paired with 1805-1880 MHz
1785-1800		FIXED MOBILE		
1800-1805		MOBILE 5.380 FIXED		
1805-1880		MOBILE 5.384A LBN 14 bis	GSM 1800	Paired with 1710-1785 MHz
1880-1885		MOBILE 5.384A Fixed	DECT	Digital Electronic Cordless Telecommunications
1885-1900		MOBILE Fixed 5.388	DECT	Digital Electronic Cordless Telecommunications

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
1900-1930		MOBILE LBN 14 bis 5.388	IMT	Reserved for IMT on a primary basis IMT in Lebanon 1900-2025 MHz 2110-2200 MHz
1930-1970	FIXED MOBILE 5.388A 5.388			
1970-1980	FIXED MOBILE 5.388A 5.388			
1980-2010	FIXED MOBILE MOBILE-SATELLITE (E/S) 5.351A 5.388 5.389A	MOBILE MOBILE-SATELLITE (E/S) 5.351A 5.388 5.389A	IMT Satellite components	Reserved for IMT on a primary basis
2010-2025	FIXED MOBILE 5.388A 5.388B 5.388	MOBILE 5.388A 5.388	IMT	Reserved for IMT on a primary basis
2025-2070 MHz	SPACE OPERATION (E/S) (S/S) EARTH EXPLORATION SATELLITE (E/S) (S/E) FIXED MOBILE 5.391 SPACE RESEARCH (E/S) (S/E) 5.392	FIXED LBN1 MOBILE 5.391 SPACE RESEARCH (E/S) (S/E) SPACE OPERATION (E/S) (S/S) EARTH EXPLORATION SATELLITE (E/S) (S/E) 5.392		Tactical communications
2070-2110 MHz				Channel plan for the fixed service in ERC Recommendation T/R 13-01: 2025-2110/2200-2290 MHz (Annex C)
2110-2120	FIXED MOBILE SPACE RESEARCH (deep space) (E/S) 5.388	MOBILE 5.388A LBN 14 bis SPACE RESEARCH (E/S) (deep space) 5.388	IMT	IMT 1900-2025 MHz 2110-2200 MHz
2120-2170	FIXED MOBILE 5.388 5.392A	MOBILE 5.388A **5.388**	IMT	

Frequency Band (kHz MHz or GHz)	**International Region 1 Allocation**	**National Allocation**	**Main application**	**Notes**
2170-2200	FIXED MOBILE MOBILE-SATELLITE (S/E) 5.351A 5.388 5.389A 5.392A	MOBILE MOBILE-SATELLITE (S/E) 5.351A 5.388 5.389A	IMT Satellite components	
2200-2245 2245-2290 MHz	SPACE OPERATION (S/E) (S/S) EARTH EXPLORATION SATELLITE (S/E) (S/S) FIXED MOBILE 5.391 SPACE RESEARCH (S/E) (S/S) 5.392	SPACE OPERATION (S/E) (S/S) EARTH EXPLORATION SATELLITE (S/E) (S/S) FIXED MOBILE 5.391 SPACE RESEARCH (S/E) (S/S) 5.392	Fixed links	Tactical communications Channel plan for the fixed service in ERC Recommendation T/R 13-01: 2025-2110/2200-2290 MHz (Annex C)
2290-2300 MHz	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (S/S)	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (S/S)	Fixed links	
2300-2450 MHz	FIXED MOBILE 5.384A Amateur Radiolocation 5.150 5.282 5.395	FIXED MOBILE Amateur Radiolocation	IMT (2300-2400 MHz) Fixed links	The band 2300-2400 MHz identified for IMT (WRC07)
		FIXED MOBILE Amateur Amateur Satellite 5.150 5.282	FIXED Links Amateur SRDs RLAN AVI RFID WLAN ISM	The band 2400-2483.5 MHz is designated for ISM applications. Radiocommunications must accept any interference caused by ISM apparatus in this band.

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
2450-2483.5	FIXED MOBILE Radiolocation 5.150 5.397	FIXED MOBILE 5.150	FIXED Links SRDs RLAN AVI RFID WLAN ISM	
2483.5-2500	FIXED MOBILE MOBILE SATELLITE (S/E) 5.351A Radiolocation 5.150 5.371 5.397 5.398 5.399 5.400 5.402	FIXED MOBILE MOBILE SATELLITE (S/E) 5.351A RADIODETERMINATION SATELLITE (S/E) 5.150 5.371 5.400 5.402	FIXED Links SRDs RLAN AVI RFID WLAN ISM	
2500-2520 MHz	FIXED 5.410 MOBILE except aeronautical mobile 5.384A 5.403 5.351A 5.405 5.412 5.414	FIXEDMOBILE except aeronautical mobile 5.384A	IMT	Res. 223 (rev. WRC07) ITU-R M.1036-3 ERC REC(05)05
2520-2655 MHz	FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING SATELLITE 5.413 5.416 5.339 5.403 5.405 5.412 5.417C 5.417D 5.418B 5.418C	FIXEDMOBILE except aeronautical mobile 5.384A LBN 14 bis 5.339 5.418B 5.418C	IMT	ITU-R M.1036-3 ERC REC(05)05

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
2655-2670 MHz	FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING SATELLITE 5.413 5.416 Earth Exploration Satellite (passive) Radio Astronomy Space research (passive) 5.149 5.347A 5.412 5.420	FIXED MOBILE except aeronautical mobile 5.384A Earth Exploration Satellite (passive) Radio Astronomy Space research (passive) 5.149	IMT	ITU-R M.1036-3 ERC REC(05)05
2670-2690	FIXED 5.410 MOBILE except aeronautical mobile 5.384A MOBILE SATELLITE (E/S) 5.351A Earth Exploration Satellite (passive) Radio Astronomy Space research (passive) 5.149 5.412 5.419 5.347A	FIXED MOBILE except aeronautical mobile 5.384A Radio Astronomy 5.149	IMT	ITU-R M.1036-3 ERC REC(05)05
2690-2700 MHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.422	FIXED 5.422 MOBILE except aeronautical mobile 5.422 LBN 16 EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive band	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
2700-2900 MHz	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423	Radar and navigation systems Meteorological radars	
2900-3100 MHz	RADIONAVIGATION 5.426 RADIOLOCATION 5.424A 5.425 5.427	RADIONAVIGATION 5.426 RADIOLOCATION 5.424A 5.425 5.427	MARITIME AND AERONAUTICAL RADIONAVIGATION Primary radar	
3100-3300	RADIOLOCATION Earth exploration Satellite (active) Space research (active) 5.149 5.428	RADIOLOCATION Earth exploration Satellite (active) Space research (active) 5.149	Radars	
3300-3400	RADIOLOCATION 5.149 5.429 5.430	RADIOLOCATION FIXED 5.429 MOBILE 5.149		
3400-3500	FIXED FIXED-SATELLITE (S/E) Mobile 5.AAA Radiolocation 5.431	FIXED FIXED-SATELLITE (S/E) MOBILE	Wireless Access	ERC/DEC (07)02 ERC/REC 13-04 for FWA systems
3500-3600		FIXED FIXED-SATELLITE (S/E) MOBILE	Wireless Access	ERC/DEC (07)02 ERC/REC 13-04 for FWA systems
3600-4200	FIXED FIXED-SATELLITE (S/E) Mobile	FIXED FIXED-SATELLITE (S/E)	Fixed links Earth stations	ERC/REC 12-08 for fixed service
4200-4400	AERONAUTICAL RADIONAVIGATION 5.438 5.440	AERONAUTICAL RADIONAVIGATION 5.438 5.440	Radio altimeter	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
4400-4500 MHz	FIXED MOBILE 5.4B01	FIXED MOBILE 5.4B01 LBN1		Defense for fixed and mobile service
4500-4700 MHz	FIXED FIXED-SATELLITE (S/E) 5.441 MOBILE	FIXED FIXED-SATELLITE (S/E) 5.441 MOBILE	ENG/OB SAB FIXED LINKS	Coordinated ENG/OB links for occasional use. Telecommunications satellites to coordinated Earth stations. Fixed satellite frequency plan in 4500-4800 MHz.
4700-4800		FIXED FIXED-SATELLITE (S/E) 5.441 MOBILE 5.4B01 LBN1		Defense for fixed and mobile service
4800-4990	FIXED MOBILE 5.442 5.4B01 Radio astronomy 5.149 5.339	FIXED MOBILE except aeronautical mobile Radio astronomy 5.149 5.339	ENG/OB SAB FIXED LINKS	Coordinated ENG/OB links for occasional use. RA continuum measurements.
4990-5000	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	ENG/OB SAB FIXED LINKS	Coordinated ENG/OB links for occasional use.
5000-5010 MHz	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (S/E) 5.367	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (E/S) Radio astronomy Space research (passive) 5.367	Satellite Navigation	VLBI observations

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
5010-5030	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (S/E)(S/S) 5.328B 5.443B 5.367	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (E/S) 5.328B 5.443B Radio astronomy Space research (passive) 5.367		
5030-5091 MHz	AERONAUTICAL RADIONAVIGATION 5.367 5.444	AERONAUTICAL RADIONAVIGATION 5.367 5.444	MLS	
5091-5150 MHz	AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE 5.4B03 5.367 5.444 5.444A	AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE 5.4B03 5.367 5.444 5.444A	MLS	
5150-5216	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (E/S) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B 5.446 5.447 5.477B 5.447C 5.4B04	MOBILE except aeronautical mobile 5.446A 5.446B FIXED-SATELLITE (E/S) 5.447A RADIODETERMINATION SATELLITE (S/E) 5.446 5.447 5.477B 5.447C	Wireless access systems RLAN	ERC REC 70-03
5216-5250		MOBILE except aeronautical mobile 5.446A 5.446B FIXED-SATELLITE (E/S) 5.447A 5.447 5.447B 5.447C		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
5250-5255 MHz	EARTH EXPLORATION – SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F 5.448 5.448A	EARTH EXPLORATION – SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F 5.448 5.448A LBN1	Defense systems Wireless Access/RLANs Shipborne and VTS Radar	ERC REC 70-03
5255-5350 MHz	EARTH EXPLORATION – SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.448 5.448A	EARTH EXPLORATION – SATELLITE (active) RADIOLOCATION SPACE RESEARCH MOBILE except aeronautical mobile 5.446A 5.447F 5.448A LBN1	Defense systems Wireless Access/RLANs Shipborne and VTS Radar	ERC REC 70-03
5350-5460 MHz	EARTH EXPLORATION – SATELLITE (active) 5.448B AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D SPACE RESEARCH 5.448C	EARTH EXPLORATION – SATELLITE (active) 5.448B AERONAUTICAL RADIONAVIGATION 5.449 Fixed RADIOLOCATION 5.448D LBN1	Defense systems Shipborne and VTS Radar	
5460-5470 MHz	RADIONAVIGATION 5.449 RADIOLOCATION 5.448D EARTH EXPLORATION SATELLITE (active) SPACE-RESEARCH (active) 5.448B	RADIONAVIGATION 5.449 RADIOLOCATION EARTH EXPLORATION SATELLITE (active) SPACE-RESEARCH (active) 5.448B LBN1	Defense systems Shipborne and VTS Radar	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
5470-5570	MARITIME RADIONAVIGATION EARTH EXPLORATION SATELLITE MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B SPACE RESEARCH (active) 5.448B 5.450 5.451 5.452	MARITIME RADIONAVIGATION EARTH EXPLORATION SATELLITE MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B SPACE RESEARCH (active) 5.448B 5.452 LBN1	Defense systems Wireless Access RLANs Shipborne and VTS Radar	
5570-5650 MHz	MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.450 5.451 5.452	MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.452 LBN1	Defense systems Wireless Access RLANs Shipborne and VTS Radar	
5650-5725 MHz	RADIOLOCATION MOBILE except aeronautical mobile 5.450A 5.446A Amateur Space Research (deep space) 5.282 5.451 5.453 5.454 5.455	FIXED 5.453 MOBILE RADIOLOCATION Amateur 5.282 LBN1	Defense systems Wireless Access RLANs Shipborne and VTS Radar Amateur applications	ERC REC 70-03 Amateur Satellite Service (Earth to space), 5650-5670 MHz from RR 5.282.
5725-5830 MHz	FIXED-SATELLITE (E/S) RADIOLOCATION Amateur 5.150 5.451 5.455 5.456 5.453	FIXED 5.453 MOBILE FIXED-SATELLITE (E/S) RADIOLOCATION Amateur 5.150 LBN1	Amateur applications SRD ISM Radars BFWA	ERC REC 70-03 ISM 5725-5875 MHz RTTT 5805-5815 MHz SRDs 5725-5875 MHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
5830-5850	FIXED-SATELLITE (E/S) RADIOLOCATION Amateur Amateur-Satellite (S/E) 5.150 5.451 5.455 5.456 5.453	FIXED MOBILE FIXED-SATELLITE (E/S) RADIOLOCATION Amateur Amateur-Satellite (S/E) 5.150 5.453	Fixed links Amateur applications SRD ISM Radars	Amateur Satellite 5830-5850 MHz (S/E)
5850-5925	FIXED FIXED-SATELLITE (E/S) MOBILE 5.150	FIXED FIXED-SATELLITE (E/S) MOBILE 5.150	Fixed links Earth stations SRD ISM ITS	ISM to 5875 MHz
5925-6425	FIXED FIXED-SATELLITE (E/S) 5.457A 5.457B MOBILE 5.149 5.440 5.458	FIXED LBN 15 bis FIXED-SATELLITE (E/S) 5.457A	Fixed links Earth stations	
6425-6700 MHz		FIXED FIXED-SATELLITE (E/S) 5.457A Earth Exploration-satellite (passive) 5.149 5.440 5.458	Fixed links Earth stations	ERC REC 14-02 for fixed service
6700-7075 MHz	FIXED FIXED-SATELLITE (E/S)(S/E) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C	FIXED FIXED-SATELLITE (E/S) 5.441 Earth Exploration-satellite (passive) 5.458 5.458A 5.458B 5.458C	Fixed links Earth stations	ERC REC 14-02 for fixed service
7075-7145 MHz	FIXED MOBILE 5.458 5.459	FIXED Earth Exploration-satellite (passive) 5.458	Fixed links	ERC REC 14-02 for fixed service ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.385-9(2007) For FWS 7110-7900 MHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
7145-7235	FIXED MOBILE SPACE RESEARCH (E/S) 5.460 5.458 5.459	FIXED MOBILE SPACE RESEARCH (E/S) 5.460 Earth Exploration-satellite (E/S) Space Operation (E/S) 5.458	Fixed links	ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.385-9(2007) For FWS 7110-7900 MHz
7235-7250	FIXED MOBILE 5.458	FIXED Earth Exploration-satellite (E/S) Space Operation (E/S) Space Research (E/S)	Fixed links	ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.385-9(2007) For FWS 7110-7900 MHz
7250-7300	FIXED FIXED-SATELLITE(S/E) MOBILE 5.461	FIXED FIXED-SATELLITE (S/E) MOBILE 5.461	Fixed links	ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.385-9(2007) For FWS 7110-7900 MHz
7300-7450 MHz	FIXED FIXED-SATELLITE (S/E) MOBILE except aeronautical mobile 5.461	FIXED FIXED-SATELLITE (S/E) MOBILE except aeronautical mobile 5.461	Fixed links	ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.385-9(2007) For FWS 7110-7900 MHz
7450-7550 MHz	FIXED FIXED-SATELLITE (S/E) METEOROGICAL-SATELLITE (S/E) MOBILE except aeronautical mobile 5.461A	FIXED LBN 15bis FIXED-SATELLITE (S/E) METEOROGICAL-SATELLITE (S/E) MOBILE except aeronautical mobile 5.461A	Fixed links	ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.385-9(2007) For FWS 7110-7900 MHz Meteorological satellites limited to geostationary systems.
7550-7750 MHz	FIXED FIXED-SATELLITE (S/E) MOBILE except aeronautical mobile	FIXED LBN 15bis FIXED-SATELLITE (S/E) MOBILE except aeronautical mobile	Fixed links	ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.386-8 For FWS 7110-7900 MHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
7750-7850	FIXED METEOROGICAL-SATELLITE (S/E) 5.461B MOBILE except aeronautical mobile	FIXED METEOROGICAL-SATELLITE (S/E) 5.461B MOBILE except aeronautical mobile	Fixed links	ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.386-8 For FWS 7110-7900 MHz
7850-7900	FIXED MOBILE except aeronautical mobile	FIXED MOBILE except aeronautical mobile		ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.386-8 For FWS 7110-7900 MHz
7900-8025	FIXED FIXED-SATELLITE (E/S) MOBILE 5.461	FIXED FIXED-SATELLITE (E/S) MOBILE 5.461	Fixed links	ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.386-8
8025-8175 MHz	EARTH-EXPLORATION SATELLITE (S/E) FIXED FIXED-SATELLITE (E/S) MOBILE 5.463 5.462A	EARTH-EXPLORATION SATELLITE (S/E) FIXED FIXED-SATELLITE (E/S) MOBILE 5.463 5.462A	Fixed links	ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.386-8
8175-8215 MHz	EARTH-EXPLORATION SATELLITE (S/E) FIXED FIXED-SATELLITE (E/S) METEOROGICAL-SATELLITE (E/S) MOBILE 5.463 5.462A	EARTH-EXPLORATION SATELLITE (S/E) FIXED FIXED-SATELLITE (E/S) METEOROGICAL-SATELLITE (E/S) MOBILE 5.463 5.462A	Fixed links	ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.386-8

