INFORMATION &
eGOVERNMENT AUTHORITY

KINGDOM OF BAHRAIN

NATIONAL FREQUENCY PLAN

2016

Version 1/2016

Contents

1. Introduction

The radio frequency spectrum is a finite national resource and it is therefore vitally important that the spectrum resource is utilised in an efficient and effective manner. The National Frequency Plan (NFP) is a key instrument in spectrum resource management providing information on which radiocommunciations services are permitted in each frequency band in the Kingdom of Bahrain.

In addition to honoring international agreements, the NFP should reflect national policy on the use of the radio spectrum (in support of the broader objectives for the telecommunications, Security and broadcasting sectors, as well as Government users) and is the result of a planned, cooperative process.
In accordance with a mandate outlined in the Cabinet Decision No. 50 of 2015 with respect to Establishment and Formation of the Spectrum Strategy and Coordination Committee, the said Committee (SSCC) has approved the NFP presented in this document.

The extent to which the full benefits of the radio spectrum are realised depends on the actual use that is made of it and how efficiently it is managed. The NFP has been prepared & managed by Directorate of wireless Licensing, Frequency and Monitoring in accordance with the NFP "Definition" in Article (1) and Article (42) "Supervision of Telecommunications Frequencies" in the Legislative Decree No.48 of 2002 taking full account of the National Spectrum Planning and Allocation policy and the SSCC's members inputs.

The primary objectives for the use of the radio spectrum include the following:-

- Satisfy the requirements of international obligations and treaties;
- Support economic growth and create employment;
- Satisfy the spectrum requirements of sector members including those responsible for national security and defence;
- Meet the needs of civil aviation and the maritime industries;
- Support the introduction of more spectrally efficient technologies, including the timely introduction of digitized broadcasting networks;
- Provide for competitive telecommunication infrastructures through free and fair processes;
- Introduce future generations of public and private mobile technologies;
- Satisfy the spectrum requirements for internationally provided radio navigation services e.g. Galileo and GPS;
- Facilitate the rollout of broadband telecommunications networks;
- Facilitate regionally and globally harmonized frequencies for the PPDR (Public Protection and Disaster Relief) system, in order to help rescue and emergency teams communicate with each other,
- Stimulate technological innovation and competitiveness in a technology neutral fashion;
- Introduce new spectrum management techniques, where appropriate e.g. spectrum commons and spectrum property rights and trading etc;
- Provide spectrum for rural telecommunications with a particular emphasis on the provision of spectrum for telecommunications services for educational (including art and culture) and other public interest (including health and emergency) purposes.

The above objectives should be reflected in the allocations recorded in the NFP.

Kingdom of Bahrain National Frequency Plan

2. **NFP** - Details

The NFP is based on current and forecasted spectrum requirements in the Kingdom for the foreseeable future. Where a longer term implementation is expected, this is mentioned in the additional information column. It is expected that the NFP will be implemented in part or in whole, as soon as is practicably possible.

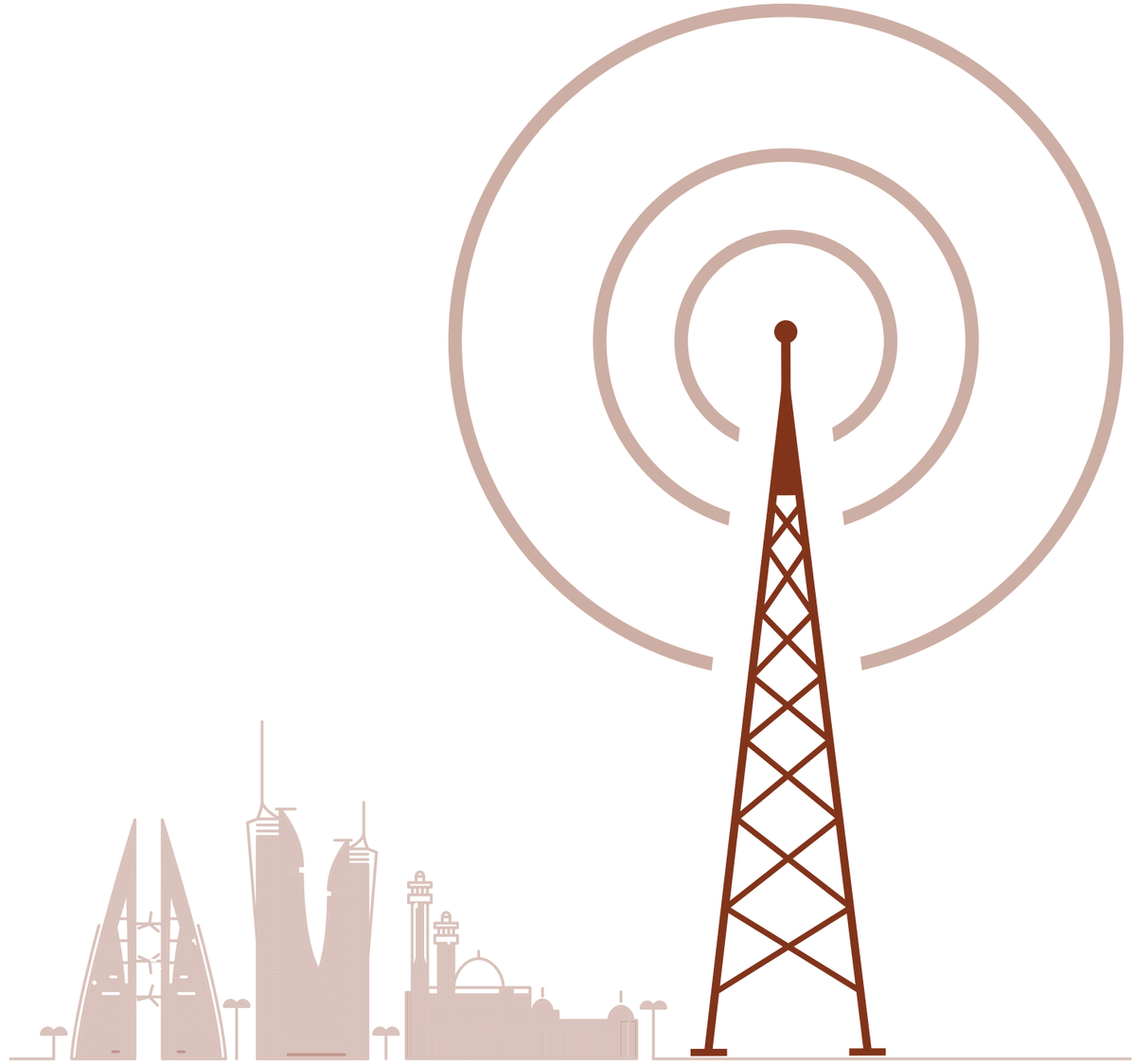
NFP is considered to be as source document for importers, manufacturers, and users of radiocommunications equipment as well as by foreign administrations and regional telecommunication organizations.

Frequency allocations of Radio Regulations keep changing following end of each World Radiocommunication Conference as new frequency allocations are redefined for the favor of specific services with the most growing demands, and old ones phased out. Changes on spectrum utilization will also occur at the international level or as a consequence of national decisions made to meet specific national requirements. The NFP will therefore be reviewed and updated periodically by the Directorate of Wireless Licensing, Frequency & Monitoring and the SSCC will, in consultation with its members, review and revise the NFP before and immediately after an International Telecommunication Union (ITU) World Radiocommunication Conference (WRC) or subsequent to any frequency harmonisation initiative of the Gulf Co-operation Council (GCC) or the League of Arab States “Arab Spectrum Management Group (ASMG)”.

National developments which may lead to a revision to the NFP may include, for example:

- Decisions to adopt new technologies by the SSCC,
- Requests to update technology by incumbent users,
- Changing demands for different radio-based applications,
- Requirements arising from service based national consultative committees.

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 radio frequencies do not respect national borders it is also necessary to take account of spectrum usage in neighboring states.



3. Construction of the **NFP**

The NFP comprises four individual columns:

Column 1: RR Region 1 allocations

This column shows the type of radiocommunication service to which the frequency band in question has been allocated in the Region 1 as per the Article 5 of ITU Radio Regulations (RR-2016). The Region 1 is the geographical (ITU) region in which the Kingdom of Bahrain falls within it. This column includes:

- Frequency Band.
- RR Article 5 allocations which correspond to Region 1 and are generic in nature.
- RR Article 5 footnotes which are relevant to GCC countries and neighboring states and the Kingdom in particular, which are in bold text.

See also Annex 2 for details of the RR Article 5 footnotes mentioned in Column 1.

Column 2: The National Frequency Allocations

For each frequency band:

- Frequency allocations to radiocommunication services in the Kingdom based on Column 1 and RR Art. 5 footnotes.
- Bahrain national footnotes relevant to the frequency band in question.

See also Annex 3 for full details of Bahrain's national footnotes mentioned in Column 2.

Column 3: Major Utilisation

This column, where appropriate, shows information regarding the frequency band and particular service along with the major uses of the radiocommunication spectrum. However the utilisations which are mentioned within a specific radiocommunication services do not preclude the use of other services indicated in the NFP i.e. Column 2.

Column 4: Additional Information

This column shows detailed information about frequency plans and channel arrangements utilised in the Kingdom as well as any pairing arrangements between bands. Reference may also be made to European, ITU or other regulatory texts, where the contents have been adopted in the Kingdom. In addition other relevant information may also be included in this Column.

Underlined italic bolded footnotes numbers: Indicates the footnotes related to Bahrain or neighboring countries. Conditions, constrains and other limitations stated in the bolded footnotes are mandatory to be observed or complied with in the utilization of frequency bands in the Kingdom or by radiocommunication services of the Kingdom to which these footnotes apply.

To summarise, Column 1 therefore reflects the band and services determined in the ITU Radio Regulations, a treaty based document, Column 2 indicates the services in a particular band in the Kingdom. In the majority of cases they are the same or a sub-set of the Column 1 ITU designated services. Where they are not, details are generally found in a national footnote (BHR etc). The reason may be practice in a neighboring country or region and consequentially it has been considered preferable to use the frequencies in the Kingdom in the same or a similar manner, while Column 3 is the utilisation column where the major uses of a frequency band in the Kingdom can be found. Column 4 provides useful information on the channel arrangements and pairing of frequencies as well as other pertinent references or parameters.

4. Key ITU Definitions

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

4.1 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.

4.2 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.

4.3 Assignment (of a radio frequency or radio frequency channel):
Authorisation given by an administration for a radio station to use a radio frequency or radio frequency channel under specified conditions.

4.4 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, Kazakstan, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russian Federation which lies between lines A and C as shown in **Figure (1)**.

4.5 Region 2:
Region 2 includes the area limited on the east by line B and on the west by line C as shown in Figure (1).

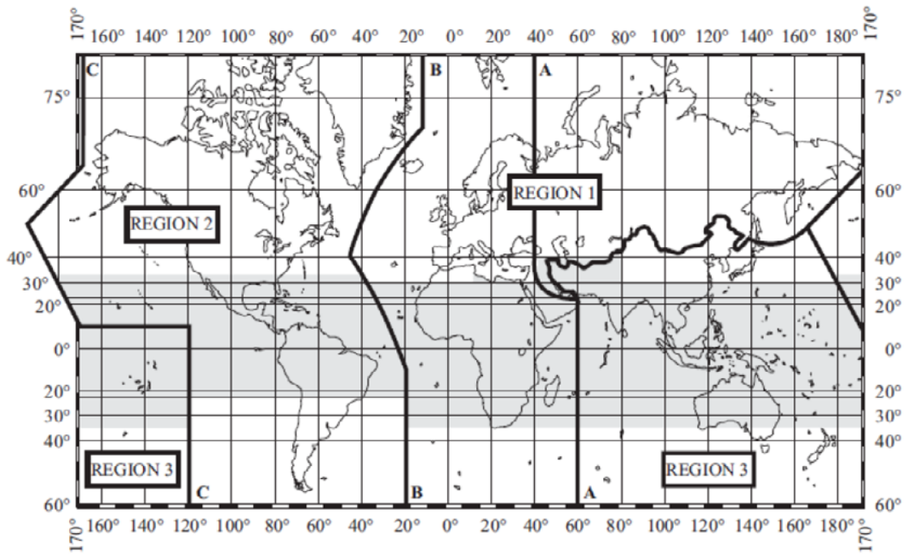


Figure (1)

4.6 Region 3:
Region 3 includes the area limited on the east by line C and on the west by line A as shown in Figure (1), except any of the territory of Armenia, Azerbaijan, Russian Federation, Georgia, Kazakstan, 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.

4.7 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.

4.8 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.

4.9 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.

4.10 Primary Services:
Radiocommunication services detailed in columns 1 and 2 of the NFP which are in upper case letters (e.g. MOBILE) have primary status, the highest category of 'access' to radio frequencies;

4.11 Secondary Services:
Radiocommunication services detailed in columns 1 and 2 of the NFP which are in lower case letters (e.g. Mobile) have secondary status;

4.11.1 Stations of a secondary service:
- shall not cause harmful interference to stations of primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date
- 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.

4.11.2
When more than one service is listed as having the same status, the order of their listing does not indicate any relative priority among the listed services.