Frequency Band (kHz MHz or GHz)	**International Region 1 Allocation**	**National Allocation**	**Main application**	**Notes**
8215-8400 MHz	FIXED FIXED-SATELLITE (E/S) MOBILE 5.463 EARTH-EXPLORATION SATELLITE (S/E) 5.462A	FIXED FIXED-SATELLITE (E/S) EARTH-EXPLORATION SATELLITE (S/E) 5.462A	Fixed links	ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.386-8 VLBI observations
8400-8500	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (S/E) 5.465	FIXED SPACE RESEARCH (S/E) 5.465 Radiolocation	Fixed links	ERC REC 02-06 for digital fixed service 7125-8500 MHz ITU-R F.386-8
8500-8550	RADIOLOCATION 5.468 5.469	RADIOLOCATION FIXED 5.468 MOBILE 5.469		
8550-8650	EARTH-EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.468 5.469 5.469A	RADIOLOCATION SPACE RESEARCH (active) EARTH-EXPLORATION SATELLITE (active) FIXED 5.468 MOBILE 5.469 5.469A		
8650-8750 MHz	RADIOLOCATION 5.468 5.469	RADIOLOCATION FIXED 5.468 MOBILE		
8750-8850 MHz	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470 5.471	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470 Space Research		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
8850-9000 MHz	RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473	RADIOLOCATION MARITIME RADIONAVIGATION 5.472 Space Research 5.473		
9000-9200	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.471 5.475A	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.475A Space Research	Aeronautical primary radars	
9200-9300	RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473 5.474	RADIOLOCATION MARITIME RADIONAVIGATION 5.472 Space Research 5.473 5.474	Motion sensors Maritime primary radars	ERC REC 70-03
9300-9500 MHz	RADIONAVIGATION 5.476 EARTH EXPLORATION – SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.427 5.474 5.475 5.475B 5.476A 5.4B07	RADIONAVIGATION 5.476 EARTH EXPLORATION – SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.427 5.474 5.475 5.475B 5.476A 5.4B07	Aeronautical primary radars Motion sensors Maritime primary radars	ERC REC 70-03
9500-9800 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A	RADIOLOCATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) 5.476A LBN1	Motion sensors	ERC REC 70-03

Frequency Band (kHz MHz or GHz)	**International Region 1 Allocation**	**National Allocation**	**Main application**	**Notes**
9800-9900	RADIOLOCATION Earth exploration-satellite (active) Space research (active) Fixed 5.477 5.478 5.xyz 5.xyy	RADIOLOCATION Earth exploration-satellite (active) Space research (active) FIXED 5.477 5.478 5.xyz 5.xyy	Motion sensors	
9900-10000	RADIOLOCATION Fixed 5.477 5.478 5.479	RADIOLOCATION FIXED 5.477 Space Research 5.479 LBN1	Motion sensors	ERC REC 70-03
10.00-10.15 GHz	FIXED MOBILE RADIOLOCATION	FIXED MOBILE RADIOLOCATION	Fixed links SAB	
10.15-10.30 GHz	Amateur 5.479	Amateur 5.479	Fixed links FWA	ERC REC 12-05 for fixed service ERC REC 13-04 for FWA 10.15-10.30/10.5-10.65 GHz
10.30-10.45			Fixed links SAB	
10.45-10.50	RADIOLOCATION Amateur Amateur Satellite 5.481	FIXED RADIOLOCATION MOBILE Amateur Amateur Satellite	Fixed links SAB	ERC REC 12-05 for fixed service
10.50-10.55 GHz	FIXED MOBILE Radiolocation	FIXED MOBILE Radiolocation	Fixed links SAB FWA	ERC REC 12-05 for fixed service ERC REC 13-04 for FWA 10.15-10.30/10.5-10.65 GHz
10.55-10.60	FIXED MOBILE except aeronautical mobile Radiolocation	FIXED MOBILE except aeronautical mobile Radiolocation	Fixed links SAB FWA	ERC REC 12-05 for fixed service ERC REC 13-04 for FWA

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
10.60-10.68	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482	Fixed links SAB FWA	ERC REC 12-05 for fixed service ERC REC 13-04 for FWA Sharing between EESS and FS, see Res. COM5/5 (WRC07)
10.68-10.70	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.483	FIXED 5.483 MOBILE except aeronautical mobile EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 LBN 16	Fixed links	
10.70-11.70 GHz	FIXED FIXED-SATELLITE (S/E)(E/S) 5.441 5.484 5.484A MOBILE except aeronautical mobile	FIXED LBN 15 bis FIXED-SATELLITE (S/E) 5.441 5.484 Land Mobile-Satellite (S/E) Mobile except aeronautical mobile LBN 17	Fixed links	ERC REC 12-06 for fixed service
11.70-12.50 GHz	FIXED BROADCASTING BROADCASTING-SATELLITE MOBILE except aeronautical mobile 5.487 5.487A 5.492	FIXED BROADCASTING-SATELLITE MOBILE except aeronautical mobile 5.487 5.487A 5.492	MVDS	Appendix 30 Satellite Broadcasting
12.50-12.75	FIXED-SATELLITE (E/S) (S/E) 5.484A 5.495 5.496 5.494	FIXED-SATELLITE (S/E) 5.484A FIXED 5.494 MOBILE except aeronautical mobile 5.495 LBN 18	VSAT Digital SNG Fixed links	Priority for civil networks. Low density carriers, including VSATs and digital SNG are encouraged to use this band.

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
12.75-13.25 GHz	FIXED FIXED-SATELLITE (E/S) 5.441 Space research (deep space) (S/E)	FIXED FIXED-SATELLITE (E/S) 5.441	VSAT	ERC REC 12-02 for fixed service
13.25-13.40	EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A	AERONAUTICAL RADIONAVIGATION 5.497 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) 5.498A	Doppler Navigation aids Ship berthing radars	Doppler navigation aids
13.40-13.75 GHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard Frequency and time Signal Satellite (E/S) 5.499 5.500 5.501 5.501B	FIXED 5.500 MOBILE EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A 5.501B	Doppler Navigation aids Ship berthing radars Motion sensors Fixed links	ERC REC 70-03
13.75-14.00 GHz	FIXED-SATELLITE (E/S) 5.484A RADIOLOCATION Standard Frequency and time Signal Satellite (E/S) Earth exploration satellite Space research 5.500 5.501 5.502 5.503	FIXED 5.500 MOBILE RADIOLOCATION FIXED-SATELLITE (E/S) 5.484A Space research Earth exploration satellite 5.502 5.503 5.505	Ship berthing radars Motion sensors Fixed links Earth stations Radars	ERC REC 70-03
14-14.25	FIXED-SATELLITE (E/S) 5.484A 5.506 5.457A 5.506B 5.457B RADIONAVIGATION 5.504 Mobile-satellite (E/S) 5.506A 5.504C Space research 5.505 5.504A	FIXED MOBILE FIXED-SATELLITE (E/S) 5.484A 5.457A 5.506 Mobile-satellite (E/S) 5.506A 5.504C Space research 5.505 5.504A LBN 18	Fixed links VSAT SNG	Low density carriers, including VSATs and digital SNG, are encouraged to use this band.

Frequency Band (kHz MHz or GHz)	**International Region 1 Allocation**	**National Allocation**	**Main application**	**Notes**
14.25-14.30 GHz	FIXED-SATELLITE (E/S) 5.484A 5.506 5.457A 5.506B 5.457B RADIONAVIGATION 5.504 Mobile-satellite (E/S) 5.506A 5.508A Space research 5.504A 5.508 5.505	FIXED MOBILE FIXED-SATELLITE (E/S) 5.484A 5.457A 5.506 Mobile-satellite (E/S) 5.506A 5.508A Space Research 5.504A 5.508 5.505	Fixed links	Fixed links to be coordinated with fixed satellite service on a national basis.
14.30-14.40 GHz	FIXED FIXED-SATELLITE (E/S) 5.484A 5.506 5.457A 5.506B 5.457B MOBILE except aeronautical mobile Mobile-satellite (E/S) 5.506A 5.509A Radionavigation-Satellite 5.504A	FIXED FIXED-SATELLITE (E/S) 5.484A 5.506 5.457A Mobile-satellite (E/S) 5.506A 5.509A 5.504A	Fixed links	Fixed links to be coordinated with fixed satellite service on a national basis.
14.40-14.47 GHz	FIXED FIXED-SATELLITE (E/S) 5.484A 5.506 5.457A 5.506B 5.457B MOBILE except aeronautical mobile Mobile-satellite (E/S) 5.506A 5.509A Space research (S/E) 5.504A	FIXED FIXED-SATELLITE (E/S) 5.484A 5.506 5.457A Mobile-satellite (E/S) 5.506A 5.509A Radio astronomy 5.504A	Fixed links	Fixed links to be coordinated with fixed satellite service on a national basis. ITU-RF 636-3 for the fixed service
14.47-14.50	FIXED FIXED-SATELLITE (E/S) 5.484A 5.506 5.457A 5.506B 5.457B MOBILE except aeronautical mobile Mobile-satellite (E/S) 5.457A 5.504B 5.509A Radio astronomy 5.149 5.504A	FIXED FIXED-SATELLITE (E/S) 5.484A 5.506 5.457A Mobile-satellite (E/S) 5.457A 5.504B 5.509A Radio astronomy 5.149 5.504A	Fixed links	Fixed links to be coordinated with fixed satellite service on a national basis. ITU-RF 636-3 for the fixed service RA spectral line observations and future VLBI.

Frequency Band (kHz MHz or GHz)	**International Region 1 Allocation**	**National Allocation**	**Main application**	**Notes**
14.50-14.80 GHz	FIXED FIXED-SATELLITE (E/S) 5.510 MOBILE Space research	FIXED LBN 15bis MOBILE Radio Astronomy	Fixed links	ITU-RF 636-3 for the fixed service ERC/REC/12-07 for digital terrestrial fixed systems 14.5-15.35 GHz VLBI observations
14.80-15.35	FIXED MOBILE Space Research 5.339	FIXED LBN 15bis MOBILE Radio Astronomy 5.339	Fixed links	VLBI observations ITU-RF 636-3 for the fixed service ERC/REC/12-07 for digital terrestrial fixed systems 14.5-15.35 GHz
15.35-15.40	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.511	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile 5.340 5.511	Passive applications	RA continuum measurements and future VLBI.
15.40-15.43 GHz	AERONAUTICAL RADIONAVIGATION 5.511D	AERONAUTICAL RADIONAVIGATION 5.511D	Doppler radar low power sensing Ground movement radars	
15.43-15.63 GHz	FIXED-SATELLITE (S/E) (E/S) 5.511A AERONAUTICAL RADIONAVIGATION 5.511C	FIXED-SATELLITE (S/E) (E/S) 5.511A AERONAUTICAL RADIONAVIGATION 5.511C	Doppler radar low power sensing Ground movement radars	
15.63-15.70	AERONAUTICAL RADIONAVIGATION 5.511D	AERONAUTICAL RADIONAVIGATION 5.511D	Doppler radar low power sensing Ground movement radars	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
15.70-16.60	RADIOLOCATION 5.512	FIXED 5.512 MOBILE Radiolocation		
16.60-17.10	RADIOLOCATION Space Research (deep space) (E/S) 5.512	FIXED 5.512 MOBILE Radiolocation Space Research (E/S)		
17.10-17.20 GHz	RADIOLOCATION 5.512	FIXED 5.512 MOBILE Radiolocation	Fixed links Wireless access RLANs	ERC REC 70-03
17.20-17.30	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513A	FIXED 5.512 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) MOBILE Radiolocation 5.513A	Fixed links Wireless access RLANs	ERC REC 70-03 Fixed and Mobile allocations have priority over space services.
17.30-17.70	FIXED-SATELLITE (E/S) 5.516 (S/E) 5.516A 5.516B Radiolocation 5.514	FIXED-SATELLITE (E/S) 5.516 (S/E) 5.516A 5.516B FIXED LBN 19 Radiolocation	PMP	Feeder links for Appendix 30 plan 11.7-12.5 GHz
17.70-18.10 GHz	FIXED FIXED-SATELLITE (E/S) 5.516 (S/E) 5.484A MOBILE	FIXED LBN 15bis FIXED-SATELLITE (E/S) 5.516 (S/E) 5.484A	Fixed links	ERC REC 12-03 for digital terrestrial fixed systems 17.7-19.7 GHz ITU-R F.595-9 (2006) for FWS 17.7-19.7 GHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
18.10-18.30 GHz	FIXED FIXED-SATELLITE (E/S) 5.520 (S/E) 5.484A MOBILE 5.519 5.521	FIXED LBN 15bis FIXED-SATELLITE (E/S) 5.520 (S/E) 5.484A METEOROGICAL-SATELLITE (S/E) 5.519	Fixed links	ERC REC 12-03 for digital terrestrial fixed systems 17.7-19.7 GHz ITU-R F.595-9 (2006) for FWS 17.7-19.7 GHz
18.30-18.40		FIXED FIXED-SATELLITE (E/S) 5.520 (S/E) 5.484A	Fixed links	ERC REC 12-03 for digital terrestrial fixed systems 17.7-19.7 GHz ITU-R F.595-9 (2006) for FWS 17.7-19.7 GHz
18.40-18.60	FIXED FIXED-SATELLITE (S/E) 5.484A 5.520 MOBILE	FIXED LBN 15bis FIXED-SATELLITE (S/E) 5.484A	Fixed links	ERC REC 12-03 for digital terrestrial fixed systems 17.7-19.7 GHz ITU-R F.595-9 (2006) for FWS 17.7-19.7 GHz
18.60-18.80 GHz	EARTH EXPLORATION SATELLITE FIXED FIXED-SATELLITE (S/E) 5.522B MOBILE except aeronautical mobile Space Research (passive) 5.522A 5.522C	EARTH EXPLORATION SATELLITE FIXED LBN 15bis FIXED-SATELLITE (S/E) 5.522B 5.522A	Fixed links	ERC REC 12-03 for digital terrestrial fixed systems 17.7-19.7 GHz ITU-R F.595-9 (2006) for FWS 17.7-19.7 GHz
18.80-19.30	FIXED FIXED-SATELLITE (S/E) 5.516B 5.523A MOBILE	FIXED LBN 15bis FIXED-SATELLITE (S/E) 5.523A	Fixed links	ERC REC 12-03 for digital terrestrial fixed systems 17.7-19.7 GHz ITU-R F.595-9 (2006) for FWS 17.7-19.7 GHz
19.30-19.70	FIXED FIXED-SATELLITE (S/E)(E/S) 5.523B 5.523C 5.523D 5.523E MOBILE	FIXED FIXED-SATELLITE (S/E) 5.523B 5.523C 5.523D 5.523E	Fixed links	ERC REC 12-03 for digital terrestrial fixed systems 17.7-19.7 GHz ITU-R F.595-9 (2006) for FWS 17.7-19.7 GHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
19.70-20.10 GHz	FIXED-SATELLITE (S/E) 5.584A 5.516B Mobile satellite (S/E) 5.524 5.525	FIXED-SATELLITE (S/E) 5.484A 5.516B FIXED 5.524 MOBILE Mobile satellite (S/E) 5.525 LBN 18	VSAT	
20.10-20.20 GHz	FIXED-SATELLITE (S/E) 5.484A 5.516B MOBILE-SATELLITE (S/E) 5.525 5.526 5.527 5.528	FIXED-SATELLITE (S/E) 5.484A 5.516B MOBILE-SATELLITE (S/E) FIXED 5.524 MOBILE 5.525 5.526 5.527 5.528 LBN 18	VSAT	
20.20-21.20	FIXED-SATELLITE (S/E) MOBILE-SATELLITE (S/E) Standard Frequency and time Signal Satellite (S/E)	FIXED-SATELLITE (S/E) MOBILE-SATELLITE (S/E) FIXED 5.524 MOBILE LBN 18	VSAT	
21.20-21.40 GHz	EARTH EXPLORATION SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	EARTH EXPLORATION SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	Fixed links SAB	Passive systems will be phased out by 2015
21.40-22.00	FIXED MOBILE BROADCASTING SATELLITE 5.347A 5.530	BROADCASTING SATELLITE 5.530		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
22.00-22.21 GHz	FIXED MOBILE except aeronautical mobile 5.149	FIXED LBN 15bis MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149	Fixed links SAB	ERC REC T/R 13-02 for fixed service 22-22.6/23-23.6 GHz
22.21-22.50 GHz	EARTH EXPLORATION SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532	FIXED LBN 15bis MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Earth exploration satellite (passive) 5.149 5.532	Fixed links SAB	RA spectral line observations (water line and red shifted water line below 22.5 GHz). ERC REC T/R 13-02 for fixed service 22-22.6/23-23.6 GHz
22.50-22.55	FIXED MOBILE	FIXED LBN 15bis MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive)	Fixed links SAB	ERC REC T/R 13-02 for fixed service 22-22.6/23-23.6 GHz
22.55-22.60	FIXED INTER-SATELLITE MOBILE 5.149	FIXED LBN 15bis MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149	Fixed links SAB	ERC REC T/R 13-02 for fixed service 22-22.6/23-23.6 GHz
22.60-23.00		FIXED LBN 15bis MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149	Fixed links SAB	RA spectral line observations (Methyl Formate and Ammonia lines 22.81 – 22.86 GHz). ERC REC T/R 13-02 for fixed service

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
23.00-23.55		FIXED LBN 15bis INTER-SATELLITE MOBILE 5.149	Fixed links SAB	ERC REC T/R 13-02 for fixed service 22-22.6/23-23.6 GHz Spectral line observations
23.55-23.60 GHz	FIXED MOBILE	FIXED INTER-SATELLITE MOBILE	Fixed links SAB	ERC REC T/R 13-02 for fixed service 22-22.6/23-23.6 GHz
23.60-24.00 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive applications	Continuum observations. Ammonia line. Water vapour measurements
24.00-24.05	AMATEUR AMATEUR-SATELLITE 5.150	AMATEUR AMATEUR-SATELLITE 5.150	Amateur	ISM 24-24.5 GHz
24.05-24.25	RADIOLOCATION Amateur Earth exploration Satellite (active) 5.150	RADIOLOCATION Amateur Earth exploration Satellite (active) Fixed Mobile 5.150	Amateur ISM SAB SRD Motion sensors	ERC REC 70-03 ISM 24-24.5 GHz
24.25-24.45 GHZ	FIXED	FIXED MOBILE	SAB Unidirectional fixed links	
24.45-24.50	FIXED INTER-SATELLITE	FIXED MOBILE	SAB Unidirectional fixed links	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
24.50-24.65		FIXED	Fixed links FWA	ERC REC 13-02 for fixed service ERC REC 13-04 for FWA 24.5-26.5 GHz CRS paired with 25.5-26.5 GHz for FDD systems
24.65-24.75 GHz	FIXED INTER-SATELLITE	FIXED	Fixed links FWA	ERC REC 13-02 for fixed service ERC REC 13-04 for FWA 24.5-26.5 GHz CRS paired with 25.5-26.5 GHz for FDD systems
24.75-25.25 GHz	FIXED	FIXED LBN 15bis	Fixed links FWA	ERC REC 13-02 for fixed service ERC REC 13-04 for FWA 24.5-26.5 GHz CRS paired with 25.5-26.5 GHz for FDD systems
25.25-25.50	FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and Time Signal Satellite (E/S)	FIXED MOBILE INTER-SATELLITE 5.536	Fixed links FWA	ERC REC 13-02 for fixed service ERC REC 13-04 for FWA 24.5-26.5 GHz CRS paired with 25.5-26.5 GHz for FDD systems
25.50-27	EARTH EXPLORATION SATELLITE (S/E) 5.536A 5.536B FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH 5.536A 5.536C Standard frequency and Time Signal Satellite (E/S)	FIXED LBN 15bis INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH 5.536A Earth exploration satellite (S/E) 5.536A 5.536B	Fixed links FWA	ERC REC 13-02 for fixed service TS paired with 24.5-25.5 GHz for FDD systems 26.5-27 Paired with 27-27.5 GHz ERC REC 13-04 for FWA 24.5-26.5 GHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
27.00-27.50 GHz	FIXED INTER-SATELLITE 5.536 MOBILE	FIXED INTER-SATELLITE 5.536 MOBILE Earth exploration satellite (S/E)	Fixed links	Paired with 26.5-27 GHz
27.50-28.50 GHz	FIXED 5.537A FIXED-SATELLITE (E/S) 5.484A 5.539 5.516B MOBILE 5.538 5.540	FIXED FIXED-SATELLITE (E/S)(S/E) 5.484A 5.539 5.516B 5.538 5.540	VSAT FWA Fixed links	Feeder Links to Broadcasting Satellites (11.7-12.5 GHz) 27.5-29.5 GHz. Fixed Links 28.0525-28.4445 GHz, ERC REC T/R 13-02 applies Earth- to- Space for uncoordinated earth stations 27.5-27.8285GHz and 28.4445-28.5GHz ERC REC 13-04 for FWA 27.5-29.5 GHz CRS paired with 28.5-29.5 GHz for FDD systems;
28.50-29.10	FIXED FIXED-SATELLITE (E/S) 5.484A 5.523A 5.539 5.516B MOBILE Earth exploration satellite (E/S) 5.541 5.540	FIXED FIXED-SATELLITE (E/S) 5.484A 5.523A 5.539 5.516B Earth exploration satellite (E/S) 5.541 5.540	VSAT FWA Fixed links	Feeder Links to Broadcasting Satellites (11.7-12.5 GHz) 27.5-29.5 GHz. ERC REC 13-02 for Fixed service, Uncoordinated earth stations within band 28-28.8365 GHz ERC REC 13-04 for FWA 27.5-29.5 GHz TS paired with 27.5-28.1 GHz for FDD systems;

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
29.10-29.50 GHz	FIXED FIXED-SATELLITE (E/S) 5.523C 5.523E 5.535A 5.539 5.541A 5.516B MOBILE Earth exploration satellite (E/S) 5.540 5.541	FIXED FIXED-SATELLITE (E/S) 5.523C 5.523E 5.535A 5.539 5.541A 5.516B Earth exploration satellite (E/S) 5.540 5.541	VSAT FWA Fixed links	Feeder Links to Broadcasting Satellites (11.7-12.5 GHz) 27.5-29.5 GHz. Fixed Links 29.1-29.4525 GHz ERC REC 13-02 applies sub band starts at 29.0605 GHz ERC REC 13-04 for FWA 27.5-29.5 GHz Uncoordinated earth stations within band 29.4525-29.5 GHz TS paired with 28.1-28.5 GHz for FDD systems;
29.50-29.90 GHz	FIXED-SATELLITE (E/S) 5.484A 5.539 5.516B Earth exploration satellite (E/S) 5.541 Mobile-Satellite (E/S) 5.540	FIXED-SATELLITE (E/S) 5.484A 5.539 5.516B Earth exploration satellite (E/S) 5.541 Mobile-Satellite (E/S) 5.540 LBN 18	VSAT	Uncoordinated earth stations
29.90-30.00 GHz	FIXED-SATELLITE (E/S) 5.484A 5.539 5.516B MOBILE-SATELLITE (E/S) Earth exploration satellite (E/S) 5.541 5.525 5.526 5.527 5.538 5.540 5.542 5.543	FIXED-SATELLITE (E/S) (S/E) 5.484A 5.539 5.516B MOBILE-SATELLITE (E/S) Earth exploration satellite (E/S) 5.541 5.525 5.526 5.527 5.538 5.540 5.542 5.543 LBN 24	VSAT	Uncoordinated earth stations
30.00-31.00	FIXED-SATELLITE (E/S) 5.BA03 MOBILE-SATELLITE (E/S) Standard Frequency and Time Signal Satellite (S/E)	FIXED-SATELLITE (E/S) (space to Earth) MOBILE-SATELLITE (E/S) LBN 18	VSAT	Uncoordinated earth stations