5. National Frequency Plan

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
Below 8.3 KHz (Not allocated) 5.53 ***5.54***	**Below 8.3 KHz** (Not allocated)	Inductive Systems	
8.3-9 KHz METEOROLOGICAL AIDS ***5.54A*** ***5.54B*** 5.54C	**8.3-9 KHz** METEOROLOGICAL AIDS RADIONAVIGATION FIXED MOBILE	Inductive Systems	
9-11.3 KHz METEOROLOGICAL AIDS ***5.54A*** RADIONAVIGATION	**9-11.3 KHz** METEOROLOGICAL AIDS RADIONAVIGATION **BHR4**	Inductive Systems	
11.3-14 KHz RADIONAVIGATION	**11.3-14 KHz** RADIONAVIGATION **BHR4**	Inductive Systems	
14-19.95 KHz FIXED MARITIME MOBILE ***5.57*** 5.55 ***5.56***	**14-19.95 KHz** FIXED MARITIME MOBILE **BHR4**	Inductive Systems	
19.95-20.05 KHz STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	**19.95-20.05 KHz** STANDARD FREQUENCY AND TIME SIGNAL (20 kHz) **BHR4**	Inductive Systems	Refer to the ITU Radio Regulation Article 26
20.05-70 KHz FIXED MARITIME MOBILE ***5.57*** ***5.56*** 5.58	**20.05-70 KHz** FIXED MARITIME MOBILE **BHR4**	Inductive Systems	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
70-72 KHz RADIONAVIGATION ***5.60***	**70-72 KHz** RADIONAVIGATION **BHR4**	Inductive Systems	
72-84 KHz FIXED MARITIME MOBILE ***5.57*** RADIONAVIGATION ***5.60*** ***5.56***	**72-84 KHz** FIXED MARITIME MOBILE RADIONAVIGATION **BHR4**	Inductive Systems	
84-86 KHz RADIONAVIGATION ***5.60***	**84-86 KHz** RADIONAVIGATION **BHR4**	Inductive Systems	
86-90 KHz FIXED MARITIME MOBILE ***5.57*** RADIONAVIGATION ***5.56***	**86-90 KHz** FIXED MARITIME MOBILE RADIONAVIGATION **BHR4**	Inductive Systems	
90-110 KHz RADIONAVIGATION ***5.62*** Fixed ***5.64***	**90-110 KHz** RADIONAVIGATION Fixed **BHR4**	Inductive Systems	
110-112 KHz FIXED MARITIME MOBILE RADIONAVIGATION ***5.64***	**110-112 KHz** FIXED MARITIME MOBILE RADIONAVIGATION **BHR4**	Inductive Systems	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
112-115 KHz RADIONAVIGATION ***5.60***	**112-115 KHz** RADIONAVIGATION **BHR4**	Inductive Systems	
115-117.6 KHz RADIONAVIGATION ***5.60*** Fixed Maritime mobile ***5.64*** 5.66	**115-117.6 KHz** RADIONAVIGATION Fixed Maritime mobile **BHR4**	Inductive Systems	
117.6-126 KHz FIXED MARITIME MOBILE RADIONAVIGATION ***5.60*** ***5.64***	**117.6-126 KHz** FIXED MARITIME MOBILE RADIONAVIGATION **BHR4**	Inductive Systems	
126-129 KHz RADIONAVIGATION ***5.60***	**126-129 KHz** RADIONAVIGATION **BHR4**	Inductive Systems	
129-130 KHz FIXED MARITIME MOBILE RADIONAVIGATION ***5.60*** ***5.64***	**129-130 KHz** FIXED MARITIME MOBILE RADIONAVIGATION **BHR4**	Inductive Systems	
130-135.7 KHz FIXED MARITIME MOBILE ***5.64*** 5.67	**130-135.7 KHz** FIXED MARITIME MOBILE **BHR4**	Inductive Systems	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
135.7-137.8 KHz FIXED MARITIME MOBILE Amateur ***5.67A*** ***5.64*** 5.67 5.67B	**135.7-137.8 KHz** FIXED MARITIME MOBILE Amateur **BHR2** **BHR4**	Inductive Systems	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
137.8-148.5 KHz FIXED MARITIME MOBILE ***5.64*** 5.67	**137.8-148.5 KHz** FIXED MARITIME MOBILE **BHR4**	Inductive Systems	
148.5-255 KHz BROADCASTING 5.68 5.69 5.70	**148.5-255 KHz** BROADCASTING **BHR4**		Refer to the ITU GE75 Plan
255-283.5 KHz BROADCASTING AERONAUTICAL RADIONAVIGATION 5.70 5.71	**255-283.5 KHz** BROADCASTING AERONAUTICAL RADIONAVIGATION **BHR4**		For Broadcasting refer to the ITU GE75 Plan
283.5-315 KHz AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) **5.73** 5.72 **5.74**	**283.5-315 KHz** AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
315-325 KHz AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) ***5.73*** 5.72 5.75	**315-325 KHz** AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) **BHR4**		
325-405 KHz AERONAUTICAL RADIONAVIGATION 5.72	**325-405 KHz** AERONAUTICAL RADIONAVIGATION **BHR4**		
405-415 KHz RADIONAVIGATION ***5.76*** 5.72	**405-415 KHz** RADIONAVIGATION **BHR4**		
415-435 KHz MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION	**415-435 KHz** MARITIME MOBILE AERONAUTICAL RADIONAVIGATION **BHR4**	MARITIME MOBILE	
435-472 KHz MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 ***5.82***	**435-472 KHz** MARITIME MOBILE Aeronautical radionavigation **BHR4**	MARITIME MOBILE	
472-479 KHz MARITIME MOBILE 5.79 Amateur ***5.80A*** Aeronautical radionavigation 5.77 5.80 ***5.80B 5.82***	**472-479 KHz** MARITIME MOBILE Aeronautical radionavigation **BHR4**	MARITIME MOBILE	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
479-495 KHz MARITIME MOBILE 5.79 ***5.79A*** Aeronautical radionavigation 5.77 ***5.82***	**479-495 KHz** MARITIME MOBILE Aeronautical radionavigation **BHR4**	MARITIME MOBILE 490 kHz for NAVTEX (5.79A)	490 kHz 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 (5.82)
495-505 KHz MARITIME MOBILE	**495-505 KHz** MARITIME MOBILE **BHR4**		
505-526.5 KHz MARITIME MOBILE 5.79 ***5.79A*** ***5.84*** AERONAUTICAL RADIONAVIGATION	**505-526.5 KHz** MARITIME MOBILE AERONAUTICAL RADIONAVIGATION **BHR4**	MARITIME MOBILE 518 kHz for NAVTEX (5.79A)	The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles 31 and 52 (5.84)
526.5-1 606.5 KHz BROADCASTING 5.87 5.87A	**526.5-1 606.5 KHz** BROADCASTING **BHR4**	Medium frequency (MF) AM Broadcasting	Refer to the ITU GE75 Plan
1 606.5-1 625 KHz FIXED MARITIME MOBILE 5.90 LAND MOBILE ***5.92***	**1 606.5-1 625 KHz** FIXED MARITIME MOBILE LAND MOBILE **BHR4**		
1 625-1 635 KHz RADIOLOCATION 5.93	**1 625-1 635 KHz** RADIOLOCATION **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
1 635-1 800 KHz FIXED MARITIME MOBILE 5.90 LAND MOBILE ***5.92*** 5.96	**1 635-1 800 KHz** FIXED MARITIME MOBILE LAND MOBILE **BHR4**		
1 800-1 810 KHz RADIOLOCATION 5.93	**1 800-1 810 KHz** RADIOLOCATION **BHR4**		
1 810-1 850 KHz AMATEUR 5.98 ***5.99*** ***5.100*** 5.101	**1 810-1 850 KHz** AMATEUR **BHR2** **BHR4**		Maximum power for Amateur is 400W (e.i.r.p).
1 850-2 000 KHz FIXED MOBILE except aeronautical mobile ***5.92*** 5.96 ***5.103***	**1 850-2 000 KHz** FIXED MOBILE except aeronautical mobile Amateur **BHR1 BHR2** **BHR4**		Maximum power for Amateur is 10W (e.i.r.p).
2 000-2 025 KHz FIXED MOBILE except aeronautical mobile (R) ***5.92*** ***5.103***	**2 000-2 025 KHz** FIXED MOBILE except aeronautical mobile (R) **BHR4**		
2 025-2 045 KHz FIXED MOBILE except aeronautical mobile (R) Meteorological aids ***5.104*** ***5.92*** ***5.103***	**2 025-2 045 KHz** FIXED MOBILE except aeronautical mobile (R) Meteorological aids **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
2 045-2 160 KHz FIXED MARITIME MOBILE LAND MOBILE ***5.92***	**2 045-2 160 KHz** FIXED MARITIME MOBILE LAND MOBILE **BHR4**	MARITIME MOBILE	
2 160-2 170 KHz RADIOLOCATION 5.93 ***5.107***	**2 160-2 170 KHz** RADIOLOCATION **BHR4**		
2 170-2 173.5 KHz MARITIME MOBILE	**2 170-2 173.5 KHz** MARITIME MOBILE		
2 173.5-2 190.5 KHz MOBILE (distress and calling) ***5.108*** ***5.109*** ***5.110*** ***5.111***	**2 173.5-2 190.5 KHz** MOBILE (distress and calling) **BHR4**	2 174.5 KHz for Distress 2 182 KHz for Distress and Calling 2 187.5 KHz for Distress for digital selective Calling	The conditions for the use of the band 2 173.5-2 190.5 kHz are prescribed in Articles 31 and 52 (5.108) The conditions for the use of 2 187.5 KHz are prescribed in Article 31 (5.109), The conditions for the use of 2 174.5 kHz are prescribed in Articles 31 (5.110), The carrier frequency 2 182 kHz, 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 (5.111)

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
2 190.5-2 194 KHz MARITIME MOBILE	**2 190.5-2 194 KHz** MARITIME MOBILE **BHR4**		
2 194-2 300 KHz FIXED MOBILE except aeronautical mobile (R) ***5.92*** ***5.103*** 5.112	**2 194-2 300 KHz** FIXED MOBILE except aeronautical mobile (R) **BHR4**	MOBILE except aeronautical mobile (R)	
2 300-2 498 KHz FIXED MOBILE except aeronautical mobile (R) BROADCASTING ***5.113*** ***5.103***	**2 300-2 498 KHz** FIXED MOBILE except aeronautical mobile (R) BROADCASTING **BHR4**	MOBILE except aeronautical mobile (R)	For Broadcasting, refer to the ITU Radio Regulation Article 23
2 498-2 501 KHz STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)	**2 498-2 501 KHz** STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz) **BHR4**		Refer to the ITU Radio Regulation Article 26
2 501-2 502 KHz STANDARD FREQUENCY AND TIME SIGNAL Space Research	**2 501-2 502 KHz** STANDARD FREQUENCY AND TIME SIGNAL Space Research **BHR4**		Refer to the ITU Radio Regulation Article 26
2 502-2 625 KHz FIXED MOBILE except aeronautical mobile (R) ***5.92*** ***5.103*** 5.114	**2 502-2 625 KHz** FIXED MOBILE except aeronautical mobile (R) **BHR4**	MOBILE except aeronautical mobile (R)	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
2 625-2 650 KHz MARITIME MOBILE MARITIME RADIONAVIGATION ***5.92***	**2 625-2 650 KHz** MARITIME MOBILE MARITIME RADIONAVIGATION **BHR4**		
2 650-2 850 KHz FIXED MOBILE except aeronautical mobile (R) ***5.92*** ***5.103***	**2 650-2 850 KH** FIXED MOBILE except aeronautical mobile (R) **BHR4**		
2 850-3 025 KHz AERONAUTICAL MOBILE (R) ***5.111*** ***5.115***	**2 850-3 025 KHz** AERONAUTICAL MOBILE (R) **BHR4**	3 023 KHz for Search and rescue	The carrier frequency 3 023 kHz, 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 (5.111, 5.115)
3 025-3 155 KHz AERONAUTICAL MOBILE (OR)	**3 025-3 155 KHz** AERONAUTICAL MOBILE (OR) **BHR4**		
3 155-3 200 KHz FIXED MOBILE except aeronautical mobile (R) ***5.116*** 5.117	**3 155-3 200 KHz** FIXED MOBILE except aeronautical mobile (R) **BHR4**	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
3 200-3 230 KHz FIXED MOBILE except aeronautical mobile (R) BROADCASTING ***5.113*** ***5.116***	**3 200-3 230 KHz** FIXED MOBILE except aeronautical mobile (R) BROADCASTING **BHR4**	FIXED	For Broadcasting, refer to the ITU Radio Regulation Article 23
3 230-3 400 KHz FIXED MOBILE except aeronautical mobile BROADCASTING ***5.113*** ***5.116*** 5.118	**3 230-3 400 KHz** FIXED MOBILE except aeronautical mobile BROADCASTING **BHR4**	FIXED MOBILE except aeronautical mobile	For Broadcasting, refer to the ITU Radio Regulation Article 23
3 400-3 500 KHz AERONAUTICAL MOBILE (R)	**3 400-3 500 KHz** AERONAUTICAL MOBILE (R) **BHR4**		
3 500-3 800 KHz AMATEUR FIXED MOBILE except aeronautical mobile ***5.92***	**3 500-3 800 KHz** AMATEUR **BHR2** FIXED MOBILE except aeronautical mobile **BHR4**		Maximum power for Amateur is 100W (e.i.r.p).
3 800-3 900 KHz FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	**3 800-3 900 KHz** FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE **BHR4**	FIXED LAND MOBILE	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
3 900-3 950 KHz AERONAUTICAL MOBILE (OR) 5.123	**3 900-3 950 KHz** AERONAUTICAL MOBILE (OR) **BHR4**		
3 950-4 000 KHz FIXED BROADCASTING	**3 950-4 000 KHz** FIXED BROADCASTING **BHR4**	FIXED	For Broadcasting, refer to the ITU Radio Regulation Article 23
4 000-4 063 KHz FIXED MARITIME MOBILE ***5.127*** 5.126	**4 000-4 063 KHz** FIXED MARITIME MOBILE **BHR4**	FIXED	
4 063-4 438 KHz MARITIME MOBILE ***5.79A*** ***5.109*** ***5.110*** ***5.130*** ***5.131*** ***5.132*** 5.128	**4 063-4 438 KHz** MARITIME MOBILE **BHR4**	4 125 KHz for Distress and Safety 4 177.5 KHz for Distress 4 207.5 KHz for Distress for digital selective Calling 4 209.5 kHz for NAVTEX (5.79A) 4 210 kHz for maritime safety information (MSI)	The conditions for the use of 4 177.5 kHz are prescribed in Articles 31 (5.110) The conditions for the use of 4 207.5 KHz are prescribed in Article 31 (5.109) The conditions for the use of the carrier frequency 4 125 kHz is prescribed in Articles 31 and 52 (5.130) 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 (5.131)