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
31.00-31.30	FIXED 5.BA03 MOBILE Standard Frequency and Time Signal Satellite (S/E) Space Research 5.544 5.545 5.149	FIXED 5.BA03 MOBILE 5.149	Fixed links	Fixed includes point to multipoint applications. RA continuum measurements
31.30-31.50 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive band	
31.50-31.80 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical Mobile 5.149 5.546	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) FIXED MOBILE except aeronautical Mobile 5.149 5.546	Fixed links	Fixed includes point to multipoint applications. RA continuum measurements
31.80-32.00 GHz	FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space)(S/E) 5.547 5.548	FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (S/E) 5.547 5.548	Fixed links	ERC /REC 01-02 for Fixed service 31.8-33.4 GHz ITU-R F.1520-2 for fixed service 31.8-33.4 GHz
32.00-32.30	FIXED 5.547A INTER-SATELLITE RADIONAVIGATION SPACE RESEARCH (deep space)(S/E) 5.547 5.548	FIXED 5.547A RADIONAVIGATION INTER-SATELLITE SPACE RESEARCH (S/E) 5.547 5.548	Fixed links	ERC/ REC 01-02 for Fixed service 31.8-33.4 GHz ITU-R F.1520-2 for fixed service 31.8-33.4 GHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
32.30-33.00	FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.548	FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.548	Fixed links	ERC/ REC 01-02 for Fixed service 31.8-33.4 GHz ITU-R F.1520-2 for fixed service 31.8-33.4 GHz
33.00-33.40	FIXED 5.547A RADIONAVIGATION 5.547	FIXED 5.547A RADIONAVIGATION INTER-SATELLITE 5.547	Fixed links	ERC/ REC 01-02 for Fixed service 31.8-33.4 GHz ITU-R F.1520-2 for fixed service 31.8-33.4 GHz
33.40-34.20	RADIOLOCATION 5.549	RADIOLOCATION FIXED MOBILE 5.549		
34.20-34.70 GHz	RADIOLOCATION SPACE RESEARCH (deep space)(E/S) 5.549	RADIOLOCATION SPACE RESEARCH (E/S) FIXED MOBILE 5.549		
34.70-35.20 GHz	RADIOLOCATION Space Research 5.550 5.549	RADIOLOCATION FIXED MOBILE Space Research 5.549		
35.20-35.50 GHz	METEOROLOGICAL AIDS RADIOLOCATION 5.549	METEOROLOGICAL AIDS RADIOLOCATION FIXED MOBILE 5.549		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
35.50-36.00	METEOROLOGICAL AIDS EARTH EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A	METEOROLOGICAL AIDS EARTH EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) FIXED MOBILE 5.549 5.549A 5.551A		
36-37	EARTH EXPLORATION SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.BA02	EARTH EXPLORATION SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) Radio Astronomy 5.149 5.BA02	Radio astronomy applications	Hydrogen cyanide and Hydroxyl lines 36.43-36.5 GHz Sharing between EESS and FS see Res. COM5/6 (WRC07)
37-37.50 GHz	FIXED MOBILE SPACE RESEARCH (S/E) 5.547	FIXED LBN 15bis SPACE RESEARCH (S/E) 5.547	Fixed links	ERC REC T/R 12-01 for analogue and digital terrestrial fixed systems 37-39.5 GHz The sub bands 37-37.142 GHz paired with 38.22-38.402 GHz subject to national decisions.
37.50-38 GHz	FIXED FIXED-SATELLITE (S/E) MOBILE SPACE RESEARCH (S/E) Earth exploration satellite (S/E) 5.547	FIXED FIXED-SATELLITE (S/E) SPACE RESEARCH (S/E) Earth exploration satellite (S/E) 5.547	Fixed links	ERC REC T/R 12-01 for analogue and digital terrestrial fixed systems 37-39.5 GHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
38-39.50 GHz	FIXED FIXED-SATELLITE (S/E) MOBILE Earth exploration satellite (S/E) 5.547	FIXED LBN 15bis FIXED-SATELLITE (S/E) Earth exploration satellite (S/E) 5.547	Fixed links	ERC REC T/R 12-01 for analogue and digital terrestrial fixed systems 37-39.5 GHz The sub bands 37-37.142 GHz paired with 38.22-38.402 GHz subject to national decisions.
39.5-40	FIXED FIXED-SATELLITE (S/E) 5.516B MOBILE MOBILE SATELLITE (S/E) Earth Exploration Satellite (S/E) 5.547	FIXED FIXED-SATELLITE (S/E) 5.516B MOBILE MOBILE SATELLITE (S/E) Earth Exploration Satellite (S/E) 5.547	Fixed Satellite Service applications	
40-40.5 GHz	EARTH EXPLORATION SATELLITE (E/S) FIXED FIXED SATELLITE (S/E) 5.516B MOBILE MOBILE-SATELLITE (S/E) SPACE RESEARCH (E/S) Earth exploration Satellite (S/E)	FIXED FIXED SATELLITE (S/E) 5.516B MOBILE MOBILE-SATELLITE (S/E) SPACE RESEARCH (E/S) Earth exploration Satellite (S/E)	Fixed Satellite Service applications	
40.50-41.00	FIXED FIXED-SATELLITE (S/E) BROADCASTING BROADCASTING SATELLITE Mobile 5.547	BROADCASTING BROADCASTING SATELLITE FIXED 5.547	Fixed Satellite Service applications Multimedia Wireless Systems MWS	ECC/REC/(01)04 for MWS 40.5-43.5 GHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
41.00-42.50 GHz	FIXED FIXED-SATELLITE (S/E) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551H 5.551I	FIXED BROADCASTING BROADCASTING-SATELLITE 5.547 5.551H 5.551I	Fixed Satellite Service applications Multimedia Wireless Systems MWS	ECC/REC/(01)04 for MWS 40.5-43.5 GHz
42.50-43.50	FIXED FIXED SATELLITE (E/S) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.547 5.551H 5.551I	FIXED FIXED SATELLITE (E/S) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.547 5.551H 5.551I	Radio astronomy applications Fixed Satellite Service applications Multimedia Wireless Systems MWS	ECC/REC/(01)04 for MWS 40.5-43.5 GHz Silicon monoxide lines and many other spectral lines in this band.
43.50-45.50	MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	MOBILE 5.553 MOBILE-SATELLITE Fixed Satellite 5.554		
45.50-47.00 GHz	MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554		
47.00-47.20 GHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE	Amateur applications Amateur satellite applications	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
47.20-47.50	FIXED FIXED-SATELLITE (E/S) 5.552 MOBILE 5.552A	FIXED FIXED-SATELLITE (E/S) 5.552 MOBILE 5.552A	Fixed satellite applications HAPS SAB	ERC REC 25-10 Feeder link band for 40GHz broadcasting satellites
47.50-47.90	FIXED FIXED-SATELLITE (E/S) 5.552 (S/E) 5.516B 5.554A MOBILE	FIXED FIXED-SATELLITE (E/S) 5.552 (S/E) 5.516B 5.554A MOBILE	Fixed satellite applications SAB	ERC REC 25-10 Feeder link band for 40GHz broadcasting satellites
47.90-48.20 GHz	FIXED FIXED-SATELLITE (E/S) 5.552 MOBILE 5.552A	FIXED FIXED-SATELLITE (E/S) 5.552 MOBILE 5.552A	Fixed satellite applications HAPS SAB	ERC REC 25-10 Feeder link band for 40GHz broadcasting satellites
48.20-48.54	FIXED FIXED-SATELLITE (E/S) 5.552 (S/E) 5.516B 5.554A 5.555B MOBILE	FIXED FIXED-SATELLITE (E/S) 5.552 (S/E) 5.516B 5.554A 5.555B MOBILE Amateur	Fixed satellite applications SAB	ERC REC 25-10 Feeder link band for 40GHz broadcasting satellites
48.54-49.44 GHz	FIXED FIXED-SATELLITE (E/S)5.552 MOBILE 5.149 5.340 5.555	FIXED FIXED-SATELLITE (E/S)5.552 MOBILE RADIO ASTRONOMY 5.149 5.340 5.555	Fixed satellite applications Radio astronomy applications SAB	Feeder link band for 40GHz broadcasting satellites 48.5-49.2 GHz ERC REC 12-10 for digital systems 48.5-50.2 GHz Carbon monosulphide line 48.94-49.4 GHz ERC REC 25-10

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
49.44-50.20 GHz	FIXED FIXED-SATELLITE (E/S)5.552 (S/E) 5.516B 5.554A 5.555B 5.BA03 MOBILE	FIXED FIXED-SATELLITE (E/S)5.552 (S/E) 5.516B 5.554A 5.555B 5.BA03 MOBILE	Fixed satellite applications SAB	ERC REC 12-10 for digital systems 48.5-50.2 GHz Carbon monosulphide line 48.94-49.4 GHz ERC REC 25-10
50.20-50.40	EARTH EXPLORATION SATELLITE (passive) SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION SATELLITE (passive) SPACE RESEARCH (passive) 5.340	Passive applications	
50.40-51.40	FIXED FIXED-SATELLITE (E/S) 5.BA03 MOBILE Mobile-Satellite (E/S)	FIXED FIXED-SATELLITE (E/S) 5.BA03 Mobile-Satellite (E/S)		
51.40-52.60	FIXED 5.BA03 MOBILE 5.547 5.556	FIXED 5.BA03 MOBILE RADIO ASTRONOMY 5.547 5.556	Fixed links	ERC/REC/12-11 for Fixed service 51.4-52.6 GHz
52.6-54.25	EARTH EXPLORATION SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556	EARTH EXPLORATION SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556	Passive applications	Atmospheric temperature sounding
54.25-55.78 GHz	EARTH EXPLORATION SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive)	EARTH EXPLORATION SATELLITE (passive) SPACE RESEARCH (passive)	Passive applications	Atmospheric temperature sounding

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
55.78-56.9 GHz	EARTH EXPLORATION SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547	EARTH EXPLORATION SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A SPACE RESEARCH (passive) 5.547 5.558	Passive applications Fixed links	ERC REC T/R 22-03 ERC/REC/(12)12 for Fixed service 55.78-57 GHz
56.90-57.00 GHz	EARTH EXPLORATION SATELLITE (passive) FIXED INTER-SATELLITE 5.558A SPACE RESEARCH (passive) 5.547	EARTH EXPLORATION SATELLITE (passive) FIXED MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.558A	Passive applications Fixed links	ERC REC T/R 22-03 ERC/REC/(12)12 for Fixed service 55.78-57 GHz Atmospheric temperature sounding
57.00-58.20	EARTH EXPLORATION SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547	EARTH EXPLORATION SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547	Passive applications Fixed links	ERC REC T/R 22-03 ERC/REC/12-09 for Fixed service 57-59 GHz Atmospheric temperature sounding
58.2-59	EARTH EXPLORATION SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556	EARTH EXPLORATION SATELLITE (passive) FIXED RADIO ASTRONOMY SPACE RESEARCH (passive) 5.547 5.556	Passive applications Fixed links	ERC REC T/R 22-03 Atmospheric temperature sounding

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
59.00-59.30 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 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)	Passive applications	Atmospheric temperature sounding. The band 59-61 GHz is a harmonized military band for fixed, mobile and radiolocation systems
59.30-64 GHz	FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138	FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138	Fixed links Cordless local area networks ISM with the band 61-61.5 GHz SRD with the band 61-61.5 GHz RTTT with the band 63-64 GHz	The band 59-61 GHz is a harmonized military band for fixed, mobile and radiolocation systems. ERC REC T/R 22-03 Vehicle to road/ vehicle to vehicle
64.00-65.00	FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556	FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556	Fixed links	ERC REC T/R 22-03 ECC/REC/(05)02 for fixed service 64-66 GHz
65.00-66.00	EARTH EXPLORATION SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH 5.547	EARTH EXPLORATION SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH 5.547	Fixed links Broadband mobile systems For connection to IBCN paired with 62-63 GHz	ERC REC T/R 22-03 ECC/REC/(05)02 for fixed service 64-66 GHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
66.00-71.00 GHz	INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554		
71-74 GHz	FIXED FIXED-SATELLITE (E/S) MOBILE MOBILE-SATELLITE (E/S)	FIXED FIXED-SATELLITE (S/E) MOBILE MOBILE-SATELLITE (S/E)		Pairing of this band with 81-84 GHz is envisaged in military systems. ECC/REC(05)07 for fixed service 71-76/81-86 GHz
74.00-76 GHz	BROADCASTING BROADCASTING-SATELLITE FIXED FIXED-SATELLITE (S/E) MOBILE Space Research (S/E) 5.561	BROADCASTING BROADCASTING-SATELLITE FIXED FIXED-SATELLITE (S/E) MOBILE Space Research (S/E) 5.561	VLBI	VLBI with the band 74-84 GHz ECC/REC(05)07 for fixed service 71-76/81-86 GHz
76.00-77.50	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-Satellite Space Research (S/E) 5.149	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-Satellite Space Research (S/E) 5.149	Radio astronomy applications RTTT Amateur applications Amateur satellite applications Civil radiolocation	Spectral line and wide band continuum observations Road Transport and Traffic Telematics 76-77 GHz Radar
77.50-78.00	AMATEUR AMATEUR SATELLITE Radio Astronomy Space Research (S/E) 5.149	AMATEUR AMATEUR SATELLITE Radio Astronomy Space Research (S/E) 5.149	Radio astronomy applications	Spectral line and wide band continuum observations

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
78.00-79.00 GHz	RADIOLOCATION Amateur Amateur Satellite Radio astronomy Space Research (S/E) 5.149 5.560	RADIOLOCATION Amateur Amateur-Satellite Radio astronomy Space Research (S/E) 5.149 5.560	Radio astronomy applications	Spectral line and wide band continuum observations
79.00-81.00 GHz	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur Satellite Space Research (S/E) 5.149	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur Satellite Space Research (S/E) 5.149	Radio astronomy applications	Spectral line and wide band continuum observations
81.00-84.00 GHz	FIXED FIXED-SATELLITE (E/S) MOBILE MOBILE-SATELLITE (E/S) RADIO ASTRONOMY Space Research (S/E) 5.149	FIXED FIXED-SATELLITE (E/S) MOBILE MOBILE-SATELLITE (E/S) RADIO ASTRONOMY Space Research (S/E) 5.149 5.560A	Radio astronomy applications	Spectral line and wide band continuum observations ECC/REC(05)07 for fixed service 71-76/81-86 GHz
84.00-86.00	FIXED FIXED-SATELLITE (E/S) MOBILE RADIO ASTRONOMY 5.149	FIXED FIXED-SATELLITE (E/S) 5.561A MOBILE RADIO ASTRONOMY 5.149	Radio astronomy applications	Spectral line and wide band continuum observations ECC/REC(05)07 for fixed service 71-76/81-86 GHz
86.00-92.00	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive aplications	RA: Continuum and spectral line measurements

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
92.00-94.00	FIXED MOBILE RADIOLOCATION RADIO ASTRONOMY 5.149	FIXED MOBILE RADIOLOCATION RADIO ASTRONOMY 5.149	Radio astronomy applications Short range radar	RA: Diazenylium line and numerous other spectral lines including wide band continuum observations
94.00-94.10	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A	Cloud profiler radar Short range radar	
94.10-95.00 GHz	FIXED MOBILE RADIOASTRONOMY RADIOLOCATION 5.149	FIXED MOBILE RADIOASTRONOMY RADIOLOCATION 5.149	Radio astronomy applications Short range radar	Spectral line and wide band continuum observations
95.00-100.00 GHz	FIXED MOBILE RADIONAVIGATION RADIO ASTRONOMY RADIONAVIGATION-SATELLITE RADIOLOCATION 5.149 5.554	FIXED MOBILE RADIONAVIGATION RADIO ASTRONOMY RADIONAVIGATION-SATELLITE RADIOLOCATION 5.149 5.554	Radio astronomy applications	RA: Multiple line Observations. Continuum observations
100-102	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	Radio astronomy applications Earth exploration satellite systems	Limb sounding of atmospheric constituents
102-105	FIXED MOBILE RADIO ASTRONOMY 5.149 5.341	FIXED MOBILE RADIO ASTRONOMY 5.149 5.341		Spectral line and wide band continuum observations

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
105-109.5	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341		
109.5-111.8	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	Radio astronomy applications	Observations of CO lines at 109.8 and 110.2 GHz and for continuum observations
111.8-114.25	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341		
114.25-116 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	Radio astronomy applications	Observations of the 115.3 GHz CO line
116-119.98 GHz	EARTH EXPLORATION SATELLITE (passive) INRER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341	EARTH EXPLORATION SATELLITE (passive) INRER-SATELLITE 5.562C 5.341	Passive applications	Passive sensing as part of the oxygen absorption band with peak at 118.75 GHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
119.98-122.25	EARTH EXPLORATION SATELLITE (passive) INRER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341	EARTH EXPLORATION SATELLITE (passive) INRER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341	Passive applications	Passive sensing as part of the oxygen absorption band with peak at 118.75 GHz
122.25-123	FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138	FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138	Amateur applications Amateur satellite applications SRD	ERC REC 70-03
123-130	FIXED-SATELLITE (S/E) MOBILE –SATELLITE (S/E) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio Astronomy 5.562D 5.149 5.554	FIXED-SATELLITE (S/E) MOBILE –SATELLITE (S/E) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio Astronomy 5.149 5.554		
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) 5.562E FIXED INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A	Radio astronomy applications	Spectral line and wide band continuum observations
134-136 GHz	AMATEUR AMATEUR-SATELLITE Radio Astronomy	AMATEUR AMATEUR-SATELLITE Radio Astronomy	Amateur applications Amateur satellite applications	

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
136-141	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur satellite 5.149	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur satellite 5.149	Radio astronomy applications Amateur applications Amateur satellite applications	Spectral line and wide band continuum observations
141-148.5	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	Radio astronomy applications	Spectral line and wide band continuum observations
148.5-151.5 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive applications	Harmonised reference window for passive sensor observations
151.5-155.5	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	Radio astronomy applications	Spectral line and wide band continuum observations
155.5-158.5 GHz	EARTH EXPLORATION SATELLITE (active) 5.562F FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.562G	EARTH EXPLORATION SATELLITE (active) 5.562F FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.562G	Radio astronomy applications Earth exploration Satellite systems	Spectral line and wide band continuum observations Protection until 1.1.2018
158.5-164 GHz	FIXED FIXED SATELLITE (S/E) MOBILE MOBILE SATELLITE (S/E)	FIXED FIXED SATELLITE (S/E) MOBILE MOBILE SATELLITE (S/E)		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
164-167	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive applications	Harmonized reference window for passive sensor observations of the 183.31 GHz water vapor line. Microwave limb sounding of the 164.38 GHz CO line
167-174.5	FIXED FIXED-SATELLITE (S/E)INTER-SATELLITE MOBILE 5.558	FIXED FIXED-SATELLITE (S/E) INTER-SATELLITE MOBILE 5.558		
174.5-174.8	FIXED INTER-SATELLITE MOBILE 5.558	FIXED INTER-SATELLITE MOBILE 5.558	Passive applications	Passive sensing of the water vapor absorption line whose peak is at 183.31 GHz
174.8-182	EARTH EXPLORATION SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	EARTH EXPLORATION SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	Passive applications	Passive sensing of the water vapor absorption line whose peak is at 183.31 GHz
182-185 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive applications	Passive sensing of the water vapor absorption line whose peak is at 183.31 GHz
185-190 GHz	EARTH EXPLORATION SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	EARTH EXPLORATION SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	Passive applications	Passive sensing of the water vapor absorption line whose peak is at 183.31 GHz

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
190-191.8	EARTH EXPLORATION SATELLITE (passive) SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION SATELLITE (passive) SPACE RESEARCH (passive) 5.340	Passive applications	Passive sensing of the water vapor absorption line whose peak is at 183.31 GHz
191.8-200	FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554	FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554		
200-202 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A	Earth exploration observations Radio astronomy applications	Atmospheric chemistry and atmospheric remote sensing of nitrous oxide at 201 GHz Spectral line and wide band continuum observations
202-209 GHz	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A	Earth exploration observations	Atmospheric chemistry and atmospheric remote sensing of water vapor at 203.4 GHz and ozone at 208.5 GHz
209-217 GHz	FIXED FIXED-SATELLITE(E/S) MOBILE RADIO ASTRONOMY 5.149 5.341	FIXED FIXED-SATELLITE(E/S) MOBILE RADIO ASTRONOMY 5.149 5.341	Radio astronomy applications	Spectral line and wide band continuum observations

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
217-226	FIXED FIXED-SATELLITE(E/S) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	FIXED FIXED-SATELLITE(E/S) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341		
226-231.5	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive applications Radio astronomy applications	Passive sensors for limb sounding of atmospheric constituents. Reference window for higher frequency water vapour measurements
231.5-232	FIXED MOBILE Radiolocation	FIXED MOBILE Radiolocation		
232-235	FIXED FIXED-SATELLITE (S/E) MOBILE Radiolocation	FIXED FIXED-SATELLITE (S/E) MOBILE Radiolocation		
235-238 GHz	EARTH EXPLORATION SATELLITE (passive) FIXED-SATELLITE(S/E) SPACE RESEARCH (passive) 5.563A 5.563B	EARTH EXPLORATION SATELLITE (passive) FIXED-SATELLITE(S/E) SPACE RESEARCH (passive) 5.563A 5.563B	Passive applications Radio astronomy applications	Passive sensing limited to microwave sounding Spectral line and wide band continuum observations
238-240 GHz	FIXED FIXED-SATELLITE (S/E) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE	FIXED FIXED-SATELLITE (S/E) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE		

Frequency Band (kHz MHz or GHz)	International Region 1 Allocation	National Allocation	Main application	Notes
240-241	FIXED MOBILE RADIOLOCATION	FIXED MOBILE RADIOLOCATION		
241-248	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-Satellite 5.138 5.149	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-Satellite 5.138 5.149		Spectral line and wide band continuum observations ERC REC 70-03
248-250	AMATEUR AMATEUR-SATELLITE Radio Astronomy 5.149	AMATEUR AMATEUR-SATELLITE Radio Astronomy 5.149	Amateur applications Amateur satellite applications	
250-252	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A	EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A	Earth exploration observations	Limb sounding of nitrous oxide near 251GHz
252-265 GHz	FIXED MOBILE MOBILE-SATELLITE (E/S) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554	FIXED MOBILE MOBILE-SATELLITE (E/S) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554	Radio astronomy applications	Spectral line and wide band continuum observations
265-275 GHz	RADIO ASTRONOMY FIXED FIXED-SATELLITE (E/S) MOBILE 5.149 5.563A	RADIO ASTRONOMY FIXED FIXED-SATELLITE (E/S) MOBILE 5.149 5.563A		

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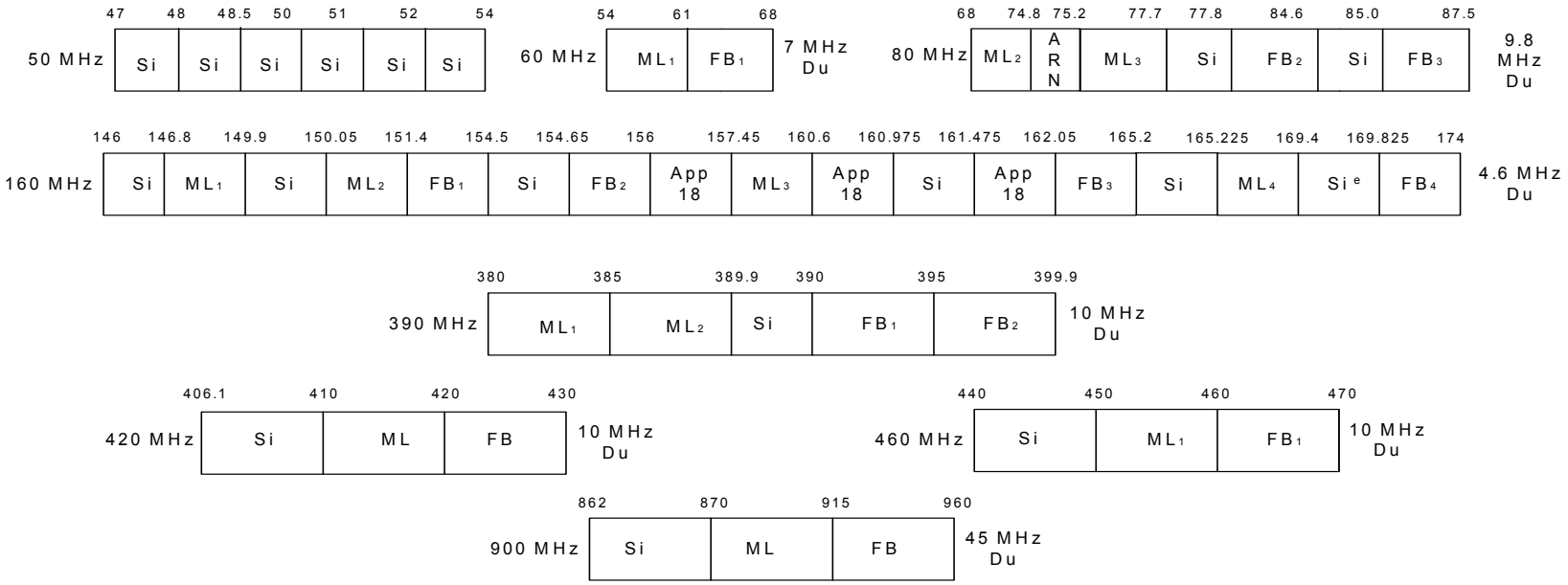

Key to symbols:
ARN Aeronautical radionavigation (ILS/Marker beacons)
Du Duplex operation
FB Base station
ML Mobile station
Si Simplex operation
App18 Use in accordance with RR Appendix S18 "Table of Transmitting Frequencies in the VHF Maritime Mobile Band"
Recommended channel spacing below 600 MHz is 12.5 KHz for analogue FM, technology 25 KHz spacing is employed for international and private maritime applications.

LNFT Annex 2 – National Footnotes

LBN 1 This band identified for defense systems may also be shared with civil systems on a coordinated basis.

LBN 2 This band may be used for civil low power, short range, narrow-band, radio microphones on an uncoordinated, non protected, shared basis with defense systems.

LBN 3 *Additional Allocation*: Until 29 March 2009 the band 7100 – 7200 kHz In Lebanon is allocated nationally to the amateur service on a secondary basis. Stations of the amateur service in Lebanon shall operate under the conditions of No.4.4 of the ITU Radio Regulations. Such stations shall not cause harmful interference to stations of other administrations operating in accordance with article 5 of the ITU Radio Regulations. Amateur service will become PRIMARY following this date.

LBN 4 The band 46-68 MHz may also be used in Lebanon for wind profiler radars operating in the radiolocation service on a secondary basis. Any such radars shall operate in accordance with Resolution 217 of ITU WRC-97.

LBN 5 In Lebanon the bands 47-50 MHz and 52-68 MHz are allocated on a primary basis to the land mobile service. However Lebanon continues to seek the protection of its broadcasting allotments in this frequency range.

LBN 6 *Alternative Allocation:* In Lebanon the band 50-52 MHz is allocated nationally to the amateur service on a primary basis. Stations of the amateur service in Lebanon shall operate under the conditions of No.4.4 of the ITU Radio Regulations. Such stations shall not cause harmful interference to stations of other administrations operating in accordance with article 5 of the ITU Radio Regulations. No. 5.164 of the Radio Regulations does not apply in the band 50-52 MHz.

LBN 7 In the medium term 8.33 KHz channel spacing in the band 117.975-137 MHz should be introduced at the earliest possible date in accordance with regional plans developed under the auspices of the International Civil Aviation Organization (ICAO).

LBN 8 The band 136-137 MHz is additionally allocated to the aeronautical mobile (OR) service to facilitate occasional off route requirements.

LBN 9 The bands 157.45-157.95 MHz (Ship station transmit) and 162.05-162.55 MHz (Coast Station transmit) are designated for private maritime applications.

LBN 10 The band 272-328.6 MHz is provisionally identified for civil land mobile systems with the following arrangement. 272-280 MHz ML1, 280-288 MHz FB1, 288-296 MHz FB2, 296-304 MHz ML2, 304-312 MHz ML3, 312-320 MHz FB3 and 320-328.6 MHz Si. See Annex1 concerning the symbols used.

LBN 11 The band 380-399.9 MHz is designated for digital trunked technology such as TETRA or TETRAPOL. The band 380-385 MHz paired with 390-395 MHz is reserved for national security systems. The band 385-390 MHz paired with 395-399.9 MHz is designated for other digital mobile services.

LBN 12 The band 410-430 MHz is designated as replacement spectrum for defense systems occupying the band 470-512 MHz. The transfer will be undertaken in accordance with the Spectrum Migration Plan and will be implemented not later than 1 January 2010.

LBN 12bis Up to now the sharing criteria between IMT and DVB-T are not known. Furthermore compatibility studies between the two services are not available at present. WRC-07 has therefore mandated the ITU-R to conduct the necessary sharing and compatibility studies until the next WRC-11. it is recommended to use for the initial digitization of analogue TV-networks as far as possible only GE06-allocations below channel 61; at least as long as the outcome of the ITU studies is not available.

LBN 13 The band 862- 870 MHz is for Short Range Devices (SRDs) and is partitioned as follows 864.8-865 MHz narrow band analogue voice devices, 863-865 MHz radio microphones, 869.2-869.25 MHz alarms for the elderly and in firm, 863-865 MHz wireless audio.

LBN 14 The bands 870-876 MHz paired with 915-921 MHz are identified for Wide band Digital Land Mobile PMR systems. The band 876-880 MHz paired with 921-925 MHz may also be used for Wide Band Digital Land Mobile PMR systems, subject to the satisfactory accommodation of unidirectional fixed service links in support of sound broadcasting in the band 1350-1375 MHz.

LBN 14bis The License for Mobile Business 1 shall authorize the use of the following frequencies (Mobile Auction):
For GSM 900 system: 900.4-910.4 MHz/945.4-955.4 MHz
For GSM 1800 system: 1710.2-1725.2 MHz/1805.2-1820.2 MHz
For IMT: 1920-1930 MHz/2110-2120 MHz; 1930-1935 MHz/2120-2125 MHz or 2545-2555 MHz

The License for Mobile Business 2 shall authorize the use of the following frequencies (Mobile Auction):
For GSM 900 system: 890.2-900.2 MHz/935.2-945.2 MHz
For GSM 1800 system: 1725.4-1740.4 MHz/1820.4-1835.4 MHz

For IMT: 1935-1945 MHz/2125-2135 MHz; 1945-1950 MHz/2135-2140 MHz or 2555-2565 MHz

LBN 15 The provisions of Nos. 5.355 and 5.359 concern the fixed service in various sub-bands in the range 1540-1660 MHz. In practice No 5.355 applies for the band 1540-1550 MHz and No 5.359 applies for the remaining sub-bands in the range 1550-1660 MHz.

LBN 15bis The following frequency bands will be available for Mobile Licensee 1 to use for backhaul and backbone Microwave links (Mobile Auction):

BAND	Low freq.	High freq.		Low freq.	High freq.
6	5,945.2	6,093.45		6,197.2	6,345.45
11	10,795.0	10,955.0		11,325.0	11,485.0
15	14,504.5	14,672.5	Paired with	14,924.5	15,092.5
18	18,737.5	19,012.5		17,727.5	18,002.5
23	23,376.5	23,509.5		22,368.5	22,501.5
26	24,983.0	25,067.0		25,991.0	26,075.0
38	38,332.0	38,472.0		37,072.0	37,212.0

The following frequency bands will be available for Mobile Licensee 2 to use for backhaul and backbone Microwave links (Mobile Auction):

BAND	Low freq.	High freq.		Low freq.	High freq.
7	7,457.00	7,569.00		7,625.00	7,737.00
11	10,995.00	11,115.00		11,525.00	11,645.00
15	14,756.50	14,917.50	Paired with	15,148.50	15,309.50
18	18,195.00	18,470.00		19,205.00	19,480.00
23	22,011.50	22,235.50		23,019.50	23,243.50
26	25,095.00	25,151.00		26,103.00	26,159.00
38	38,500.00	38,640.00		37,240.00	37,380.00

LBN 16 The use of the band 2690-2700 MHz by the fixed and mobile (except aeronautical mobile) service is limited to systems in operation on 1 January 1985. Fixed and mobile services in Lebanon shall cease operation in this band by 1 January 2010.

LBN 17 The direction reception of broadcasting satellite emissions in the band 10.7-11.7 GHz which are intended for the general public are permitted. However no protection is afforded to earth stations used for this purpose.

LBN 18 The bands 12.5-12.75 GHz, 14-14.25 GHz, 19.7-21.2 GHz and 29.5-31.0 GHz allocated to the fixed satellite service are intended for commercial VSAT (uncoordinated earth stations) applications. The Fixed service used in these bands will generally be phased out by 1 January 2010. At a future ITU WRC Lebanon may withdraw from No. 5.494 and No 5.505 of the Radio Regulations. The fixed service may continue to use 14.0-14.25 GHz on a non protected basis with respect to VSAT earth station transmitters.

LBN 19 At a future ITU WRC, Lebanon intends to join No. 5.514 of the Radio Regulations concerning a primary fixed service allocation in the band 17.3-17.7 GHz.