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
4 650-4 700 KHz AERONAUTICAL MOBILE (R)	**4 650-4 700 KHz** AERONAUTICAL MOBILE (R) **BHR4**		
4 700-4 750 KHz AERONAUTICAL MOBILE (R)	**4 700-4 750 KHz** AERONAUTICAL MOBILE (R) **BHR4**		
4 750-4 850 KHz FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING ***5.113***	**4 750-4 850 KHz** FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING **BHR4**	LAND MOBILE	For Broadcasting refer to the ITU Radio Regulation Article 23
4 438-4 488 KHz FIXED MOBILE except aeronautical mobile (R) Radiolocation ***5.132A*** 5.132B	**4 438-4 488 KHz** FIXED MOBILE except aeronautical mobile (R) Radiolocation	FIXED MOBILE except aeronautical mobile (R)	
4 488-4 650 KHz FIXED MOBILE except aeronautical mobile (R)	**4 488-4 650 KHz** FIXED MOBILE except aeronautical mobile (R) **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
4 850-4 995 KHz FIXED LAND MOBILE BROADCASTING ***5.113***	**4 850-4 995 KHz** FIXED LAND MOBILE BROADCASTING **BHR4**	FIXED	For Broadcasting refer to the ITU Radio Regulation Article 23
4 995-5 003 KHz STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)	**4 995-5 003 KHz** STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz) **BHR4**		Refer to the ITU Radio Regulation Article 26
5 003-5 005 KHz STANDARD FREQUENCY AND TIME SIGNAL Space research	**5 003-5 005 KHz** STANDARD FREQUENCY AND TIME SIGNAL Space research **BHR4**		Refer to the ITU Radio Regulation Article 26
5 005-5 060 KHz FIXED BROADCASTING ***5.113***	**5 005-5 060 KHz** FIXED BROADCASTING **BHR4**		For Broadcasting, refer to the ITU Radio Regulation Article 23
5 060-5 250 KHz FIXED Mobile except aeronautical mobile 5.133	**5 060-5 250 KHz** FIXED Mobile except aeronautical mobile **BHR4**	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
5 250-5 275 KHz FIXED MOBILE except aeronautical mobile Radiolocation ***5.132A*** 5.133A	**5 250-5 275 KHz** FIXED MOBILE except aeronautical mobile Radiolocation **BHR4**	FIXED MOBILE except aeronautical mobile	
5 275-5 351.5 KHz FIXED MOBILE except aeronautical mobile	**5 275-5 351.5 KHz** FIXED MOBILE except aeronautical mobile **BHR4**		
5 351.5 -5 366.5 KHz FIXED MOBILE except aeronautical mobile Amateur ***5.133B***	**5 351.5 -5 366.5 KHz** FIXED MOBILE except aeronautical mobile Amateur **BHR2** **BHR4**		Stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 15 W (e.i.r.p.) Only 5 357.5 KHz and 5 363.5 KHz are allocated for Amateur.
5 366.5 -5 450 KHz FIXED MOBILE except aeronautical mobile	**5 366.5 -5 450 KHz** FIXED MOBILE except aeronautical mobile **BHR4**		
5 450-5 480 KHz FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	**5 450-5 480 KHz** FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
5 480-5 680 KHz AERONAUTICAL MOBILE (R) ***5.111*** ***5.115***	**5 480-5 680 KHz** AERONAUTICAL MOBILE (R) **BHR4**		
5 680-5 730 KHz AERONAUTICAL MOBILE (OR) ***5.111*** ***5.115***	**5 680-5 730 KHz** AERONAUTICAL MOBILE (OR) **BHR4**	5 680 KHz for Search and rescue	The carrier frequency 5 680 kHz, 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 (5.111)
5 730-5 900 KHz FIXED LAND MOBILE	**5 730-5 900 KHz** FIXED LAND MOBILE **BHR4**	FIXED	
5 900-5 950 KHz BROADCASTING ***5.134*** ***5.136***	**5 900-5 950 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12
5 950-6 200 KHz BROADCASTING	**5 950-6 200 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
6 200-6 525 KHz MARITIME MOBILE ***5.109*** ***5.110*** ***5.130*** ***5.132*** ***5.137***	**6 200-6 525 KHz** MARITIME MOBILE **BHR4**	6 215 KHz for Distress and Safety 6 268 KHz for Distress 6 312 KHz for Distress for digital selective Calling 6 314 kHz for maritime safety information (MSI)	The conditions for the use of 6 268 kHz are prescribed in Articles 31 (5.110) The conditions for the use of 6 312 KHz are prescribed in Article 31 (5.109) The conditions for the use of the carrier Frequency 6 215 kHz is prescribed in Articles 31 and 52 (5.130).
6 525-6 685 KHz AERONAUTICAL MOBILE (R)	**6 525-6 685 KHz** AERONAUTICAL MOBILE (R) **BHR4**		
6 685-6 765 KHz AERONAUTICAL MOBILE (OR)	**6 685-6 765 KHz** AERONAUTICAL MOBILE (OR) **BHR4**		
6 765-7 000 KHz FIXED MOBILE except aeronautical mobile (R) ***5.138***	**6 765-7 000 KHz** FIXED MOBILE except aeronautical mobile (R) **BHR4**	FIXED	
7 000-7 100 KHz AMATEUR AMATEUR-SATELLITE 5.140 5.141 5.141A	**7 000-7 100 KHz** AMATEUR **BHR2** AMATEUR-SATELLITE **BHR4**		Maximum power for Amateur is 400W (e.i.r.p).

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
7 100-7 200 KHz AMATEUR 5.141A ***5.141B***	**7 100-7 200 KHz** AMATEUR **BHR2** FIXED MOBILE except aeronautical mobile (R) **BHR4**		Maximum power for Amateur is 400W (e.i.r.p).
7 200-7 300 KHz BROADCASTING	**7 200-7 300 KHz** BROADCASTING **BHR4**		Refer to the ITU Radio Regulation Article 12
7 300-7 400 KHz BROADCASTING ***5.134*** ***5.143*** 5.143A ***5.143B*** ***5.143C*** 5.143D	**7 300-7 400 KHz** BROADCASTING FIXED **BHR4**		For Broadcasting refer to the ITU Radio Regulation Article 12
7 400-7 450 KHz BROADCASTING ***5.143B*** ***5.143C***	**7 400-7 450 KHz** BROADCASTING FIXED **BHR4**		For Broadcasting refer to the ITU Radio Regulation Article 12
7 450-8 100 KHz FIXED MOBILE except aeronautical mobile (R) 5.144	**7 450-8 100 KHz** FIXED MOBILE except aeronautical mobile (R) **BHR4**	FIXED	
8 100-8 195 KHz FIXED MARITIME MOBILE	**8 100-8 195 KHz** FIXED MARITIME MOBILE **BHR4**	MARITIME MOBILE	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
8 195-8 815 KHz MARITIME MOBILE ***5.109*** ***5.110*** ***5.132*** ***5.145*** ***5.111***	**8 195-8 815 KHz** MARITIME MOBILE **BHR4**	8 291 KHz for Distress and Safety 8 364 KHz for Search and rescue 8 376.5 KHz for Distress 8 414.5 KHz for Distress for digital selective Calling 8 416.5 kHz for maritime safety information (MSI)	The conditions for the use of 8 376.5 kHz are prescribed in Articles 31 (5.110) The conditions for the use of 8 414.5 KHz are prescribed in Article 31 (5.109) The carrier frequency 8 364 kHz, 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 (5.111) The conditions for the use of the carrier frequency 8 291 kHz, is prescribed in Articles 31 and 52 (5.145)
8 815-8 965 KHz AERONAUTICAL MOBILE (R)	**8 815-8 965 KHz** AERONAUTICAL MOBILE (R) **BHR4**		
8 965-9 040 KHz AERONAUTICAL MOBILE (OR)	**8 965-9 040 KHz** AERONAUTICAL MOBILE (OR) **BHR4**		
9 040-9 305 KHz FIXED	**9 040-9 305 KHz** FIXED **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
9 305-9 355 KHz FIXED Radiolocation ***5.145A*** 5.145B	**9 305-9 355 KHz** FIXED Radiolocation **BHR4**		
9 355-9 400 KHz FIXED	**9 355-9 400 KHz** FIXED **BHR4**		
9 400-9 500 KHz BROADCASTING ***5.134*** ***5.146***	**9 400-9 500 KHz** BROADCASTING **BHR4**		Refer to the ITU Radio Regulation Article 12
9 500-9 900 KHz BROADCASTING ***5.147***	**9 500-9 900 KHz** BROADCASTING **BHR4**		Refer to the ITU Radio Regulation Article 12
9 900-9 995 KHz FIXED	**9 900-9 995 KHz** FIXED **BHR4**		
9 995-10 003 KHz STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) ***5.111***	**9 995-10 003 KHz** STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) **BHR4**		Refer to the ITU Radio Regulation Article 26
10 003-10 005 KHz STANDARD FREQUENCY AND TIME SIGNAL Space research ***5.111***	**10 003-10 005 KHz** STANDARD FREQUENCY AND TIME SIGNAL Space research **BHR4**		Refer to the ITU Radio Regulation Article 26

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
10 005-10 100 KHz AERONAUTICAL MOBILE (R) ***5.111***	**10 005-10 100 KHz** AERONAUTICAL MOBILE (R) **BHR4**		
10 100-10 150 KHz FIXED Amateur	**10 100-10 150 KHz** FIXED Amateur **BHR2** **BHR4**	FIXED	Maximum power for Amateur is 400W (e.i.r.p).
10 150-11 175 KHz FIXED Mobile except aeronautical mobile (R)	**10 150-11 175 KHz** FIXED Mobile except aeronautical mobile (R) **BHR4**	FIXED	
11 175-11 275 KHz AERONAUTICAL MOBILE (OR)	**11 175-11 275 KHz** AERONAUTICAL MOBILE (OR) **BHR4**		
11 275-11 400 KHz AERONAUTICAL MOBILE (R)	**11 275-11 400 KHz** AERONAUTICAL MOBILE (R) **BHR4**		
11 400-11 600 KHz FIXED	**11 400-11 600 KHz** FIXED **BHR4**		
11 600-11 650 KHz BROADCASTING ***5.134*** ***5.146***	**11 600-11 650 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
11 650-12 050 KHz BROADCASTING ***5.147***	**11 650-12 050 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12
12 050-12 100 KHz BROADCASTING ***5.134*** ***5.146***	**12 050-12 100 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12
12 100-12 230 KHz FIXED	**12 100-12 230 KHz** FIXED **BHR4**		
12 230-13 200 KHz MARITIME MOBILE ***5.109*** ***5.110*** ***5.132*** ***5.145***	**12 230-13 200 KHz** MARITIME MOBILE **BHR4**	12 290 KHz for Distress and Safety 12 520 KHz for Distress 12 577 KHz for Distress for digital selective Calling 12 579 kHz for maritime safety information (MSI)	The conditions for the use of 12 520 kHz are prescribed in Articles 31 (5.110) The conditions for the use of 12 577 KHz are prescribed in Article 31 (5.109) The conditions for the use of the carrier frequency 12 290 kHz is prescribed in Articles 31 and 52 (5.145)
13 200-13 260 KHz AERONAUTICAL MOBILE (OR)	**13 200-13 260 KHz** AERONAUTICAL MOBILE (OR) **BHR4**		
13 260-13 360 KHz AERONAUTICAL MOBILE (R)	**13 260-13 360 KHz** AERONAUTICAL MOBILE (R) **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
13 360-13 410 KHz FIXED RADIO ASTRONOMY ***5.149***	**13 360-13 410 KHz** FIXED RADIO ASTRONOMY **BHR4**	FIXED	
13 410-13 450 KHz FIXED Mobile except aeronautical mobile (R)	**13 410-13 450 KHz** FIXED Mobile except aeronautical mobile (R) **BHR4**		
13 450-13 550 KHz FIXED Mobile except aeronautical mobile (R) Radiolocation ***5.132A*** 5.149A	**13 450-13 550 KHz** FIXED Mobile except aeronautical mobile (R) Radiolocation **BHR4**		
13 550-13 570 KHz FIXED Mobile except aeronautical mobile (R) ***5.150***	**13 550-13 570 KHz** FIXED Mobile except aeronautical mobile (R) **BHR4**	Mobile except aeronautical mobile (R)	
13 570-13 600 KHz BROADCASTING ***5.134*** ***5.151***	**13 570-13 600 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12
13 600-13 800 KHz BROADCASTING	**13 600-13 800 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
13 800-13 870 KHz BROADCASTING ***5.134*** ***5.151***	**13 800-13 870 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12
13 870-14 000 KHz FIXED Mobile except aeronautical mobile (R)	**13 870-14 000 KHz** FIXED Mobile except aeronautical mobile (R) **BHR4**		
14 000-14 250 KHz AMATEUR AMATEUR-SATELLITE	**14 000-14 250 KHz** AMATEUR **BHR2** AMATEUR-SATELLITE **BHR4**		Maximum power for Amateur is 400W (e.i.r.p).
14 250-14 350 KHz AMATEUR 5.152	**14 250-14 350 KHz** AMATEUR **BHR2** **BHR4**		Maximum power for Amateur is 400W (e.i.r.p).
14 350-14 990 KHz FIXED Mobile except aeronautical mobile (R)	**14 350-14 990 KHz** FIXED Mobile except aeronautical mobile (R) **BHR4**		
14 990-15 005 KHz STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) ***5.111***	**14 990-15 005 KHz** STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) **BHR4**		Refer to the ITU Radio Regulation Article 26

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
15 005-15 010 KHz STANDARD FREQUENCY AND TIME SIGNAL Space research	**15 005-15 010 KHz** STANDARD FREQUENCY AND TIME SIGNAL Space research **BHR4**		Refer to the ITU Radio Regulation Article 26
15 010-15 100 KHz AERONAUTICAL MOBILE (OR)	**15 010-15 100 KHz** AERONAUTICAL MOBILE (OR) **BHR4**		
15 100-15 600 KHz BROADCASTING	**15 100-15 600 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12
15 600-15 800 KHz BROADCASTING ***5.134*** ***5.146***	**15 600-15 800 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12
15 800-16 100 KHz FIXED 5.153	**15 800-16 100 KHz** FIXED **BHR4**		
16 100-16 200 KHz FIXED Radiolocation ***5.145A*** 5.145B	**16 100-16 200 KHz** FIXED Radiolocation **BHR4**		
16 200-16 360 KHz FIXED	**16 200-16 360 KHz** FIXED **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
16 360-17 410 KHz MARITIME MOBILE ***5.109*** ***5.110*** ***5.132*** ***5.145***	**16 360-17 410 KHz** MARITIME MOBILE **BHR4**	16 420 KHz for Distress and Safety 16 695 KHz for Distress 16 804.5 KHz for Distress for digital selective Calling 16 806.5 kHz for maritime safety information (MSI)	The conditions for the use of 16 695 kHz are prescribed in Articles 31 (5.110) The conditions for the use of 16 804.5 KHz are prescribed in Article 31 (5.109) The conditions for the use of the carrier frequency 16 420 kHz is prescribed in Articles 31 and 52 (5.145)
17 410-17 480 KHz FIXED	**17 410-17 480 KHz** FIXED **BHR4**		
17 480-17 550 KHz BROADCASTING ***5.134*** ***5.146***	**17 480-17 550 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12
17 550-17 900 KHz BROADCASTING	**17 550-17 900 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12
17 900-17 970 KHz AERONAUTICAL MOBILE (R)	**17 900-17 970 KHz** AERONAUTICAL MOBILE (R) **BHR4**		
17 970-18 030 KHz AERONAUTICAL MOBILE (OR)	**17 970-18 030 KHz** AERONAUTICAL MOBILE (OR) **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
18 030-18 052 KHz FIXED	**18 030-18 052 KHz** FIXED **BHR4**		
18 052-18 068 KHz FIXED Space research	**18 052-18 068 KHz** FIXED Space research **BHR4**	FIXED	
18 068-18 168 KHz AMATEUR AMATEUR-SATELLITE 5.154	**18 068-18 168 KHz** AMATEUR **BHR2** AMATEUR-SATELLITE **BHR4**		Maximum power for Amateur is 400W (e.i.r.p).
18 168-18 780 KHz FIXED Mobile except aeronautical mobile	**18 168-18 780 KHz** FIXED Mobile except aeronautical mobile **BHR4**	FIXED	
18 780-18 900 KHz MARITIME MOBILE	**18 780-18 900 KHz** MARITIME MOBILE **BHR4**		
18 900-19 020 KHz BROADCASTING ***5.134*** ***5.146***	**18 900-19 020 KHz** BROADCASTING **BHR4**		Refer to the ITU Radio Regulation Article 12
19 020-19 680 KHz FIXED	**19 020-19 680 KHz** FIXED **BHR4**		
19 680-19 800 KHz MARITIME MOBILE ***5.132***	**19 680-19 800 KHz** MARITIME MOBILE **BHR4**	19 680.5 kHz for maritime safety information (MSI)	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
19 800-19 990 KHz FIXED	**19 800-19 990 KHz** FIXED **BHR4**		
19 990-19 995 KHz STANDARD FREQUENCY AND TIME SIGNAL Space research ***5.111***	**19 990-19 995 KHz** STANDARD FREQUENCY AND TIME SIGNAL Space research **BHR4**		Refer to the ITU Radio Regulation Article 26
19 995-20 010 KHz STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) ***5.111***	**19 995-20 010 KHz** STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) **BHR4**		Refer to the ITU Radio Regulation Article 26
20 010-21 000 KHz FIXED Mobile	**20 010-21 000 KHz** FIXED Mobile **BHR4**		
21 000-21 450 KHz AMATEUR AMATEUR-SATELLITE	**21 000-21 450 KHz** AMATEUR **BHR2** AMATEUR-SATELLITE **BHR4**		Maximum power for Amateur is 400W (e.i.r.p).
21 450-21 850 KHz BROADCASTING	**21 450-21 850 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12
21 850-21 870 KHz FIXED 5.155A 5.155	**21 850-21 870 KHz** FIXED **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
21 870-21 924 KHz FIXED ***5.155B***	**21 870-21 924 KHz** FIXED **BHR4**		
21 924-22 000 KHz AERONAUTICAL MOBILE (R)	**21 924-22 000 KHz** AERONAUTICAL MOBILE (R) **BHR4**		
22 000-22 855 KHz MARITIME MOBILE ***5.132*** 5.156	**22 000-22 855 KHz** MARITIME MOBILE **BHR4**	22 376 kHz for maritime safety information (MSI)	
22 855-23 000 KHz FIXED 5.156	**22 855-23 000 KHz** FIXED **BHR4**		
23 000-23 200 KHz FIXED Mobile except aeronautical mobile (R) 5.156	**23 000-23 200 KHz** FIXED Mobile except aeronautical mobile (R) **BHR4**		
23 200-23 350 KHz FIXED ***5.156A*** AERONAUTICAL MOBILE (OR)	**23 200-23 350 KHz** FIXED AERONAUTICAL MOBILE (OR) **BHR4**		
23 350-24 000 KHz FIXED MOBILE except aeronautical mobile ***5.157***	**23 350-24 000 KHz** FIXED MOBILE except aeronautical mobile **BHR4**	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
24 000-24 450 KHz FIXED LAND MOBILE	**24 000-24 450 KHz** FIXED LAND MOBILE **BHR4**	FIXED	
24 450-24 600 KHz FIXED LAND MOBILE Radiolocation ***5.132A*** 5.158	**24 450-24 600 KHz** FIXED LAND MOBILE Radiolocation **BHR4**	FIXED	
24 600-24 890 KHz FIXED LAND MOBILE	**24 600-24 890 KHz** FIXED LAND MOBILE **BHR4**	FIXED	
24 890-24 990 KHz AMATEUR AMATEUR-SATELLITE	**24 890-24 990 KHz** AMATEUR **BHR2** AMATEUR-SATELLITE **BHR4**		Maximum power for Amateur is 400W (e.i.r.p).
24 990-25 005 KHz STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)	**24 990-25 005 KHz** STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz) **BHR4**		Refer to the ITU Radio Regulation Article 26
25 005-25 010 KHz STANDARD FREQUENCY AND TIME SIGNAL Space research	**25 005-25 010 KHz** STANDARD FREQUENCY AND TIME SIGNAL Space research **BHR4**		Refer to the ITU Radio Regulation Article 26

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
25 010-25 070 KHz FIXED MOBILE except aeronautical mobile	**25 010-25 070 KHz** FIXED MOBILE except aeronautical mobile **BHR4**		
25 070-25 210 KHz MARITIME MOBILE	**25 070-25 210 KHz** MARITIME MOBILE **BHR4**		
25 210-25 550 KHz FIXED MOBILE except aeronautical mobile	**25 210-25 550 KHz** FIXED MOBILE except aeronautical mobile **BHR4**		
25 550-25 670 KHz RADIO ASTRONOMY ***5.149***	**25 550-25 670 KHz** RADIO ASTRONOMY **BHR4**		
25 670-26 100 KHz BROADCASTING	**25 670-26 100 KHz** BROADCASTING **BHR4**	HF Broadcasting	Refer to the ITU Radio Regulation Article 12
26 100-26 175 KHz MARITIME MOBILE ***5.132***	**26 100-26 175 KHz** MARITIME MOBILE **BHR4**	26 100.5 kHz for maritime safety information (MSI)	
26 175-26 200 KHz FIXED MOBILE except aeronautical mobile	**26 175-26 200 KHz** FIXED MOBILE except aeronautical mobile **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
26 200-26 350 KHz FIXED MOBILE except aeronautical mobile Radiolocation ***5.132A*** 5.133A	**26 200-26 350 KHz** FIXED MOBILE except aeronautical mobile Radiolocation **BHR4**		
26 350-27 500 KHz FIXED MOBILE except aeronautical mobile ***5.150***	**26 350-27 500 KHz** FIXED MOBILE except aeronautical mobile **BHR4**		
27 500-28 000 KHz METEOROLOGICAL AIDS FIXED MOBILE	**27 500-28 000 KHz** METEOROLOGICAL AIDS FIXED MOBILE **BHR4**	FIXED MOBILE	
28 000-29 700 KHz AMATEUR AMATEUR-SATELLITE	**28 000-29 700 KHz** AMATEUR **BHR2** AMATEUR-SATELLITE **BHR4**		Maximum power for Amateur is 500W (e.i.r.p).
29 700-30 005 KHz FIXED MOBILE	**29 700-30 005 KHz** FIXED MOBILE **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
30.005-30.01 MHz SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	**30.005-30.01 MHz** SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH **BHR4**		
30.01-37.5 MHz FIXED MOBILE	**30.01-37.5 MHz** FIXED MOBILE **BHR4**		
37.5-38.25 MHz FIXED MOBILE Radio astronomy ***5.149***	**37.5-38.25 MHz** FIXED MOBILE Radio astronomy **BHR4**	MOBILE	
38.25-39 MHz FIXED MOBILE	**38.25-39 MHz** FIXED MOBILE **BHR4**		
39-39.5 MHz FIXED MOBILE Radiolocation ***5.132A*** 5.159	**39-39.5 MHz** FIXED MOBILE Radiolocation **BHR4**	MOBILE	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
39.5-39.986 MHz FIXED MOBILE	**39.5-39.986 MHz** FIXED MOBILE **BHR4**	MOBILE	
39.986-40.02 MHz FIXED MOBILE Space research	**39.986-40.02 MHz** FIXED MOBILE Space research **BHR4**		
40.02-40.98 MHz FIXED MOBILE ***5.150***	**40.02-40.98 MHz** FIXED MOBILE **BHR4**		
40.98-41.015 MHz FIXED MOBILE Space research 5.160 5.161	**40.98-41.015 MHz** FIXED MOBILE Space research **BHR4**		
41.015-42 MHz FIXED MOBILE 5.160 5.161 5.161A	**41.015-42 MHz** FIXED MOBILE **BHR4**		
42-42.5 MHz FIXED MOBILE Radiolocation ***5.132A*** 5.160 5.161B	**42-42.5 MHz** FIXED MOBILE Radiolocation **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
42.5-44 MHz FIXED MOBILE 5.160 5.161 5.161A	**42.5-44 MHz** FIXED MOBILE **BHR4**		
44-47 MHz FIXED MOBILE 5.162 5.162A	**44-47 MHz** FIXED MOBILE **BHR4**		
47-68 MHz BROADCASTING 5.162A 5.163 5.164 5.165 5.169 5.171	**47-50 MHz** BROADCASTING **BHR4**		Refer to the ITU GE89 Plan
	50-52 MHz BROADCASTING Amateur **BHR1 BHR2**		For Broadcasting refer to the ITU GE89 Plan Maximum power for Amateur is 100W (e.i.r.p)
	52-68 MHz BROADCASTING		Refer to the ITU GE89 Plan
68-74.8 MHz FIXED MOBILE except aeronautical mobile ***5.149*** 5.175 5.177 5.179	**68-69.9 MHz** FIXED MOBILE except aeronautical mobile		
	69.9-70.4 MHz FIXED MOBILE except aeronautical mobile Amateur **BHR1 BHR2**		Maximum power for Amateur is 50W (e.i.r.p).
	70.4-74.8 MHz FIXED MOBILE except aeronautical mobile		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
74.8-75.2 MHz AERONAUTICAL RADIONAVIGATION ***5.180*** 5.181	**74.8-75.2 MHz** AERONAUTICAL RADIONAVIGATION		
75.2-87.5 MHz FIXED MOBILE except aeronautical mobile 5.175 5.179 5.187	**75.2-87.5 MHz** FIXED MOBILE except aeronautical mobile		
87.5-100 MHz BROADCASTING **5.190**	**87.5-100 MHz** BROADCASTING **BHR4**	FM Broadcasting	Refer to the ITU GE84 Plan
100-108 MHz BROADCASTING 5.192 5.194	**100-108 MHz** BROADCASTING **BHR4**	FM Broadcasting	Refer to the ITU GE84 Plan
108-117.975 MHz AERONAUTICAL RADIONAVIGATION 5.197 ***5.197A***	**108-117.975 MHz** AERONAUTICAL RADIONAVIGATION		
117.975-137 MHz AERONAUTICAL MOBILE (R) ***5.111*** ***5.200*** 5.201 ***5.202***	**117.975-137 MHz** AERONAUTICAL MOBILE (R)	121.5 MHz for aeronautical emergency	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 (5.200)

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
137-137.025 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) ***5.208A*** ***5.208B*** ***5.209*** SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) ***5.204*** 5.205 5.206 5.207 ***5.208***	**137-137.025 MHz** SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) FIXED MOBILE except aeronautical mobile (R)	MOBILE except aeronautical mobile (R)	
137.025-137.175 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) ***5.208A*** ***5.208B*** ***5.209*** ***5.204*** 5.205 5.206 5.207 ***5.208***	**137.025-137.175 MHz** SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) FIXED MOBILE except aeronautical mobile (R) Mobile-satellite (space-to-Earth)		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
137.175-137.825 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) ***5.208A*** ***5.208B*** ***5.209*** SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) ***5.204*** 5.205 5.206 5.207 ***5.208***	**137.175-137.825 MHz** SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) FIXED MOBILE except aeronautical mobile (R)		
137.825-138 MHz SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) ***5.208A*** ***5.208B*** ***5.209*** ***5.204*** 5.205 5.206 5.207 ***5.208***	**137.825-138 MHz** SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) FIXED MOBILE except aeronautical mobile (R) Mobile-satellite (space-to-Earth)		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
138-143.6 MHz AERONAUTICAL MOBILE (OR) 5.210 ***5.211*** 5.212 5.214	**138-143.6 MHz** AERONAUTICAL MOBILE (OR) MARITIME MOBILE LAND MOBILE **BHR4**		
143.6-143.65 MHz AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) ***5.211*** 5.212 5.214	**143.6-143.65 MHz** AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) MARITIME MOBILE LAND MOBILE		
143.65-144 MHz AERONAUTICAL MOBILE (OR) 5.210 ***5.211*** 5.212 5.214	**143.65-144 MHz** AERONAUTICAL MOBILE (OR) MARITIME MOBILE LAND MOBILE		
144-146 MHz AMATEUR AMATEUR-SATELLITE 5.216	**144-146 MHz** AMATEUR **BHR2** AMATEUR-SATELLITE		Maximum power for Amateur is 100W (e.i.r.p).
146-148 MHz FIXED MOBILE except aeronautical mobile (R)	**146-148 MHz** FIXED MOBILE except aeronautical mobile (R)	MOBILE except aeronautical mobile (R)	PMR

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
148-149.9 MHz FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) ***5.209*** ***5.218*** ***5.219*** ***5.221***	**148-149.9 MHz** FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space)	MOBILE except aeronautical mobile (R)	PMR
149.9-150.05 MHz MOBILE-SATELLITE (Earth-to-space) ***5.209*** ***5.220***	**149.9-150.05 MHz** MOBILE-SATELLITE (Earth-to-space)		
150.05-153 MHz FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY ***5.149***	**150.05-153 MHz** FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY	MOBILE except aeronautical mobile	PMR
153-154 MHz FIXED MOBILE except aeronautical mobile (R) Meteorological aids	**153-154 MHz** FIXED MOBILE except aeronautical mobile (R) Meteorological aids	MOBILE except aeronautical mobile (R)	PMR
154-156.4875 MHz FIXED MOBILE except aeronautical mobile (R) 5.225A ***5.226***	**154-156.4875 MHz** FIXED MOBILE except aeronautical mobile (R)	From156.025 MHz VHF maritime mobile band channels	Standard Maritime channels according to Appendix 18.