LNFT Annex 3 – RR FOOTNOTE (Region 1)

Allocations relevant to Lebanon

RR-footnote	*Radio Regulation footnote text*
5.53	Administrations authorizing the use of frequencies below 9 kHz shall ensure that no harmful interference is caused thereby to the services to which the bands above 9 kHz are allocated
5.54	Administrations conducting scientific research using frequencies below 9 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.
5.56	The stations of services to which the bands 14-19.95 kHz and 20.05-70 kHz and in Region 1 also the bands 72-84 kHz and 86-90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, the Czech Rep., the Russian Federation, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC 03)
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
5.4C03	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)
5.4C04	The use of the band 135.7-137.8 kHz in Algeria, Egypt, Iran (Islamic Republic of), Iraq, Libyan Arab Jamahiriya, Lebanon, Syrian Arab Republic, 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 band 135.7-137.8 kHz, and this should be taken into account by the countries authorizing such use. (WRC-07)
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	The use of the bands 415-495 kHz and 505-526.5 kHz (505-510 kHz in Region 2) by the maritime mobile service is limited to radiotelegraphy.
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)
5.79B	The use of the band 495-505 kHz is limited to radiotelegraphy. (WRC-07)

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 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. (WRC-07)

5.4C01 Administrations authorizing the use of frequencies in the band 495-505 kHz by services other than the maritime mobile service shall ensure that no harmful interference is caused to the maritime mobile service in this band or to the services having allocations in the adjacent bands, noting in particular the conditions of use of the frequencies 490 kHz and 518 kHz, as prescribed in Articles **31** and **52**. (WRC-07)

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)

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

5.92 Some countries in Region 1 use radiodetermination systems in the bands 1606.5-1625 kHz, 1635-1800 kHz, 1850-2160 kHz, 2194-2300 kHz, 2502-2850 kHz and 3500-3800 kHz, subject to agreement obtained under No 9.21. The radiated mean power of these stations shall not exceed 50 W.

5.96 In Germany, Armenia, Austria, Azerbaijan, Belarus, Denmark, Estonia, Finland, Georgia, Hungary, Iceland, Ireland, Israel, Kazakhstan, Latvia, Liechtenstein, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., the United Kingdom, the Russian Federation, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the bands 1 715-1 800 kHz and 1 850-2 000 kHz. However, when allocating the bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W. (WRC 03) **{Lebanon may join this footnote in future, see footnote LBN 3}**

5.98 *Alternative allocation:* in Angola, Armenia, Azerbaijan, Belarus, Belgium, Cameroon, Congo (Rep. of the), Denmark, Egypt, Eritrea, Spain, Ethiopia, the Russian Federation, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, Moldova, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Tunisia, Turkmenistan, Turkey and Ukraine, the band 1 810-1 830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

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 1850-2045 kHz, 2194-2498 kHz, 2502-2 625 kHz and 2650-2850 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 (WRC07).

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 (WRC07).

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 (WRC07).

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.

5.127 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).

5.130 The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles 31 and 52 (WRC07).

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).

5.134 The use of the 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 bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution **517 (Rev.WRC-07)**. (WRC-07)

5.136 ***Additional allocation:*** **Frequencies in t**he 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 authorisation by the administration concerned, in agreement with other administrations whose radiocommunication services might be affected. In applying this provision, administrations shall have due regard to the latest relevant ITU-R Recommendations.

5.138A Until 29 March 2009, the band 6 765-7 000 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. After this date, this band is allocated to the fixed and the mobile except aeronautical mobile (R) services on a primary basis. (WRC 03)

5.141C In Regions 1 and 3, the band 7 100-7 200 kHz is allocated to the broadcasting service until 29 March 2009 on a primary basis. (WRC 03)

5.142 Until 29 March 2009, the use of the band 7 100-7 300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. After 29 March 2009 the use of the band 7 200-7 300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. (WRC 03)

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, the band 7 350-7 450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, on condition that harmful interference is not caused to the broadcasting service, frequencies in the band 7 350-7 450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located, each station using a total radiated power that shall not exceed 24 dBW. (WRC 03)

5.143E Until 29 March 2009, the band 7 450-8 100 kHz is allocated to the fixed service on a primary basis and to the land

mobile service on a secondary basis. (WRC 03)

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.(WRC07)

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, 42.77-42.87 GHz, 43.07-43.17 GHz, 43.37-43.47 GHz, 48.94-49.04 GHz, 76-86 GHz, 92-94 GHz, 94.1-100 GHz, 102-109.5 GHz, 111.8-114.25 GHz, 128.33-128.59 GHz, 129.23-129.49 GHz, 130-134 GHz, 136-148.5 GHz, 151.5-158.5 GHz, 168.59-168.93 GHz, 171.11-171.45 GHz, 172.31-172.65 GHz, 173.52-173.85 GHz, 195.75-196.15 GHz, 209-226 GHz, 241-250 GHz, 252-275 GHz are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 4.5 and 4.6 and Article 29).

5.150 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.

5.164 *Additional allocation:* in Albania, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Jordan, Lebanon, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the band 47-68 MHz, in South Africa the band 47-50 MHz, in the Czech Rep. the band 66-68 MHz, and in Latvia and Lithuania the band 48.5-56.5 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band. (WRC-07)

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.

5.194 *Additional allocation:* in Azerbaijan, Kyrgyzstan, Somalia and Turkmenistan, the band 104-108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a secondary basis. (WRC-07)

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)

5.206 Different category of service: in Armenia, Azerbaijan, Belarus, Bulgaria, Egypt, Finland, France, Georgia, Greece, Kazakhstan, **Lebanon**, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Syria, Slovakia, the Czech Republic, Romania, the Russian Federation, 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).

5.208 The use of the band 137-138 MHz by the mobile-satellite service is subject to coordination under Resolution 46 (Rev.WRC-97)/No. 9.11A.

5.208A In making assignments to space stations in the mobile-satellite service in the bands 137-138 MHz, 387-390 MHz and 400.15-401 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions. The threshold levels of interference detrimental to the radio astronomy service are shown in the relevant ITU-R Recommendation. (WRC-07)

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.

5.210 *Additional allocation:* in Italy, the Czech Rep. and the United Kingdom, the bands 138-143.6 MHz and 143.65-144 MHz are also allocated to the space research service (space-to-Earth) on a secondary basis. (WRC-07)

5.211 *Additional allocation:* in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Ireland, Israel, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, **Lebanon**, Liechtenstein, Luxembourg, Mali, Malta, Montenegro, Norway, the Netherlands, Qatar, the United Kingdom, Serbia, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia and Turkey, the band 138-144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis. (WRC-07)

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.

5.219 The use of the band 148 - 149.9 MHz by the mobile-satellite service is subject to coordination under Resolution 46 (Rev.WRC-97)/No. 9.11A. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the band 148 - 149.9 MHz.

5.220 The use of the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz by the mobile-satellite service is subject to coordination under Resolution 46 (Rev.WRC-97)/No. 9.11A. The mobile-satellite service shall not constrain the development and use of the radionavigation-satellite service in the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz.

5.221 Stations of the mobile-satellite service in the 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, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, the Libyan Arab Jamahiriya, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, **Lebanon**, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia, and Zimbabwe. (WRC-07)

5.222 Emissions of the radionavigation-satellite service in the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz may also be used by receiving earth stations of the space research service.

5.222A 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.

5.222B 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.

5.223 Recognising that the use of the band 149.9 - 150.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation-satellite service, administrations are urged not to authorise such use in application of No. 4.4.

5.224A The use of the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz by the mobile-satellite service (Earth-to-space) is limited to the land mobile-satellite service (Earth-to-space) until 1 January 2015.

5.224B The allocation of the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz to the radionavigation-satellite service shall be effective until 1 January 2015.

5.226 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**.

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**.

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)

5.4C02 *Additional allocation:* the bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz are also allocated to the mobile-satellite service (Earth-to-space) on a secondary basis for the reception of automatic identification system (AIS) emissions from stations operating in the maritime-mobile service (see Appendix **18**). (WRC-07)

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.BE03. (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 Resolution 46 (Rev.WRC-97)/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 .

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).

5.260 Recognising that the use of the band 399.9 - 400.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation satellite service, administrations are urged not to authorise such use in application of No. 4.4.

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

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 Resolution 46 (Rev.WRC-97)/No. 9.11A. The power flux-density limit indicated in Annex 2 of Resolution 46 (Rev. WRC-95)/Annex

1 of Appendix 5 shall apply until such time as a competent world radiocommunication conference revises it.

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).

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

5.268 Use of the band 410-420 MHz by the space research service is limited to communications within 5 km of an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from extra-vehicular activities shall not exceed –153 dB(W/m2) for 0° ≤□≤□5°, 153 + 0.077 (≤– 5) dB(W/m2) for 5° ≤□≤□70° and –148 dB(W/m2) for 70° ≤□≤□90°, where ≤is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. No. 4.10 does not apply to extra-vehicular activities. In this frequency band the space research (space-to-space) service shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. (WRC-97)

5.276 *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Burundi, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Malta, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Switzerland, Tanzania, Thailand, Togo, Turkey and Yemen, the band 430-440 MHz is also allocated to the fixed service on a primary basis and the bands 430-435 MHz and 438-440 MHz are also allocated to the mobile, except aeronautical mobile, service on a primary basis. (WRC-07)

5.279A The use of this band by sensors in the Earth exploration-satellite service (EESS) (active) shall be in accordance with Recommendation ITU R SA.1260 1. Additionally, the EESS (active) in the 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 EESS (active) to operate as a secondary service in accordance with Nos. 5.29 and 5.30. (WRC 03)

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 authorising 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. S25.11. 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.

5.283 Additional allocation: in Austria, the band 438 - 440 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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 Resolution 46 (Rev.WRC-97)/No. 9.11A.

5.286B The use of the band 454-455 MHz in the countries listed in No. 5.286D, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. 5.286E, by stations in the mobile-satellite service, 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.

5.XXX The band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolution **224 (Rev.WRC-07)**. This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations.

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

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, Burundi, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Israel, the Libyan Arab Jamahiriya, Kenya, Malawi, the Syrian Arab Republic, Sudan, Chad and Yemen, the band 470-582 MHz is also allocated to the fixed service on a secondary basis. (WRC-07)

5.296 *Additional allocation:* in Germany, Saudi Arabia, Austria, Belgium, Côte d'Ivoire, Denmark, Egypt, Spain, Finland, France, Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Jordan, Lithuania, Malta, Morocco, Monaco, Norway, Oman, the Netherlands, Portugal, the Syrian Arab Republic, the United Kingdom, Sweden, Switzerland, Swaziland and Tunisia,

the band 470-790 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. 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-07)

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.

5.311A For the frequency band 620-790 MHz, see also Resolution **[COM4/1] (WRC-07)**.

5.316 *Additional allocation:* in Germany, Saudi Arabia, Bosnia and Herzegovina, Burkina Faso, Cameroon, Côte d'Ivoire, Croatia, Denmark, Egypt, Finland, Greece, Israel, the Libyan Arab Jamahiriya, Jordan, Kenya, The Former Yugoslav Republic of Macedonia, Liechtenstein, Mali, Monaco, Montenegro, Norway, the Netherlands, Portugal, the United Kingdom, the Syrian Arab Republic, Serbia,, Sweden and Switzerland, the band 790-830 MHz, and in these same countries and in Spain, France, Gabon and Malta, the band 830-862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band. This allocation is effective until 16 June 2015. (WRC-07)

5.YYY The band, or portions of the band 698-790 MHz, in Bangladesh, China, Korea (Rep. of), India, Japan, New Zealand, Papua New Guinea, Philippines and Singapore are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. In China, the use of IMT in this band will not start until 2015. (WRC-07)

5.316A Additional allocation: in Angola, Bahrain, Benin, Botswana, Cameroon, Congo (Rep. of the), French Overseas Departments and Communities in Region 1, Gambia, Ghana, Guinea, Kuwait, Lesotho, **Lebanon** Malawi, Morocco, Mauritania, Mozambique, Namibia, Niger, Oman, Uganda, Poland, Qatar, Rwanda, Senegal, Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Yemen, Zambia and Zimbabwe, the band 790-862 MHz, in Spain, France, Gabon and Malta, the band 790-830 MHz, and in Lithuania, the band 830-862 MHz and in Georgia, the band 806-862 MHz are also allocated to the mobile except aeronautical mobile, service on a primary basis subject to the agreement by the administrations concerned obtained under No. **9.21** and under the GE06 Agreement, as appropriate, including those administrations mentioned in No. **5.312** where appropriate. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause unacceptable interference to, nor claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band. Frequency assignment to the mobile service under this allocation in Lithuania and Poland shall not be used without the agreement of the Russian Federation and Belarus. This allocation is effective until 16 June 2015. (WRC-07)

5.317A Those parts of the band 698-960 MHz in Region 2 and the band 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 Resolution **224 (Rev.WRC-07)** and Resolution **[COM4/13] (WRC-07)**. This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-07)

5.XXX In Region 1, the allocation to the mobile, except aeronautical mobile, service on a primary basis in the frequency band 790-862 MHz shall come into effect from 17 June 2015 and shall be 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. Resolution **224 (Rev.WRC-07)** and Resolution **[COM4/13] (Rev.WRC-07)** shall apply. (WRC-07)

5.UUU *Different category of service:* In Brazil, the allocation of the band 698-806 MHz to the mobile service is on a secondary basis (see No. **5.32**) (WRC07)

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

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.

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. WRC07) 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)

5.328B 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 [COM5/5] (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.

5.330 *Additional allocation:* in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, **Lebanon**, Libyan Arab Jamahiriya, Mozambique, Nepal, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the band 1 215-1 300 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-03)

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, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, 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-07)

5.4B06 The use of the 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 **[COM4/5] (WRC-07)**. (WRC-07)

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.

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.

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.

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 2, 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.

5.345 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).

5.347A In the bands: 137-138 MHz, 387-390 MHz, 400.15-401 MHz, 1 452-1 492 MHz, 1 525-1 559 MHz, 1559-1610 MHz, 1 613.8-1 626.5 MHz, 2 655-2 670 MHz, 2 670-2 690 MHz, 21.4-22.0 GHz Resolution 739 (Rev. WRC-07) applies.

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)

5.348A In the band 1 518-1 525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. 9.11A for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be –150 dB(W/m2) in any 4 kHz band for all angles of arrival, instead of those given in Table 5 2 of Appendix 5. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. 5.43A does not apply. (WRC-03)

5.348B In the band 1 518-1 525 MHz, stations in the mobile-satellite service shall not claim protection from aeronautical mobile telemetry stations in the mobile service in the territory of the United States (see Nos. 5.343 and 5.344) and in the countries listed in No. 5.342. 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 authorised 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, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz, 1 668-1 675 MHz, 1 980-2 010 MHz, 2 170-2 200 MHz, 2 483.5-2 500 MHz, 2 500-2 520 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 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 France and French overseas territories in Region 3, Algeria, Saudi Arabia, Egypt, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Malta, Morocco, Mauritania, Nigeria, Oman, Pakistan, Philippines, Qatar, Syria, Tanzania, Viet Nam and Yemen notified prior to 1 April 1998

5.353A In applying the procedures of Section II of Article S9 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.)

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 Resolution 46 (Rev. WRC-97)/No. 9.11A.