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
156.4875-156.5625 MHz MARITIME MOBILE (distress and calling via DSC) ***5.111*** ***5.226*** ***5.227***	**156.4875-156.5625 MHz** MARITIME MOBILE (distress and calling via DSC)	156.525 MHz for Distress, Safety and Calling (DSC)	Standard Maritime channels according to Appendix 18. The conditions for the use of the frequency 156.525 MHz and the band 156.4875-156.5625 MHz are contained in Articles 31 and 52, and in Appendix 18.
156.5625-156.7625 MHz FIXED MOBILE except aeronautical mobile (R) ***5.226***	**156.5625-156.7625 MHz** FIXED MOBILE except aeronautical mobile (R)		Standard Maritime channels according to Appendix 18.
156.7625-156.7875 MHz MARITIME MOBILE Mobile-satellite (Earth-to-space) ***5.111*** ***5.226*** ***5.228***	**156.7625-156.7875 MHz** MARITIME MOBILE Mobile-satellite (Earth-to-space)	MARITIME MOBILE	Standard Maritime channels according to Appendix 18.
156.7875-156.8125 MHz MARITIME MOBILE (distress and calling) ***5.111*** ***5.226***	**156.7875-156.8125 MHz** MARITIME MOBILE (distress and calling)	156.8 MHz for Distress, Safety and Calling (DSC)	Standard Maritime channels according to Appendix 18.
156.8125-156.8375 MHz MARITIME MOBILE Mobile-satellite (Earth-to-space) ***5.111*** ***5.226*** ***5.228***	**156.8125-156.8375 MHz** MARITIME MOBILE Mobile-satellite (Earth-to-space)		Standard Maritime channels according to Appendix 18.
156.8375-161.9375 MHz FIXED MOBILE except aeronautical mobile ***5.226***	**156.8375-161.9375 MHz** FIXED MOBILE except aeronautical mobile		Standard Maritime channels according to Appendix 18.

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
161.9375-161.9625 MHz FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to-space) ***5.228AA*** ***5.226***	**161.9375-161.9625 MHz** FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to-space)		Standard Maritime channels according to Appendix 18.
161.9625-161.9875 MHz FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) ***5.228F*** ***5.226*** ***5.228A*** ***5.228B***	**161.9625-161.9875 MHz** FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space)		Standard Maritime channels according to Appendix 18.
161.9875-162.0125 MHz FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to-space) ***5.228AA*** ***5.226*** 5.229	**161.9875-162.0125 MHz** FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to-space)		Standard Maritime channels according to Appendix 18.
162.0125-162.0375 MHz FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) ***5.228F*** ***5.226*** ***5.228A*** ***5.228B*** 5.229	**162.0125-162.0375 MHz** FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space)		Standard Maritime channels according to Appendix 18.

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
162.0375-174 MHz FIXED MOBILE except aeronautical mobile ***5.226*** 5.229	**162.0375-174 MHz** FIXED MOBILE except aeronautical mobile **BHR4**		
174-223 MHz BROADCASTING	**174-223 MHz** BROADCASTING **BHR4**	Broadcasting Band III DAB	Refer to the ITU GE06 Plan SAB
223-230 MHz BROADCASTING Fixed Mobile 5.243 5.246 ***5.247***	**223-230 MHz** BROADCASTING AERONAUTICAL RADIONAVIGATION Fixed Mobile	Broadcasting Band III DAB	For Broadcasting refer to the ITU GE06 Plan SAB
230-235 MHz FIXED MOBILE ***5.247*** 5.251 5.252	**230-235 MHz** FIXED MOBILE AERONAUTICAL RADIONAVIGATION **BHR4**		
235-267 MHz FIXED MOBILE ***5.111*** 5.252 ***5.254*** ***5.256*** 5.256A	**235-267 MHz** FIXED MOBILE **BHR4**	243 MHz for survival craft stations and equipment used for survival purposes	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
267-272 MHz FIXED MOBILE Space operation (space-to-Earth) ***5.254*** ***5.257***	**267-272 MHz** FIXED MOBILE Space operation (space-to-Earth) **BHR4**	FIXED MOBILE	
272-273 MHz SPACE OPERATION (space-to-Earth) FIXED MOBILE ***5.254***	**272-273 MHz** SPACE OPERATION (space-to-Earth) FIXED MOBILE **BHR4**		
273-312 MHz FIXED MOBILE ***5.254***	**273-312 MHz** FIXED MOBILE **BHR 4**		
312-315 MHz FIXED MOBILE Mobile-satellite (Earth-to-space) ***5.254*** ***5.255***	**312-315 MHz** FIXED MOBILE Mobile-satellite (Earth-to-space) **BHR 4**		315 MHz Bahrain keyless system
315-322 MHz FIXED MOBILE ***5.254***	**315-322 MHz** FIXED MOBILE **BHR 4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
322-328.6 MHz FIXED MOBILE RADIO ASTRONOMY ***5.149***	**322-328.6 MHz** FIXED MOBILE RADIO ASTRONOMY **BHR4**		
328.6-335.4 MHz AERONAUTICAL RADIONAVIGATION ***5.258*** 5.259	**328.6-335.4 MHz** AERONAUTICAL RADIONAVIGATION **BHR4**		
335.4-387 MHz FIXED MOBILE ***5.254***	**335.4-387 MHz** FIXED MOBILE **BHR4**		380-385 MHz paired with 390-395 MHz are harmonized PPDR for GCC and other R1 countries
387-390 MHz FIXED MOBILE Mobile-satellite (space-to-Earth) ***5.208A*** ***5.208B*** ***5.254*** ***5.255***	**387-390 MHz** FIXED MOBILE **BHR4**		
390-399.9 MHz FIXED MOBILE **5.254**	**390-399.9 MHz** FIXED MOBILE **BHR4**		390-395 MHz paired with 380-385 MHz are harmonized PPDR for GCC and other R1 countries
399.9-400.05 MHz MOBILE-SATELLITE (Earth-to-space) ***5.209*** ***5.220***	**399.9-400.05 MHz** MOBILE-SATELLITE (Earth-to-space) **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
400.05-400.15 MHz STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) ***5.261*** ***5.262***	**400.05-400.15 MHz** STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) FIXED MOBILE **BHR4**		Refer to the ITU Radio Regulation Article 26
400.15-401 MHz METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) ***5.208A*** ***5.208B*** ***5.209*** SPACE RESEARCH (space-to-Earth) ***5.263*** Space operation (space-to-Earth) ***5.262*** ***5.264***	**400.15-401 MHz** METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) FIXED MOBILE Space operation (space-to-Earth) **BHR4**	MOBILE	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
401-402 MHz METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	**401-402 MHz** METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile **BHR4**	Mobile except aeronautical mobile	
402-403 MHz METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	**402-403 MHz** METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile **BHR4**	Mobile except aeronautical mobile	
403-406 MHz METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile **5.265**	**403-406 MHz** METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile **BHR4**	Mobile except aeronautical mobile	PMR Resolve 1 in Resolution 205 (Rev.WRC-15) to request administrations not to make new frequency assignments within the frequency bands **405.9-406.0 MHz and 406.1-406.2 MHz** under the mobile and fixed services.

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
406-406.1 MHz MOBILE-SATELLITE (Earth-to-space) ***5.265 5.266 5.267***	**406-406.1 MHz** MOBILE-SATELLITE (Earth-to-space) **BHR4**	CSPAS-SARSAT Mobile-satellite service is limited to low power satellite emergency position-indicating radiobea-cons	Resolve 1 in Resolution 205 (Rev.WRC-15) to request administrations not to make new frequency assignments within the frequency bands **405.9-406.0 MHz and 406.1-406.2 MHz** under the mobile and fixed services.
406.1-410 MHz FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY ***5.149 5.265***	**406.1-410 MHz** FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY **BHR4**	FIXED MOBILE except aeronautical mobile	PMR Resolve 1 in Resolution 205 (Rev.WRC-15) to request administrations not to make new frequency assignments within the frequency bands **405.9-406.0 MHz and 406.1-406.2 MHz** under the mobile and fixed services
410-420 MHz FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) ***5.268***	**410-420 MHz** FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) **BHR4**	FIXED MOBILE except aeronautical mobile	PMR
420-430 MHz FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271	**420-430 MHz** FIXED MOBILE except aeronautical mobile **BHR4**		PMR

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
430-432 MHz AMATEUR RADIOLOCATION 5.271 5.272 5.273 5.274 5.275 ***5.276*** 5.277	**430-432 MHz** AMATEUR **BHR2** FIXED MOBILE except aeronautical mobile **BHR 4**		PMR Maximum power for Amateur is 25W (e.i.r.p). AMATEUR 430.2 MHz and 431.2 MHz
432-438 MHz AMATEUR RADIOLOCATION Earth exploration-satellite (active) ***5.279A*** ***5.138*** 5.271 5.272 ***5.276*** 5.277 5.280 5.281 ***5.282***	**432-435 MHz** FIXED MOBILE except aeronautical mobile Earth exploration-satellite (active) **BHR4**	FIXED MOBILE except aeronautical mobile	PMR 435 – 438 MHz utilized to be used for Mobile except aeronautical mobile in Bahrain
	435-438 MHz FIXED MOBILE except aeronautical mobile **BHR1** Earth exploration-satellite (active) **BHR4**		
438-440 MHz AMATEUR RADIOLOCATION 5.271 5.273 5.274 5.275 ***5.276*** 5.277 5.283	**438-440 MHz** FIXED MOBILE except aeronautical mobile **BHR4**		PMR

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
440-450 MHz FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271 5.284 5.285 ***5.286***	**440-450 MHz** FIXED MOBILE except aeronautical mobile **BHR4**		PMR
450-455 MHz FIXED MOBILE ***5.286AA*** ***5.209*** 5.271 ***5.286*** ***5.286A*** 5.286B 5.286C 5.286D 5.286E	**450-455 MHz** FIXED MOBILE **BHR4**		PMR
455-456 MHz FIXED MOBILE ***5.286AA*** ***5.209*** 5.271 ***5.286A*** 5.286B 5.286C 5.286E	**455-456 MHz** FIXED MOBILE **BHR4**		PMR
456-459 MHz FIXED MOBILE ***5.286AA*** 5.271 ***5.287*** 5.288	**456-459 MHz** FIXED MOBILE **BHR4**		PMR
459-460 MHz FIXED MOBILE ***5.286AA*** ***5.209*** 5.271 ***5.286A*** 5.286B 5.286C 5.286E	**459-460 MHz** FIXED MOBILE **BHR4**		PMR

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
460-470 MHz FIXED MOBILE ***5.286AA*** Meteorological-satellite (space-to-Earth) ***5.287*** 5.288 ***5.289*** 5.290	**460-470 MHz** FIXED MOBILE Meteorological-satellite (space-to-Earth) **BHR4**		PMR
470-694 MHz BROADCASTING ***5.149*** 5.291A ***5.294*** ***5.296*** ***5.300*** 5.304 5.306 ***5.311A*** 5.312	**470-694 MHz** BROADCASTING Land mobile **BHR4**	Broadcasting digital TV GE06 Plan	Land mobile for the applications ancillary to broadcasting and programme-making. For Broadcasting refer to the ITU GE06 Plan SAB - SAP
694-790 MHz MOBILE except aeronautical mobile ***5.312A*** ***5.317A*** BROADCASTING ***5.300*** ***5.311A*** 5.312	**694-790 MHz** MOBILE except aeronautical mobile **BHR4**	New IMT Band Portion of this band is allocated for PPDR	This service is subject to the provisions of Resolution 232 (WRC-12). See also Resolution 224 (Rev.WRC-12) (5.312A)
790-862 MHz FIXED MOBILE except aeronautical mobile ***5.316B*** ***5.317A*** BROADCASTING 5.312 5.319	**790-862 MHz** MOBILE except aeronautical mobile **BHR4**	New IMT Band	Can be used 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 greement. Resolutions 224 (Rev. WRC-12) and 749 (Rev. WRC-12) shall apply, as appropriate (5.316B)

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
862-890 MHz FIXED MOBILE except aeronautical mobile ***5.317A*** BROADCASTING 5.322 5.319 5.323	**862-890 MHz** MOBILE except aeronautical mobile **BHR4**	IMT Band	SRD 863-870 MHz GCC harmonized Railways 876-880 paired with 921-925 MHz 880-915 paired with 925-960 MHz
890-942 MHz FIXED MOBILE except aeronautical mobile ***5.317A*** BROADCASTING 5.322 Radiolocation 5.323	**890-942 MHz** MOBILE except aeronautical mobile **BHR4**	IMT	GCC harmonized Railways 876-880 paired with 921-925 MHz 880-915 paired with 925-960 MHz
942-960 MHz FIXED MOBILE except aeronautical mobile ***5.317A*** BROADCASTING 5.322 5.323	**942-960 MHz** MOBILE except aeronautical mobile **BHR4**	IMT	880-915 paired with 925-960 MHz
960-1 164 MHz AERONAUTICAL MOBILE (R) ***5.327A*** AERONAUTICAL RADIONAVIGATION ***5.328*** ***5.328AA***	**960-1 164 MHz** AERONAUTICAL MOBILE (R) AERONAUTICAL RADIONAVIGATION **BHR4**		DME landing\ground reply\interrogation

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
1 164-1 215 MHz AERONAUTICAL RADIONAVIGATION ***5.328*** RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) ***5.328B*** ***5.328A***	**1 164-1 215 MHz** AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) **BHR4**		DME landing\ground reply\interrogation
1 215-1 240 MHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) ***5.328B*** ***5.329*** ***5.329A*** SPACE RESEARCH (active) ***5.330*** ***5.331*** ***5.332***	**1 215-1 240 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) SPACE RESEARCH (active) FIXED MOBILE RADIONAVIGATION **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
1 240-1 300 MHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) ***5.328B*** ***5.329*** ***5.329A*** SPACE RESEARCH (active) Amateur ***5.282*** ***5.330*** ***5.331*** **5.332** 5.335 ***5.335A***	**1 240-1 300 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) SPACE RESEARCH (active) FIXED MOBILE RADIONAVIGATION Amateur **BHR2** **BHR4**		Maximum power for Amateur is 100W (e.i.r.p). Amateur in the band 1296-1296.4 MHz only
1 300-1 350 MHz RADIOLOCATION AERONAUTICAL RADIONAVIGATION ***5.337*** RADIONAVIGATION-SATELLITE (Earth-to-space) ***5.149*** ***5.337A***	**1 300-1 350 MHz** RADIOLOCATION AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) **BHR4**		
1 350-1 400 MHz FIXED MOBILE RADIOLOCATION ***5.149*** 5.338 ***5.338A*** ***5.339***	**1 350-1 400 MHz** FIXED MOBILE RADIOLOCATION **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
1 400-1 427 MHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340*** ***5.341***	**1 400-1 427 MHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) **BHR4**	Passive Band	
1 427-1 429 MHz SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile ***5.341A*** 5.341B 5.341C ***5.338A*** ***5.341***	**1 427-1 429 MHz** FIXED MOBILE except aeronautical mobile **BHR4**	IMT	Identified as IMT Band in accordance with Resolution 223 (Rev.WRC-15) with applying the conditions mentioned in 5.341A
1 429-1 452 MHz FIXED MOBILE except aeronautical mobile ***5.341A*** ***5.338A*** ***5.341*** 5.342	**1 429-1 452 MHz** FIXED MOBILE except aeronautical mobile **BHR4**	IMT	Identified as IMT Band in accordance with Resolution 223 (Rev.WRC-15) with applying the conditions mentioned in 5.341A
1 452-1 492 MHz FIXED MOBILE except aeronautical mobile ***5.346*** BROADCASTING BROADCASTING-SATELLITE ***5.208B*** ***5.341*** 5.342 ***5.345***	**1 452-1 492 MHz** FIXED MOBILE except aeronautical mobile **BHR4**	IMT	Identified as IMT Band in accordance with Resolution 223 (Rev.WRC-15) with applying the conditions mentioned in 5.346

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
1 492-1 518 MHz FIXED MOBILE except aeronautical mobile ***5.341A*** ***5.341*** 5.342	**1 492-1 518 MHz** FIXED MOBILE except aeronautical mobile **BHR4**	IMT	Identified as IMT Band in accordance with Resolution 223 (Rev. WRC-15) with applying the conditions mentioned in 5.341A
1 518-1 525 MHz FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) ***5.348*** ***5.348A*** ***5.348B*** ***5.351A*** ***5.341*** 5.342	**1 518-1 525 MHz** FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) **BHR4**		Mobile Satellite Systems
1 525-1 530 MHz SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) ***5.208B*** ***5.351A*** Earth exploration-satellite Mobile except aeronautical mobile ***5.349*** ***5.341*** 5.342 5.350 ***5.351*** ***5.352A*** ***5.354***	**1 525-1 530 MHz** SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Earth exploration-satellite **BHR4**		Mobile Satellite Systems

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
1 530-1 535 MHz SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) ***5.208B*** ***5.351A*** ***5.353A*** Earth exploration-satellite Fixed Mobile except aeronautical mobile ***5.341*** 5.342 ***5.351*** ***5.354***	**1 530-1 535 MHz** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite Fixed Mobile except aeronautical mobile **BHR4**	1 530-1 544 MHz for GMDSS	Mobile Satellite Systems Priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS) (5.353A)
1 535-1 559 MHz MOBILE-SATELLITE (space-to-Earth) **5.208B 5.351A** ***5.341*** ***5.351*** ***5.353A*** ***5.354*** ***5.355*** ***5.356*** 5.357 ***5.357A*** ***5.359*** 5.362A	**1 535-1 540 MHz** MOBILE-SATELLITE (space-to-Earth) **BHR4**	1 530-1 544 MHz for GMDSS	Mobile Satellite Systems Priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS) (5.353A)
	1 540-1 559 MHz MOBILE-SATELLITE (space-to-Earth) Fixed **BHR4**	1 544-1 545 MHz for GMDSS	
1 559-1 610 MHz AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) ***5.208B*** ***5.328B*** ***5.329A*** ***5.341***	**1 559-1 610 MHz** AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) **BHR4**		Radionavigation Systems

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
1 610-1 610.6 MHz MOBILE-SATELLITE (Earth-to-space) ***5.351A*** AERONAUTICAL RADIONAVIGATION ***5.341*** ***5.355*** ***5.359*** ***5.364*** ***5.366*** ***5.367*** ***5.368*** 5.369 ***5.371*** ***5.372***	**1 610-1 610.6 MHz** MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Fixed **BHR4**		Mobile Satellite Systems Radionavigation Systems
1 610.6-1 613.8 MHz MOBILE-SATELLITE (Earth-to-space) ***5.351A*** RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION ***5.149*** ***5.341*** ***5.355*** ***5.359*** ***5.364*** ***5.366*** ***5.367*** ***5.368*** 5.369 ***5.371*** ***5.372***	**1 610.6-1 613.8 MHz** MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Fixed **BHR4**		Mobile Satellite Systems
1 613.8-1 626.5 MHz MOBILE-SATELLITE (Earth-to-space) ***5.351A*** AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) ***5.208B*** ***5.341*** ***5.355*** ***5.359*** ***5.364*** ***5.365*** ***5.366*** ***5.367*** ***5.368*** 5.369 ***5.371*** ***5.372***	**1 613.8-1 626.5 MHz** MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) Fixed **BHR4**		Mobile Satellite Systems

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
1 626.5-1 660 MHz MOBILE-SATELLITE (Earth-to-space) ***5.351A*** ***5.341*** ***5.351*** ***5.353A*** ***5.354*** ***5.355*** ***5.357A*** ***5.359*** 5.362A ***5.374*** ***5.375*** 5.376	**1 626.5-1 645.5 MHz** MOBILE-SATELLITE (Earth-to-space) Fixed **BHR4**	1 626.5-1 645.5 MHz for GMDSS	Mobile Satellite Systems Priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS) (5.353A)
	1 645.5-1 646.5 MHz MOBILE-SATELLITE (Earth-to-space) Fixed **BHR4**		Mobile Satellite Systems
	1 646.5-1 660 MHz MOBILE-SATELLITE (Earth-to-space) Fixed **BHR4**		Mobile Satellite Systems
1 660-1 660.5 MHz MOBILE-SATELLITE (Earth-to-space) ***5.351A*** RADIO ASTRONOMY ***5.149*** ***5.341*** ***5.351*** ***5.354*** 5.362A ***5.376A***	**1 660-1 660.5 MHz** MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY **BHR4**		Mobile Satellite Systems
1 660.5-1 668 MHz RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile ***5.149*** ***5.341*** 5.379 ***5.379A***	**1 660.5-1 668 MHz** RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
1 668-1 668.4 MHz MOBILE-SATELLITE (Earth-to-space) ***5.351A*** ***5.379B*** ***5.379C*** RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile ***5.149*** ***5.341*** 5.379 ***5.379A***	**1 668-1 668.4 MHz** MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile **BHR4**		Mobile Satellite Systems
1 668.4-1 670 MHz METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) ***5.351A*** ***5.379B*** ***5.379C*** RADIO ASTRONOMY ***5.149*** ***5.341*** ***5.379D*** ***5.379E***	**1 668.4-1 670 MHz** METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY **BHR4**		Mobile Satellite Systems
1 670-1 675 MHz METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (Earth-to-space) ***5.351A*** ***5.379B*** ***5.341*** ***5.379D*** ***5.379E*** ***5.380A***	**1 670-1 675 MHz** METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (Earth-to-space) **BHR4**		Mobile Satellite Systems

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
1 675-1 690 MHz METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (spac e-to-Earth) MOBILE except aeronautical mobile ***5.341***	**1 675-1 690 MHz** METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile **BHR4**		
1 690-1 700 MHz METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile ***5.289*** ***5.341*** ***5.382***	**1 690-1 700 MHz** METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) FIXED MOBILE except aeronautical mobile **BHR4**		
1 700-1 710 MHz FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile ***5.289*** ***5.341***	**1 700-1 710 MHz** FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile **BHR4**		
1 710-1 930 MHz FIXED MOBILE ***5.384A*** ***5.388A*** ***5.388B*** ***5.149*** ***5.341*** ***5.385*** 5.386 5.387 ***5.388***	**1 710-1 930 MHz** FIXED MOBILE **BHR4**	IMT	1710-1785 paired with 1805-1880 MHz 1920-1980 MHz paired with 2110-2170 MHz TDD 1900-1920 MHz TDD 1790-1800 MHz

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
1 930-1 970 MHz FIXED MOBILE ***5.388A*** ***5.388B*** ***5.388***	**1 930-1 970 MHz** FIXED MOBILE **BHR4**	IMT	1920-1980 MHz paired with 2110-2170 MHz
1 970-1 980 MHz FIXED MOBILE ***5.388A*** ***5.388B*** ***5.388***	**1 970-1 980 MHz** FIXED MOBILE **BHR4**	IMT	1920-1980 MHz paired with 2110-2170 MHz
1 980-2 010 MHz FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) ***5.351A*** ***5.388*** ***5.389A*** 5.389B 5.389F	**1 980-2 010 MHz** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) **BHR4**	IMT	
2 010-2 025 MHz FIXED MOBILE ***5.388A*** ***5.388B*** ***5.388***	**2 010-2 025 MHz** FIXED MOBILE **BHR4**	IMT	The use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz by the mobile-satellite service in Region 2 shall not cause harmful interference to or constrain the development of the fixed and mobile services in Regions 1 and 3.

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
2 025-2 110 MHz SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE ***5.391*** SPACE RESEARCH (Earth-to-space) (space-to-space) ***5.392***	**2 025-2 110 MHz** SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE SPACE RESEARCH (Earth-to-space) (space-to-space) **BHR4**		
2 110-2 120 MHz FIXED MOBILE ***5.388A*** ***5.388B*** SPACE RESEARCH (deep space) (Earth-to-space) ***5.388***	**2 110-2 120 MHz** FIXED MOBILE **BHR4**	IMT	1920-1980 MHz paired with 2110-2170 MHz
2 120-2 160 MHz FIXED MOBILE ***5.388A*** ***5.388B*** ***5.388***	**2 120-2 160 MHz** FIXED MOBILE **BHR4**	IMT	1920-1980 MHz paired with 2110-2170 MHz
2 160-2 170 MHz FIXED MOBILE ***5.388A*** ***5.388B*** ***5.388***	**2 160-2 170 MHz** FIXED MOBILE **BHR4**	IMT	1920-1980 MHz paired with 2110-2170 MHz

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
2 170-2 200 MHz FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ***5.351A*** ***5.388*** ***5.389A*** 5.389F	**2 170-2 200 MHz** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) **BHR4**	IMT	
2 200-2 290 MHz SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE ***5.391*** SPACE RESEARCH (space-to-Earth) (space-to-space) ***5.392***	**2 200-2 290 MHz** SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE SPACE RESEARCH (space-to-Earth) (space-to-space) **BHR4**		
2 290-2 300 MHz FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	**2 290-2 300 MHz** FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth) **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
2 300-2 450 MHz FIXED MOBILE ***5.384A*** Amateur Radiolocation ***5.150*** ***5.282*** 5.395	**2 300-2 450 MHz** FIXED MOBILE Amateur **BHR2** **BHR4**		Maximum power for Amateur bands 2300.000 MHz – 2310.000 MHz and 2400.000 MHz – 2450.000 MHz are 100W & 25W (e.i.r.p) respectively. WiFi band 2 400-2 483.5 MHz Amateur in the bands 2300-2310 MHz & 2 400-2 450 MHz only.
2 450-2 483.5 MHz FIXED MOBILE Radiolocation ***5.150*** 5.397	**2 450-2 483.5 MHz** FIXED MOBILE Radiolocation **BHR4**		WiFi band 2 400-2 483.5 MHz
2 483.5-2 500 MHz FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ***5.351A*** RADIODETERMINATION-SATELLITE (space-to-Earth) ***5.398*** Radiolocation 5.398A ***5.150*** 5.399 5.401 ***5.402***	**2 483.5-2 500 MHz** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) RADIODETERMINATION-SATELLITE (space-to-Earth) Radiolocation **BHR4**		
2 500-2 520 MHz FIXED ***5.410*** MOBILE except aeronautical mobile ***5.384A*** 5.405 5.412	**2 500-2 520 MHz** MOBILE except aeronautical mobile **BHR4**	IMT	2500-2570 paired with 2620-2690 MHz

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
2 520-2 655 MHz FIXED ***5.410*** MOBILE except aeronautical mobile ***5.384A*** BROADCASTING-SATELLITE ***5.413*** ***5.416*** ***5.339*** 5.412 ***5.418B*** ***5.418C***	**2 520-2 655 MHz** MOBILE except aeronautical mobile **BHR4**	IMT	Government TDD 2570-2620 MHz 2500-2570 paired with 2620-2690 MHz
2 655-2 670 MHz FIXED ***5.410*** MOBILE except aeronautical mobile ***5.384A*** BROADCASTING-SATELLITE ***5.208B*** ***5.413*** ***5.416*** Earth exploration-satellite (passive) Radio astronomy Space research (passive) ***5.149*** 5.412	**2 655-2 670 MHz** MOBILE except aeronautical mobile **BHR4**	IMT	2500-2570 paired with 2620-2690 MHz
2 670-2 690 MHz FIXED ***5.410*** MOBILE except aeronautical mobile ***5.384A*** Earth exploration-satellite (passive) Radio astronomy Space research (passive) ***5.149*** 5.412	**2 670-2 690 MHz** MOBILE except aeronautical mobile **BHR4**	IMT	2500-2570 paired with 2620-2690 MHz