5.355 *Additional allocation:* In Bahrain, Bangladesh, Congo, Egypt, Eritrea, Iraq, Israel, Kuwait**, Lebanon**, Malta, Qatar, Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the bands 1 540-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a secondary basis. (WRC-03)

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 authorised 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 S9 to the mobile-satellite service in the 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 (WRC-2000) shall apply.)

5.359 *Additional allocation:* in Germany, Saudi Arabia, Armenia, Austria, Azerbaijan, Belarus, Benin, Bulgaria, Cameroon, Spain, the Russian Federation, France, Gabon, Georgia, Greece, Guinea, Guinea-Bissau, the Libyan Arab Jamahiriya, Jordan, Kazakhstan, Kuwait, **Lebanon**, Lithuania, Mauritania, Moldova, Uganda, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Swaziland, Tajikistan, Tanzania, Tunisia, Turkmenistan and Ukraine, the bands 1 550-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in these bands. (WRC-07)

5.362B *Additional allocation:* The band 1 559-1 610 MHz is also allocated to the fixed service on a primary basis until 1 January 2010 in Algeria, Saudi Arabia, Cameroon, Libyan Arab Jamahiriya, Jordan, Mali, Mauritania, Syrian Arab Republic and Tunisia. After this date, the fixed service may continue to operate on a secondary basis until 1 January 2015, at which time this allocation shall no longer be valid. The band 1 559-1 610 MHz is also allocated to the fixed service on a secondary basis in Algeria, Germany, Armenia, Azerbaijan, Belarus, Benin, Bulgaria, Spain, Russian Federation, France, Gabon, Georgia, Guinea, Guinea-Bissau, Kazakhstan, Lithuania, Moldova, Nigeria, Uganda, Uzbekistan, Pakistan, Poland, Kyrgyzstan, Dem. People's Rep. of Korea, Romania, Senegal, Swaziland, Tajikistan, Tanzania, Turkmenistan and Ukraine until 1 January 2015, at which time this allocation shall no longer be valid. Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and the aeronautical radionavigation service and not authorize new frequency assignments to fixed-service systems in this band. (WRC-07)

5.362C *Additional allocation:* in Congo (Rep. of the), Egypt, Eritrea, Iraq, Israel, Jordan, Malta, Qatar, the Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the band 1 559-1 610 MHz is also allocated to the fixed service on a secondary basis until 1 January 2015, at which time this allocation shall no longer be valid. Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and not authorize new frequency assignments to fixed-service systems in this band. (WRC-07)

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 Resolution 46 (Rev.WRC-97)/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 Resolution 46 (Rev.WRC-97)/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 bands 1 610 - 1 626.5 MHz and 5 000 - 5 150 MHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. 9.21.

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.

5.369 *Different category of service:* in Angola, Australia, Burundi, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Israel, **Lebanon**, Liberia, Libyan Arab Jamahiriya, Madagascar, Mali, Pakistan, Papua New Guinea, Dem. Rep. of the Congo, Syrian Arab Republic, Sudan, Swaziland, Togo and Zambia, the allocation of the band 1 610-1 626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21 from countries not listed in this provision. (WRC-03)

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

5.372 Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6 - 1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. 29.13 applies).

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 the stations in the fixed service operating in the countries listed in No. 5.359.

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 authorised 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.

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 1668-1668.4 MHz, Resolution [COM5/1] (WRC07) shall apply.

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/m2) in 10 MHz and 194 dB(W/m2) 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)

5.380A 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, the Former Yugoslav Republic of Macedonia, **Lebanon,** Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Serbia, Somalia, Tajikistan, Tanzania, Turkmenistan, Ukraine and Yemen, the allocation of the 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 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-07)

5.384A The bands, or portions of the bands, 1 710-1 885 MHz, 2 300-2 400 MHz and 2 500-2 690 MHz, are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-07)**. This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-07).

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.

5.388 The 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-2000 (IMT-2000). Such use does not preclude the use of these bands by other services to which they are allocated. The bands should be made available for IMT-2000 in accordance with Resolution 212 (Rev.WRC-97). (See also Resolution 223 (WRC-2000).)

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 2000 (IMT 2000), in accordance with Resolution 221 (Rev.WRC 03). Their use by IMT 2000 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 03)

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)

5.391 In making assignments to the mobile service in the 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, and shall take that Recommendation into account for the introduction of any other type of mobile system.

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

5.400 *Different category of service:* in Angola, Australia, Bangladesh, Burundi, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), **Lebanon**, Liberia, Libyan Arab Jamahiriya, Madagascar, Mali, Pakistan, Papua New Guinea, Dem. Rep. of the Congo, Syrian Arab Republic, Sudan, Swaziland, Togo and Zambia, the allocation of the band 2 483.5-2 500 MHz to the radiodetermination-satellite service (space-to-Earth) is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21** from countries not listed in this provision. (WRC-03)

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 Resolution 46 (Rev.WRC-97)/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 (WRC07).

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**. 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-07)

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).

5.4A01 In Japan and India, the use of the bands 2 500-2 520 MHz and 2 520-2 535 MHz, under No. **5.403**, by a satellite network in the mobile-satellite service (space-to-Earth) is limited to operation within national boundaries and subject to the application of No. **9.11A**. The following pfd values shall be used as a threshold for coordination under No. **9.11A**, for all conditions and for all methods of modulation, in an area of 1 000 km around the territory of the administration notifying the mobile-satellite service network:

-136 dB(W/(m^2 · MHz))	for	$0° \le \theta \le 5°$
$-136 + 0.55\,(\theta - 5)$ dB(W/(m^2 · MHz))	for	$5° < \theta \le 25°$
-125 dB(W/(m^2 · MHz))	for	$25° < \theta \le 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. Outside this area Table **21-4** of Article **21** shall apply. Furthermore, the coordination thresholds in Table 5-2 of Annex 1 to Appendix **5** of the Radio Regulations (edition of 2004), in conjunction with the applicable provisions of Articles **9** and **11** associated with No. **9.11A**, shall apply to systems for which complete notification information has been received by the Radicommunication Bureau by 14 November 2007 and that have been brought into use by that date. (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)

5.417C Use of the band 2 605-2 630 MHz by non geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418bis, for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No. 9.12. (WRC 03)

5.417D Use of the band 2 605-2 630 MHz by geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003 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. 5.418bis, and No. 22.2 does not apply. (WRC 03)

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 (until 1 January 2005 the band 2 655 - 2 690 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.

5.422 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Brunei Darussalam, Congo (Rep. of the), Côte d'Ivoire, Cuba, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, **Lebanon**, Mauritania, Moldova, 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-07)

5.423 In the band 2 700 - 2 900 MHz, ground-based radars used for meteorological purposes are authorised 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 system (SIT) 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 of these Regulations.

5.429 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Japan, Jordan, Kenya, Kuwait, **Lebanon**, Malaysia, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea and Yemen, the band 3 300-3 400 MHz is also allocated to the fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-07)

5.AAA ***Different category of service:*** **in** Albania, Algeria, Germany, Andorra, Saudi Arabia, Austria, Azerbaijan, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cameroon, Cyprus, Vatican, Congo (Rep. of the) Côte d'Ivoire, Croatia, Denmark, Egypt, Spain, Estonia, Finland, France and French Overseas Departments and Communities in Region 1,, Gabon, Georgia, Greece, Guinea, Hungary, Ireland, Iceland, Israel, Italy, Jordan, Kuwait, Lesotho, Latvia, Macedonia (ex Yugoslav Rep. of), Liechtenstein, Lithuania, Malawi, Mali, Malta, Morocco, Mauritania, Moldova, Monaco, Mongolia, Montenegro, Mozambique, Namibia, Niger, Norway, Oman, Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Senegal, Serbia, Sierra Leone, Slovenia, South Africa, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe**,** the band 3 400-3 600 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis subject to agreement obtained under No. **9.21** with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed -154.5 dBW/($m^2 \cdot 4$ kHz) for more than 20 per cent of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004).This allocation is effective from 17 November 2010. (WRC-07)

5.438 Use of the 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. However, passive sensing in the earth exploration-satellite and space research services may be authorised in this band on a secondary basis (no protection is provided by the radio altimeters).

5.440 The standard frequency and time signal-satellite service may be authorised 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 system 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-GSO FSS systems and of the complete coordination or notification information, as appropriate, for the GSO networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

5.442 In the 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, Paraguay, Uruguay and Venezuela), and in Australia, the 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 **[COM4/2] (WRC-07)** and shall not cause harmful interference to the fixed service. (WRC-07)

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 band 5 030-5 150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5 010 5 030 MHz shall not exceed –124.5 dB(W/m2) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4 9905 000 MHz, radionavigation-satellite service systems operating in the band 5 010-5 030 MHz shall comply with the limits in the band 4 990-5 000 MHz defined in Resolution [COM5/1] (WRC 03). (WRC 03)

5.444 The 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 band 5 030-5 091 MHz, the requirements of this system shall take precedence over other uses of this band. For the use of the band 5 091-5 150 MHz, No. **5.444A** and Resolution **114 (Rev.WRC-03)** apply. (WRC-07)

5.444A *Additional allocation:* the band 5 091-5 150 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. This allocation is limited to feeder links of non-geostationary mobile-satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A**.

In the band 5 091-5 150 MHz, the following conditions also apply:

– prior to 1 January 2018, the use of the band 5 091-5 150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution **114 (Rev.WRC-03)**;

– prior to 1 January 2018, the requirements of existing and planned international standard systems for the aeronautical radionavigation service which cannot be met in the 5 000-5 091 MHz band, shall take precedence over other uses of this band;

– after 1 January 2016, no new assignments shall be made to earth stations providing feeder links of non-geostationary mobile-satellite systems;

– after 1 January 2018, the fixed-satellite service will become secondary to the aeronautical radionavigation service. (WRC-07)

5.4B03 The use of the 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 **[COM4/4] (WRC-07)**;

– aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **[COM4/7] (WRC-07)**;

– aeronautical security transmissions. Such use shall be in accordance with Resolution **[COM4/8] (WRC-07)**. (WRC-07)

5.4B04 *Additional allocation:* in Region 1 (except in Algeria, Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Jordan, Kuwait, **Lebanon**, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan and Tunisia) and in Brazil, the band 5 150-5 250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations (see No. **1.83**), in accordance with Resolution **[COM4/7] (WRC-07)**. These stations shall not claim protection from other stations operating in accordance with Article **5**. No. **5.43A** does not apply. (WRC-07)

5.446 Additional allocation: in the countries listed in Nos. 5.369 and 5.400, the band 5 150 - 5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. 9.21. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. 5.369 and 5.400, the band is also allocated to the radiodetermination satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1 610 - 1 626.5 MHz and/or 2 483.5 -2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed -159 dB(W/m²) in any 4 kHz band for all angles of arrival.

5.446A The use of the 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 (WRC-03)**. (WRC-07)

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, Israel, **Lebanon**, Pakistan, the Syrian Arab Republic and Tunisia, the 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 (WRC-03)** do not apply. (WRC-07)

5.447A 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 and is subject to coordination under Resolution 46 (Rev.WRC-97)/ 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 Resolution 46 (Rev.WRC-97)/ 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/m²) 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 Resolution 46 (Rev.WRC-97)/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.

5.447F In the band 5 250-5 350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU R M.1638 and ITU R SA.1632. (WRC 03)

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 band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU R M.1638. (WRC 03)

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)

5.451 Additional allocation: in the United Kingdom, the band 5 470 -5 850 MHz is also allocated to the land mobile service on a secondary basis. The power limits specified in Nos. 21.2, 21.3, 21.4 and 21.5 shall apply in the band 5 725 - 5 850 MHz.

5.452 Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are authorised 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, Côte d'Ivoire, Korea (Rep. of), Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, **Lebanon,** the Libyan Arab Jamahiriya, Madagascar, Malaysia, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Swaziland, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the band 5 650-5 850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution [COM5/16] (WRC-03) do not apply. (WRC-03)

5.457A In the 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 [COM4/20] (WRC 03). (WRC03)

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 -7 025 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 Resolution 46 (Rev.WRC-97)/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.

5.458C Administrations making submissions in the band 7 025 - 7 075 MHz (Earth-to-space) for geostationary-satellite systems in the fixed-satellite service after 17 November 1995 shall consult on the basis of relevant ITU-R Recommendations with the administrations that have notified and brought into use non-geostationary-satellite systems in this frequency band before 18 November 1995 upon request of the latter administrations. This consultation shall be with a view to facilitating shared operation of both geostationary-satellite systems in the fixed-satellite service and non-geostationary-satellite systems in this band.

5.460 The use of the band 7 145-7 190 MHz by the space research service (Earth-to-space) is restricted to deep space; no emissions to deep space shall be effected in the band 7 190-7 235 MHz. Geostationary satellites in the space research service operating in the 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 03)

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.

5.461B The use of the band 7 750-7 850 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems.

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

–174 dB(W/m2) in a 4 kHz band for 0° ≤ θ ≤ 5°

–174 + 0.5 (θ– 5) dB(W/m2) in a 4 kHz band for 5° ≤ θ ≤ 25°

–164 dB(W/m2) in a 4 kHz band for 25° ≤ θ ≤ 90°

These values are subject to study under Resolution 124 (WRC-97)

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

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, the Congo, Costa Rica, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, **Lebanon**, Libyan Arab Jamahiriya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, Qatar, Syrian Arab Republic, Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Swaziland, Tanzania, Chad, Togo, Tunisia and Yemen, the band 8 500-8 750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-03)

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.

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.

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

5.473 *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the bands 8 850-9 000 MHz and 9 200-9 300 MHz are also allocated to the radionavigation service on a primary basis. (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).

5.475 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 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)

5.475B 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)

5.4B07 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)

5.477 *Different category of service:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, **Lebanon,** Liberia, Malaysia, Nigeria, Oman, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Trinidad and Tobago, and Yemen, the allocation of the band 9 800-10 000 MHz to the fixed service is on a primary basis (see No. **5.33**). (WRC-07)

5.xyz 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.

5.xyy 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.

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.

5.482 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, Libyan Arab Jamahiriya, Kazakhstan, Kuwait, **Lebanon**, 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, service is not applicable. (WRC-07)

5.BA01 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 **[COM5/5] (WRC-07)** applies. (WRC-07)

5.483 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, China, Colombia, Korea (Rep. of), Costa Rica, Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, **Lebanon**, Mongolia, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Tajikistan, Turkmenistan and Yemen, the band 10.68-10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-07)

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

5.487 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.

5.494 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Rep., the Congo, Côte d'Ivoire, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kuwait, **Lebanon**, Libyan Arab Jamahiriya, Madagascar, Mali, Morocco, Mongolia, Nigeria, Qatar, Dem. Rep. of the Congo, Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-03)

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.

5.500 *Additional allocation:* in Algeria, Angola, 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, Malta, Morocco, Mauritania, Nigeria, Pakistan, Qatar, Syrian Arab Republic, Singapore, Sudan, Chad and Tunisia, the band 13.4-14 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-03)

5.501A The allocation of the band 13.4 – 13.75 GHz 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.

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.