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
2 690-2 700 MHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340*** ***5.422***	**2 690-2 700 MHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) FIXED MOBILE except aeronautical mobile **BHR4**		
2 700-2 900 MHz AERONAUTICAL RADIONAVIGATION ***5.337*** Radiolocation ***5.423*** 5.424	**2 700-2 900 MHz** AERONAUTICAL RADIONAVIGATION Radiolocation **BHR4**		Radars & Navigation
2 900-3 100 MHz RADIOLOCATION ***5.424A*** RADIONAVIGATION 5.426 ***5.425*** ***5.427***	**2 900-3 100 MHz** RADIOLOCATION RADIONAVIGATION **BHR4**		Radars & Navigation
3 100-3 300 MHz RADIOLOCATION Earth exploration-satellite (active) Space research (active) ***5.149*** 5.428	**3 100-3 300 MHz** RADIOLOCATION Fixed **BHR1** Mobile **BHR1** Earth exploration-satellite (active) Space research (active) **BHR4**		Utilized to be used in Bahrain for Fixed and Mobile on secondary basis

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
3 300-3 400 MHz RADIOLOCATION ***5.149*** ***5.429*** ***5.429A*** ***5.429B*** 5.430	**3 300-3 400 MHz** FIXED MOBILE **BHR4**		
3 400-3 600 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile ***5.430A*** Radiolocation 5.431	**3 400-3 600 MHz** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile **BHR4**	IMT	TDD 3410 – 3500 MHz & 3500 – 3590 MHz
3 600-4 200 MHz FIXED FIXED-SATELLITE (space-to-Earth) Mobile	**3 600-3 700 MHz** FIXED Mobile **BHR4** **3 700-4 200 MHz** FIXED FIXED-SATELLITE (space-to-Earth) Mobile **BHR4**		VSAT Downlink
4 200-4 400 MHz AERONAUTICAL MOBILE (R) ***5.436*** AERONAUTICAL RADIONAVIGATION ***5.438*** ***5.437*** 5.439 ***5.440***	**4 200-4 400 MHz** AERONAUTICAL MOBILE (R) AERONAUTICAL RADIONAVIGATION **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
4 400-4 500 MHz FIXED MOBILE 5.440A	**4 400-4 500 MHz** FIXED MOBILE **BHR4**		
4 500-4 800 MHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.441*** MOBILE 5.440A	**4 500-4 800 MHz** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE **BHR 4**		
4 800-4 990 MHz FIXED MOBILE 5.440A 5.441A 5.441B 5.442 Radio astronomy ***5.149*** ***5.339*** 5.443	**4 800-4 990 MHz** FIXED MOBILE **BHR 4**		
4 990-5 000 MHz FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) **5.149**	**4 990-5 000 MHz** FIXED MOBILE except aeronautical mobile Space research (passive) **BHR 4**	FIXED MOBILE except aeronautical mobile	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
5 000-5 010 MHz AERONAUTICAL MOBILE-SATELLITE (R) ***5.443AA*** AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space)	**5 000-5 010 MHz** AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) **BHR 4**		Satellite navigation
5 010-5 030 MHz AERONAUTICAL MOBILE-SATELLITE (R) ***5.443AA*** AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) ***5.328B*** ***5.443B***	**5 010-5 030 MHz** AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) **BHR4**		Satellite navigation
5 030-5 091 MHz AERONAUTICAL MOBILE (R) ***5.443C*** AERONAUTICAL MOBILE-SATELLITE (R) ***5.443D*** AERONAUTICAL RADIONAVIGATION ***5.444***	**5 030-5 091 MHz** AERONAUTICAL MOBILE (R) AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
5 091-5 150 MHz FIXED-SATELLITE (Earth-to-space) ***5.444A*** AERONAUTICAL MOBILE ***5.444B*** AERONAUTICAL MOBILE-SATELLITE (R) ***5.443AA*** AERONAUTICAL RADIONAVIGATION ***5.444***	**5 091-5 150 MHz** FIXED-SATELLITE (Earth-to-space) AERONAUTICAL MOBILE AERONAUTICAL MOBILE-SATELLITE (R) AERONAUTICAL RADIONAVIGATION **BHR4**		
5 150-5 250 MHz FIXED-SATELLITE (Earth-to-space) ***5.447A*** MOBILE except aeronautical mobile ***5.446A*** ***5.446B*** AERONAUTICAL RADIONAVIGATION 5.446 ***5.446C*** 5.447 ***5.447B*** ***5.447C***	**5 150-5 250 MHz** FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile AERONAUTICAL RADIONAVIGATION **BHR4**		Wifi band 5150 – 5350 MHz
5 250-5 255 MHz EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile ***5.446A*** ***5.447F*** RADIOLOCATION SPACE RESEARCH ***5.447D*** 5.447E 5.448 ***5.448A***	**5 250-5 255 MHz** EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile RADIOLOCATION SPACE RESEARCH **BHR4**		Wifi band 5150 – 5350 MHz Shipborne and VTS radar Weather radar

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
5 255-5 350 MHz EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile ***5.446A*** ***5.447F*** RADIOLOCATION SPACE RESEARCH (active) 5.447E 5.448 ***5.448A***	**5 255-5 350 MHz** EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile RADIOLOCATION SPACE RESEARCH (active) **BHR4**		Wifi band 5150 – 5350 MHz Shipborne and VTS radar Weather radar
5 350-5 460 MHz EARTH EXPLORATION-SATELLITE (active) ***5.448B*** RADIOLOCATION ***5.448D*** AERONAUTICAL RADIONAVIGATION ***5.449*** SPACE RESEARCH (active) ***5.448C***	**5 350-5 460 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION AERONAUTICAL RADIONAVIGATION SPACE RESEARCH (active) **BHR 4**		Shipborne and VTS radar Weather radar
5 460-5 470 MHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION ***5.448D*** RADIONAVIGATION ***5.449*** SPACE RESEARCH (active) ***5.448B***	**5 460-5 470 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) **BHR 4**		Shipborne and VTS radar Weather radar

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
5 470-5 570 MHz EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile ***5.446A*** ***5.450A*** RADIOLOCATION ***5.450B*** MARITIME RADIONAVIGATION SPACE RESEARCH (active) ***5.448B*** 5.450 5.451	**5 470-5 570 MHz** MOBILE except aeronautical mobile **BHR 4**		Private RLANS 5470 – 5725 MHz
5 570-5 650 MHz MOBILE except aeronautical mobile ***5.446A*** ***5.450A*** RADIOLOCATION ***5.450B*** MARITIME RADIONAVIGATION 5.450 5.451 ***5.452***	**5 570-5 650 MHz** MOBILE except aeronautical mobile RADIOLOCATION **BHR4**		Private RLANS 5470 – 5725 MHz Shipborne and VTS radar Weather radar
5 650-5 725 MHz MOBILE except aeronautical mobile ***5.446A*** ***5.450A*** RADIOLOCATION Amateur Space research (deep space) ***5.282*** 5.451 ***5.453*** 5.454 5.455	**5 650-5 725 MHz** FIXED MOBILE Amateur **BHR2** **BHR4**		Private RLANS 5470 – 5725 MHz Maximum power for Amateur is 100W (e.i.r.p).

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
5 725-5 830 MHz FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur ***5.150*** 5.451 ***5.453*** 5.455	**5 725-5 830 MHz** FIXED-SATELLITE (Earth-to-space) FIXED MOBILE Amateur **BHR2** **BHR4**		Wifi band 5725 – 5875 MHz BFWA Maximum power for Amateur is 100W (e.i.r.p).
5 830-5 850 MHz FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) ***5.150*** 5.451 ***5.453*** 5.455	**5 830-5 850 MHz** FIXED-SATELLITE (Earth-to-space) RADIOLOCATION FIXED MOBILE Amateur **BHR2** Amateur-satellite (space-to-Earth) **BHR4**		Wifi band 5725 – 5875 MHz BFWA Maximum power for Amateur is 100W (e.i.r.p).
5 850-5 925 MHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE ***5.150***	**5 850-5 925 MHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE **BHR4**		Wifi band 5725 – 5875 MHz BFWA

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
5 925-6 700 MHz FIXED 5.457 FIXED-SATELLITE (Earth-to-space) ***5.457A*** ***5.457B*** MOBILE 5.457C ***5.149*** ***5.440*** ***5.458***	**5 925-6 700 MHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE **BHR4**		In accordance with Resolution 902 (WRC-03) VSAT Uplink
6 700-7 075 MHz FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) ***5.441*** MOBILE ***5.458*** ***5.458A*** ***5.458B***	**6 700-7 075 MHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) (space-to-Earth) MOBILE **BHR4**		
7 075-7 145 MHz FIXED MOBILE ***5.458*** 5.459	**7 075-7 145 MHz** FIXED **BHR3** MOBILE **BHR4**		
7 145-7 190 MHz FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) ***5.458*** 5.459	**7 145-7 190 MHz** FIXED **BHR3** MOBILE SPACE RESEARCH (deep space) (Earth-to-space) **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
7 190 -7 235 MHz EARTH EXPLORATION-SATELLITE (Earth-to-space) ***5.460A*** ***5.460B*** FIXED MOBILE SPACE RESEARCH (Earth-to-space) ***5.460*** ***5.458*** 5.459	**7 190 -7 235 MHz** EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED **BHR3** MOBILE SPACE RESEARCH (Earth-to-space) **BHR4**		
7 235-7 250 MHz EARTH EXPLORATION-SATELLITE (Earth-to-space) ***5.460A*** FIXED MOBILE ***5.458***	**7 235-7 250 MHz** EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED **BHR3** MOBILE **BHR4**		
7 250-7 300 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE ***5.461***	**7 250-7 300 MHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE **BHR4**		
7 300-7 375 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile ***5.461***	**7 300-7 375 MHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile **BHR4**		VSAT Downlink

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
7 375-7 450 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth) ***5.461AA*** ***5.461AB***	**7 375-7 450 MHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth) **BHR4**		VSAT Downlink
7 450-7 550 MHz FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth) ***5.461AA*** ***5.461AB*** ***5.461A***	**7 450-7 550 MHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth) **BHR4**		VSAT Downlink
7 550-7 750 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth) ***5.461AA*** ***5.461AB***	**7 550-7 750 MHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth) **BHR4**		VSAT Downlink

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
7 750-7 900 MHz FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) ***5.461B*** MOBILE except aeronautical mobile	**7 750-7 900 MHz** FIXED **BHR3** METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile **BHR4**		
7 900-8 025 MHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE ***5.461***	**7 900-8 025 MHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE **BHR4**		VSAT Uplink
8 025-8 175 MHz EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE ***5.463*** ***5.462A***	**8 025-8 175 MHz** EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE **BHR4**		VSAT Uplink

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
8 175-8 215 MHz EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE ***5.463*** ***5.462A***	**8 175-8 215 MHz** EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE **BHR4**		VSAT Uplink
8 215-8 400 MHz EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE ***5.463*** ***5.462A***	**8 215-8 400 MHz** EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE **BHR4**		VSAT Uplink
8 400-8 500 MHz FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) ***5.465*** 5.466	**8 400-8 500 MHz** FIXED **BHR 3** MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
8 500-8 550 MHz RADIOLOCATION ***5.468*** 5.469	**8 500-8 550 MHz** RADIOLOCATION FIXED MOBILE **BHR4**		
8 550-8 650 MHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) ***5.468*** 5.469 ***5.469A***	**8 550-8 650 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) FIXED MOBILE **BHR4**		
8 650-8 750 MHz RADIOLOCATION ***5.468*** 5.469	**8 650-8 750 MHz** RADIOLOCATION FIXED MOBILE **BHR4**		
8 750-8 850 MHz RADIOLOCATION AERONAUTICAL RADIONAVIGATION ***5.470*** ***5.471***	**8 750-8 825 MHz** RADIOLOCATION AERONAUTICAL RADIONAVIGATION **BHR4**		Aeronautical radionavigation service is limited to airborne doppler navigation aids on a centre frequency of 8 800 MHz
	8 825-8 850 MHz MARITIME RADIONAVIGATION **BHR4**		Maritime Radionavigation is limited to for Shore based radars 8 825-8 850 MHz

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
8 850-9 000 MHz RADIOLOCATION MARITIME RADIONAVIGATION ***5.472*** 5.473	**8 850-9 000 MHz** RADIOLOCATION MARITIME RADIONAVIGATION **BHR4**		
9 000-9 200 MHz RADIOLOCATION AERONAUTICAL RADIONAVIGATION ***5.337*** ***5.471*** ***5.473A***	**9 000-9 200 MHz** RADIOLOCATION AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION **BHR4**		Maritime Radionavigation is limited to for Shore based radars 9 000-9 200 MHz Aeronautical radionavigation
9 200-9 300 MHz EARTH EXPLORATION-SATELLITE (active) ***5.474A*** ***5.474B*** ***5.474C*** RADIOLOCATION MARITIME RADIONAVIGATION ***5.472*** 5.473 ***5.474*** ***5.474D***	**9 200-9 300 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION MARITIME RADIONAVIGATION **BHR4**		Earth exploration-satellite service should be in accordance with the conditions mentioned in 5.474A Shipborne radar 9 200-9 500 MHz search and rescue transponders (SART) may be used
9 300-9 500 MHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) ***5.427*** ***5.474*** ***5.475*** ***5.475A*** ***5.475B*** ***5.476A***	**9 300-9 500 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) **BHR4**		Shipborne radar Radionavigation 9 200-9 500 MHz search and rescue transponders (SART) may be used