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 size smaller than 4.5 m, it shall ensure that the power flux-density produced by this earth station does not exceed: –115 dB(W/(m2 • 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/(m2 • 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) 4.7D + 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 (see Recommendation 708).

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)

5.504B Aircraft earth stations operating in the aeronautical mobile-satellite service in the band 14-14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU R M.1643, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz band located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa. (WRC 03)

5.505 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Egypt, the United Arab Emirates, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lesotho, **Lebanon**, Malaysia, Mali, Morocco, Mauritania, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad, Viet Nam and Yemen, the band 14-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-07)

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 [COM4/20] (WRC 03). This footnote shall not apply to ship earth stations for which the complete Appendix 4 information has been received by the Radiocommunication 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, Greece and Malta, within the minimum distance given in Resolution [COM4/20] (WRC 03) from these countries. (WRC 03)

5.508A In the band 14.25-14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran, Italy, Kuwait, Lesotho, Nigeria, Oman, 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, 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 03)

5.509A In the band 14.3-14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran, Italy, Kuwait, Lesotho, Morocco, Nigeria, Oman, 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, 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 03)

5.510 The use of the 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.

5.511 *Additional allocation:* in Saudi Arabia, Bahrain, Bosnia and Herzegovina, Cameroon, Egypt, the United Arab Emirates, Guinea, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Kuwait, Lebanon, 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-07)

5.511A The band 15.43-15.63 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. Use of the band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth and Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. 9.11A. The use of the frequency band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth) is limited to feeder links of non-geostationary systems in the mobile-satellite service for which advance publication information has been received by the Bureau prior to 2 June 2000. In the space-to-Earth direction, the minimum earth station elevation angle above and gain towards the local horizontal plane and the minimum coordination distances to protect an earth station from harmful interference shall be in accordance with Recommendation ITU-R S.1341. In order to protect the radio astronomy service in the band 15.35-15.4 GHz, the aggregate power flux-density radiated in the 15.35-15.4 GHz band by all the space stations within any non-GSO MSS feeder-link (space-to-Earth) system operating in the 15.43-15.63 GHz band shall not exceed the level of –156 dB(W/m2) in a 50 MHz bandwidth, into any radio astronomy observatory site for more than 2% of the time.

5.511C Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R 1340. 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 1340.

5.511D Fixed-satellite service systems for which complete information for advance publication has been received by the Bureau by 21 November 1997 may operate in the bands 15.4-15.43 GHz and 15.63-15.7 GHz in the space-to-Earth direction and 15.63-15.65 GHz in the Earth-to-space direction. In the bands 15.4-15.43 GHz and 15.65-15.7 GHz, emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of –146 dB(W/m2/MHz) for any angle of arrival. In the band 15.63-15.65 GHz, where an administration plans emissions from a non-geostationary space station that exceed –146 dB(W/m2/MHz) for any angle of arrival, it shall coordinate under Resolution 46 (Rev.WRC-97)/No. 9.11A with the affected administrations. Stations in the fixed-satellite service operating in the band 15.63-15.65 GHz in the Earth-to-space direction shall not cause harmful interference to stations in the aeronautical radionavigation service (No. 4.10 applies).

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

Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad, Togo and Yemen, the band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)

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.

5.514 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, the Libyan Arab Jamahiriya, Japan, Jordan, Kuwait, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, Pakistan, Qatar, Kyrgyzstan and Sudan, the band 17.3-17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. **21.3** and **21.5** shall apply. (WRC-07)

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

5.516A In the band 17.3-17.7 GHz, earth stations of the fixed-satellite service (space-to-Earth) in Region 1 shall not claim protection from the broadcasting-satellite service feeder-link earth stations operating under Appendix 30A, nor put any limitations or restrictions on the locations of the broadcasting-satellite service feeder-link earth stations anywhere within the service area of the feeder link. (WRC 03)

5.516B The following bands are identified for use by high-density applications in the fixed-satellite service (HDFSS): 17.3-17.7 GHz (space-to-Earth) in Region 1 18.3-19.3 GHz (space-to-Earth) in Region 2 19.7-20.2 GHz (space-to-Earth) in all Regions 39.5-40 GHz (space-to-Earth) in Region 1 40-40.5 GHz (space-to-Earth) in all Regions 40.5-42 GHz (space-to-Earth) in Region 2 47.5-47.9 GHz (space-to-Earth) in Region 1 48.2-48.54 GHz (space-to-Earth) in Region 1 49.44-50.2 GHz (space-to-Earth) in Region 1 and 27.5-27.82 GHz (Earth-to-space) in Region 1 28.35-28.45 GHz (Earth-to-space) in Region 2 28.45-28.94 GHz (Earth-to-space) in all Regions 28.94-29.1 GHz (Earth-to-space) in Region 2 and 3 29.25-29.46 GHz (Earth-to-space) in Region 2 29.46-30 GHz (Earth-to-space) in all Regions 48.2-50.2 GHz (Earth-to-space) in Region 2

This identification does not preclude the use of these bands by other fixed-satellite service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in these Regulations among users of the bands. Administrations should take this into account when considering regulatory provisions in relation to these bands. See Resolution [COM5/6] (WRC 03). (WRC 03)

5.519 *Additional allocation:* the bands 18.0-18.3 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

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

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.

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, Syria, 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/Resolution 46 (Rev.WRC-97) 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/Resolution 46 (Rev.WRC-97) 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.

5.523B The use of the band 19.3 - 19.6 GHz (Earth-to-space) by the FSS is limited to feeder links for non-GSO systems in the MSS. Such use is subject to the application of the provisions of Resolution 46 (Rev.WRC-97)/No. 9.11A, and No. 22.2 does not apply.

5.523C No. 22.2 of the Radio Regulations 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.

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 Resolution 46 (Rev.WRC-97)/ 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 Resolution 46 (Rev.WRC-97)/No. 9.11A and shall continue to be subject to Articles S9 (except No. 9.11A) and 11 procedures, and to the provisions of No. 22.2.

5.523E No. 22.2 of the Radio Regulations 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.

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

5.528 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.

5.530 In Regions 1 and 3, the use of the band 21.4-22 GHz by the broadcasting-satellite service is subject to the provisions of Resolution **525 (Rev.WRC-07)**. (WRC-07)

5.BA02 For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution **[COM5/6] (WRC-07)** shall apply. (WRC-07)

5.BA03 In the bands 1 350-1 400 MHz, 1 427-1 429 MHz, 1 429-1 452 MHz, 22.55-23.55 GHz, 30-31 GHz, 31-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz and 51.4-52.6 GHz, Resolution **[COM5/4] (WRC-07)** applies. (WRC-07)

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.

5.535A 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 Resolution 46(Rev.WRC-97)/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 Resolution 46 (Rev.WRC-97)/No. 9.11A and shall continue to be subject to Articles S9 (except No. 9.11A) and 11 procedures, and to the provisions of No. 22.2.

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 Recommendations ITU R SA.1278 and ITU R SA.1625, respectively. (WRC 03)

5.536B In Germany, Saudi Arabia, Austria, Belgium, Brazil, Bulgaria, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Hungary, India, Iran (Islamic Republic of), Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, **Lebanon**, Liechtenstein, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Sweden, Switzerland, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite 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-07)

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.

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, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **21.3** and **21.5** shall apply. (WRC-07)

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.

5.544 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, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, **Lebanon**, Moldova, Mongolia, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, the United Kingdom, South Africa, Tajikistan, Turkmenistan and Turkey, the allocation of the band 31.5-31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**). (WRC-07)

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

5.548 In designing systems for the inter-satellite service in the band 32.3-33 GHz, for the radionavigation service in the band 3233 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**, Libyan Arab Jamahiriya, Malaysia, Mali, Malta, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, Dem. Rep. of the Congo, Syrian Arab Republic,

Singapore, Somalia, 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-03)

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/m2) in this band. (WRC 03)

5.551H The equivalent power flux-density (epfd) produced in the 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 (space-to-Earth) operating in the 42-42.5 GHz band, 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 42.5-43.5 GHz band 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 42.5-43.5 GHz band 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 and shall apply over the whole sky and for elevation angles higher than the minimum operating angle θ_{min} of the radiotelescope (for which a default value of 5° should be adopted in the absence of notified information).

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

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

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

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC-03)** shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-07)

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 (space-to-Earth) 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/m2) in 1 GHz and –153 dB(W/m2) 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/m2) 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 Radiocommunication 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 [COM5/7] (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 bands 47.2-47.5 GHz and 47.9-48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2-47.5 GHz and 47.9-48.2 GHz is subject to the provisions of Resolution **122 (Rev.WRC-07)**. (WRC-07)

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 radiocommunication services to which these bands are allocated (see No. 5.43).

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

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.

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/m2) in any 500 kHz band at the site of any radio astronomy station. (WRC 03)

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

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.

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).

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).

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.

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).

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.

5.560A The 81-81.5 GHz band is also allocated to the amateur and amateur-satellite services on a secondary basis.

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.

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.

5.562A 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.

5.562B Use of this allocation is limited to space-based radio astronomy only

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/(m2 . MHz)) for all angles of arrival.

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

5.562F In the band 155.5-158.5 GHz, the allocation to the Earth exploration-satellite (passive) and space research (passive) services shall terminate on 1 January 2018

5.562G The date of entry into force of the allocation to the fixed and mobile services in the band 155.5-158.5 GHz shall be 1 January 2018.

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 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 –144 dB(W/(m2 . MHz)) for all angles of arrival.

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.

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.

5.565 The frequency band 275-1 000 GHz may be used by administrations for experimentation with, and development of, various active and passive services. In this band a need has been identified for the following spectral line measurements for passive services:

- radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz,

795909 GHz and 926-945 GHz;

– Earth exploration-satellite service (passive) and space research service (passive): 275-277 GHz, 294-306 GHz, 316-334 GHz, 342-349 GHz, 363-365 GHz, 371-389 GHz, 416-434 GHz, 442-444 GHz, 496-506 GHz, 546-568 GHz, 624-629 GHz, 634-654 GHz, 659-661 GHz, 684-692 GHz, 730-732 GHz, 851-853 GHz and 951-956 GHz. Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the date when the allocation table is established in the above-mentioned frequency band.

LNFT Annex 4 - Relevant CEPT Documentation

Channel Plans and Arrangements

ECC/ERC document	*ECC/ERC document title*
ERC REC 00-05	Fixed wireless access in 24.5-26.5 GHz
ERC REC 01-02	Channel arrangement for digital fixed service in 31.8-33.4 GHz
ERC REC 12-02	Channel arrangement for 12.75-13.25 GHz
ERC REC 12-03	Channel arrangement for 17.7-19.7 GHz
ERC REC 12-05	Channel arrangement for 10.0 – 10.68 GHz
ERC REC 12-06	Channel arrangement for 10.7-11.7 GHz
ERC REC 12-08	Channel arrangement for 3600-4200 MHz
ERC REC 12-09	Channel arrangement for 57-59 GHz
ERC REC 12-10	Channel arrangement for 48.5-50.2 GHz
ERC REC 12-11	Channel arrangement for 51.4-52.6 GHz
ERC REC 12-12	Channel arrangement for 10.0-10.68 GHz
ERC REC 13-04	Fixed Wireless Access in 3-29.5 GHz
ERC REC 14-01	Channel arrangement for 5925-6425
ERC REC 14-02	Channel arrangement for 6425-7125 MHz
ERC REC 14-03	Channel arrangement for 3400-3600 MHz
ERC REC T/R 12-01	Channel arrangements for analogue and digital terrestrial fixed systems in 37-39.5 GHz
ERC REC T/R 13-01	Channel arrangement for fixed services in the range 1-3 GHz
ERC REC T/R 13-02	Channel arrangement for fixed services in the range 22.0-29.5 GHz
ERC REC T/R 25-08	Land Mobile Service in the range 29.7 - 960 MHz **See Annex 1 to the LNFT**

Other Documents

ERC REC T/R 22-03	Use of the Frequency Range 54.25-66 GHz by terrestrial fixed and mobile systems.
ERC REC 70-03	ERC Recommendation relating to the use of Short Range Devices (SRD)

LNFT Annex 5 – List of Abbreviations

LIST OF ABBREVIATIONS AS USED IN THIS DOCUMENT

BSS	- Broadcasting Satellite Service
CEPT	- European Conference of Postal and Telecommunications Administrations
CRS	-Central Radio Station
DEC	-ERC/ECC Decision
DECT	-Digital Enhanced Cordless Telecommunication System
DME	-Distance Measuring Equipment
DMO	-Direct Mode Operation
DSI	-Detailed Spectrum Investigation
DVB-T	- Terrestrial Digital Video Broadcasting
ECC	- Electronic Communications Committee of CEPT
EESS	-Earth Exploration-Satellite Service
EGSM	- Extended GSM
ENG	- Electronic News Gathering
EPIRB	- Emergency Position-Indicating Radiobeacon
ERC	- European Radiocommunications Committee of CEPT
FB	-Base station (in a mobile radio system)
FDD	-Frequency Division Duplex
FM	-Frequency modulation
FSS	-Fixed Satellite Service
FWA	-Fixed Wireless Access
GMDSS	-Global Maritime Distress and Safety System
GNSS	-Global Navigation Satellite System
GSM	-Global System for Mobile Communications
GSM 900	-Global System for Mobile communications (at 900 MHz)
GSM 1800	-Global System for Mobile communications (at 1800 MHz)
HAPS	-High Altitude Platform Systems
HDTV	-High Definition Television
IBCN	-Integrated Broadband Communications Network
ILS	-Instrument Landing System
IMT	-International Mobile Telecommunications
ISM	-Industrial, Scientific and Medical applications
ITS	-Intelligent Transport Systems
ITU	-International Telecommunication Union

LIST OF ABBREVIATIONS AS USED IN THIS DOCUMENT

ML	- Mobile station (in a mobile radio system)
MLS	- Microwave Landing System
MSI	- Maritime Safety Information
MSS	- Mobile Satellite Service
MWS	-Multimedia Wireless Systems
NATO	-North Atlantic Treaty Organisation
NGSO	-Non-geostationary Satellite Orbit
OB	-Outside Broadcasting
OR	-Off-Route
PAMR	-Public Access Mobile Radio (PMR)
PMR	-Professional Mobile Radio, Private Mobile Radio
R	- Route
RA	- Radio Astronomy
RFID	- Radio Frequency Identification systems
RLAN	- Radio Local Area Network
RR	- Radio Regulations
RTTT	- Road Transport & Traffic Telematics
SAB	- Services Ancillary to Broadcasting
SAP	-Services Ancillary to Programming
SNG	-Satellite News Gathering
S-PCS	-Satellite Personal Communication System
SRD	-Short Range Devices
SSR	-Secondary Surveillance Radar
T-DAB	- Terrestrial Digital Audio Broadcasting
TETRA	- Terrestrial Trunked Radio
TS	-Terminal Station
VLBI)	-Very Long Baseline Interferometry (Radio Astronomy
VOR	- VHF Omni-directional Range
VTS	-Vessel Traffic System (radar)
VSAT	- Very Small Aperture Terminal
WARC-92	- World Administrative Radio Conference 1992
WRC(95)	-World Radiocommunication Conference 1995 (or other year)