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
9 500-9 800 MHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) ***5.476A***	**9 500-9 800 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) **BHR4**		
9 800-9 900 MHz RADIOLOCATION Earth exploration-satellite (active) Fixed Space research (active) ***5.477*** 5.478 ***5.478A*** ***5.478B***	**9 800-9 900 MHz** RADIOLOCATION FIXED Earth exploration-satellite (active) Space research (active) **BHR4**		
9 900-10 000 MHz EARTH EXPLORATION-SATELLITE (active) ***5.474A*** ***5.474B*** ***5.474C*** RADIOLOCATION Fixed ***5.477*** 5.478 ***5.479*** ***5.474D***	**9 900-10 000 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION FIXED **BHR4**		Earth exploration-satellite service should be in accordance with the conditions mentioned in 5.474A

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
10-10.4 GHz EARTH EXPLORATION-SATELLITE (active) ***5.474A*** ***5.474B*** ***5.474C*** FIXED MOBILE RADIOLOCATION Amateur ***5.479*** ***5.474D***	**10-10.4 GHz** EARTH EXPLORATION-SATELLITE (active) FIXED MOBILE RADIOLOCATION Amateur **BHR2** **BHR4**	FIXED	Earth exploration-satellite service should be in accordance with the conditions mentioned in 5.474A Maximum power for Amateur is 100W (e.i.r.p).
10.4-10.45 GHz FIXED MOBILE RADIOLOCATION Amateur	**10.4-10.45 GHz** FIXED MOBILE RADIOLOCATION Amateur **BHR2** **BHR4**	FIXED	Maximum power for Amateur is 100W (e.i.r.p).
10.45-10.5 GHz RADIOLOCATION Amateur Amateur-satellite 5.481	**10.45-10.5 GHz** RADIOLOCATION Amateur **BHR2** Amateur-satellite **BHR4**		Maximum power for Amateur is 100W (e.i.r.p).
10.5-10.55 GHz FIXED MOBILE Radiolocation	**10.5-10.55 GHz** FIXED MOBILE **BHR4**	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
10.55-10.6 GHz FIXED MOBILE except aeronautical mobile Radiolocation	**10.55-10.6 GHz** FIXED MOBILE except aeronautical mobile **BHR4**	FIXED	
10.6-10.68 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation ***5.149*** ***5.482*** ***5.482A***	**10.6-10.68 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile **BHR4**	FIXED	
10.68-10.7 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340*** ***5.483***	**10.68-10.7 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) FIXED MOBILE except aeronautical mobile **BHR4**	Passive Band	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
10.7-10.95 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.441*** (Earth-to-space) ***5.484*** MOBILE except aeronautical mobile	**10.7-10.95 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) (Earth-to-space) MOBILE except aeronautical mobile **BHR4**	FIXED	
10.95-11.2 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.484A*** ***5.484B*** (Earth-to-space) ***5.484*** MOBILE except aeronautical mobile	**10.95-11.2 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) (Earth-to-space) MOBILE except aeronautical mobile **BHR4**	FIXED	
11.2-11.45 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.441*** (Earth-to-space) ***5.484*** MOBILE except aeronautical mobile	**11.2-11.45 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) (Earth-to-space) MOBILE except aeronautical mobile **BHR4**	FIXED	
11.45-11.7 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.484A*** ***5.484B*** (Earth-to-space) ***5.484*** MOBILE except aeronautical mobile	**11.45-11.7 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) (Earth-to-space) MOBILE except aeronautical mobile **BHR4**	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
11.7-12.5 GHz FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE ***5.492*** ***5.487*** ***5.487A***	**11.7-12.5 GHz** FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE **BHR4**		For Broadcasting-Satellite refer to the Appendix 30 and Radio Regulations Res. 73
12.5-12.75 GHz FIXED-SATELLITE (space-to-Earth) ***5.484A*** ***5.484B*** (Earth-to-space) ***5.494*** 5.495 5.496	**12.5-12.75 GHz** FIXED-SATELLITE (space-to-Earth) (Earth-to-space) FIXED MOBILE except aeronautical mobile		VSAT Downlink/Uplink
12.75-13.25 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.441*** MOBILE Space research (deep space) (space-to-Earth)	**12.75-13.25 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE Space research (deep space) (space-to-Earth)	FIXED	
13.25-13.4 GHz EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION ***5.497*** SPACE RESEARCH (active) ***5.498A*** 5.499	**13.25-13.4 GHz** EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION SPACE RESEARCH (active)		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
13.4-13.65 GHz EARTH EXPLORATION-SATELLITE (active) FIXED-SATELLITE (space-t-earth) ***5.499A*** ***5.499B*** RADIOLOCATION SPACE RESEARCH ***5.499C*** ***5.499D*** Standard frequency and time signal-satellite (Earth-to-space) 5.499 ***5.499E*** ***5.500*** 5.501 ***5.501B***	**13.4-13.65 GHz** EARTH EXPLORATION-SATELLITE (active) FIXED-SATELLITE (space-t-earth) RADIOLOCATION SPACE RESEARCH FIXED MOBILE Standard frequency and time signal-satellite (Earth-to-space) **BHR4**		Refer to the ITU Radio Regulation Article 26
13.65-13.75 GHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH ***5.501A*** Standard frequency and time signal-satellite (Earth-to-space) 5.499 ***5.500*** 5.501 5.501B	**13.65-13.75 GHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH FIXED MOBILE Standard frequency and time signal-satellite (Earth-to-space) **BHR4**		Refer to the ITU Radio Regulation Article 26

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
13.75-14 GHz FIXED-SATELLITE (Earth-to-space) ***5.484A*** RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research 5.499 ***5.500*** 5.501 ***5.502*** ***5.503***	**13.75-14 GHz** FIXED-SATELLITE (Earth-to-space) FIXED MOBILE Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research **BHR4**	FIXED-SATELLITE (Earth-to-space)	Refer to the ITU Radio Regulation Article 26 VSAT Uplink
14-14.25 GHz FIXED-SATELLITE (Earth-to-space) ***5.457A*** ***5.457B*** ***5.484A*** ***5.506*** ***5.506B*** ***5.484B*** RADIONAVIGATION ***5.504*** Mobile-satellite (Earth-to-space) ***5.504B*** ***5.504C*** ***5.506A*** Space research ***5.504A*** ***5.505***	**14-14.25 GHz** FIXED-SATELLITE (Earth-to-space) RADIONAVIGATION FIXED Mobile-satellite (Earth-to-space) Space research	FIXED-SATELLITE (Earth-to-space)	In accordance with Resolution 902 (WRC-03) VSAT Uplink

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
14.25-14.3 GHz FIXED-SATELLITE (Earth-to-space) ***5.457A*** ***5.457B*** ***5.484A*** ***5.506*** ***5.506B*** ***5.484B*** RADIONAVIGATION ***5.504*** Mobile-satellite (Earth-to-space) ***5.504B*** ***5.506A*** ***5.508A*** Space research ***5.504A*** ***5.505*** 5.508	**14.25-14.3 GHz** FIXED-SATELLITE (Earth- to-space) FIXED Mobile-satellite (Earth-to- space) Space research	FIXED-SATELLITE (Earth-to-space)	In accordance with Resolution 902 (WRC-03) VSAT Uplink
14.3-14.4 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.457A*** ***5.457B*** ***5.484A*** ***5.506*** ***5.506B*** ***5.484B*** MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) ***5.504B*** ***5.506A*** ***5.509A*** Radionavigation-satellite ***5.504A***	**14.3-14.4 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) Radionavigation-satellite	FIXED-SATELLITE (Earth-to-space)	In accordance with Resolution 902 (WRC-03) VSAT Uplink

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
14.4-14.47 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.457A*** ***5.457B*** ***5.484A*** ***5.484B*** ***5.506*** ***5.506B*** MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) ***5.504B*** ***5.506A*** ***5.509A*** Space research (space-to-Earth) ***5.504A***	**14.4-14.47 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth- to-space) MOBILE except aeronautical mobile Mobile-satellite (Earth-to- space) Space research (space-to- Earth)	FIXED	In accordance with Resolution 902 (WRC-03)
14.47-14.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.457A*** ***5.457B*** ***5.484A*** ***5.506*** ***5.506B*** MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space**)** ***5.504B*** ***5.506A*** ***5.509A*** Radio astronomy ***5.149*** ***5.504A***	**14.47-14.5 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space)	FIXED	In accordance with Resolution 902 (WRC-03)
14.5-14.75 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.509B*** ***5.509C*** ***5.509D*** ***5.509E*** ***5.509F*** ***5.510*** MOBILE Space research ***5.509G***	**14.5-14.75 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE Space research	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
14.75-14.8 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.510*** MOBILE Space research ***5.509G***	**14.75-14.8 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE Space research	FIXED	
14.8-15.35 GHz FIXED MOBILE Space research ***5.339***	**14.8-15.35 GHz** FIXED **BHR3** MOBILE Space research	FIXED	
15.35-15.4 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340 5.511***	**15.35-15.4 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile		
15.4-15.43 GHz RADIOLOCATION ***5.511E*** ***5.511F*** AERONAUTICAL RADIONAVIGATION	**15.4-15.43 GHz** RADIOLOCATION AERONAUTICAL RADIONAVIGATION		
15.43-15.63 GHz FIXED-SATELLITE (Earth-to-space) ***5.511A*** RADIOLOCATION ***5.511E*** ***5.511F*** AERONAUTICAL RADIONAVIGATION ***5.511C***	**15.43-15.63 GHz** FIXED-SATELLITE (Earth-to-space) RADIOLOCATION AERONAUTICAL RADIONAVIGATION		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
15.63-15.7 GHz RADIOLOCATION ***5.511E*** ***5.511F*** AERONAUTICAL RADIONAVIGATION	**15.63-15.7 GHz** RADIOLOCATION AERONAUTICAL RADIONAVIGATION		
15.7-16.6 GHz RADIOLOCATION ***5.512*** 5.513	**15.7-16.6 GHz** RADIOLOCATION FIXED MOBILE		
16.6-17.1 GHz RADIOLOCATION Space research (deep space) (Earth-to-space) ***5.512*** 5.513	**16.6-17.1 GHz** RADIOLOCATION FIXED MOBILE Space research (deep space) (Earth-to-space)		
17.1-17.2 GHz RADIOLOCATION ***5.512*** 5.513	**17.1-17.2 GHz** RADIOLOCATION FIXED MOBILE **BHR4**		
17.2-17.3 GHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) ***5.512*** 5.513 ***5.513A***	**17.2-17.3 GHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
17.3-17.7 GHz FIXED-SATELLITE (Earth-to-space) ***5.516*** (space-to-Earth) ***5.516A*** ***5.516B*** Radiolocation ***5.514***	**17.3-17.7 GHz** FIXED-SATELLITE (Earth-to-space) (space-to-Earth) Radiolocation Fixed Mobile		
17.7-18.1 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.484A*** (Earth-to-space) ***5.516*** MOBILE	**17.7-18.1 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) (Earth-to-space) MOBILE	FIXED	
18.1-18.4 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.484A*** ***5.516B*** (Earth-to-space) ***5.520*** MOBILE ***5.519*** ***5.521***	**18.1-18.4 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) (Earth-to-space) MOBILE	FIXED	
18.4-18.6 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.484A*** ***5.516B*** MOBILE	**18.4-18.6 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
18.6-18.8 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) ***5.522B*** MOBILE except aeronautical mobile Space research (passive) ***5.522A*** ***5.522C***	**18.6-18.8 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Space research (passive)	FIXED	
18.8-19.3 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.516.B*** ***5.523A*** MOBILE	**18.8-19.3 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE	FIXED	
19.3-19.7 GHz FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) ***5.523B*** ***5.523C*** ***5.523D*** ***5.523E*** MOBILE	**19.3-19.7 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) (Earth-to-space) MOBILE	FIXED	
19.7-20.1 GHz FIXED-SATELLITE (space-to-Earth) ***5.484A*** ***5.484B*** ***5.516B*** ***5.527A*** Mobile-satellite (space-to-Earth) ***5.524***	**19.7-20.1 GHz** FIXED-SATELLITE (space-to-Earth) FIXED MOBILE Mobile-satellite (space-to-Earth)		VSAT downlink

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
20.1-20.2 GHz FIXED-SATELLITE (space-to-Earth) ***5.484A*** ***5.484B*** ***5.516B*** ***5.527A*** MOBILE-SATELLITE (space-to-Earth) ***5.524*** ***5.525*** ***5.526*** ***5.527*** ***5.528***	**20.1-20.2 GHz** FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) FIXED MOBILE		VSAT downlink
20.2-21.2 GHz FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) ***5.524***	**20.2-21.2 GHz** FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) FIXED MOBILE Standard frequency and time signal-satellite (space-to-Earth)		Refer to the ITU Radio Regulation Article 26 VSAT Downlink
21.2-21.4 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	**21.2-21.4 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED **BHR3** MOBILE SPACE RESEARCH (passive)	FIXED	
21.4-22 GHz FIXED MOBILE BROADCASING-SATELLITE ***5.208B*** ***5.530A*** ***5.530B*** ***5.530D***	**21.4-22 GHz** FIXED **BHR3** MOBILE BROADCASTING-SATELLITE	FIXED	For Broadcasting-Satellite refer to the Radio Regulations Res. 552, 553, 554 and 555

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
22-22.21 GHz FIXED MOBILE except aeronautical mobile ***5.149***	**22-22.21 GHz** FIXED **BHR3** MOBILE except aeronautical mobile	FIXED	
22.21-22.5 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.149*** ***5.532***	**22.21-22.5 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED **BHR3** MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive)	FIXED	
22.5-22.55 GHz FIXED MOBILE	**22.5-22.55 GHz** FIXED **BHR3** MOBILE	FIXED	
22.55-23.15 GHz FIXED INTER-SATELLITE ***5.338A*** MOBILE SPACE RESEARCH (Earth-to-space) ***5.532A*** ***5.149***	**22.55-23.15 GHz** FIXED **BHR3** INTER-SATELLITE MOBILE SPACE RESEARCH (Earth-to-space)	FIXED	
23.15-23.55 GHz FIXED INTER-SATELLITE ***5.338A*** MOBILE	**23.15-23.55 GHz** FIXED **BHR3** INTER-SATELLITE MOBILE	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
23.55-23.6 GHz FIXED MOBILE	**23.55-23.6 GHz** FIXED **BHR3** MOBILE	FIXED	
23.6-24 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340***	**23.6-24 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		Passive Band
24-24.05 GHz AMATEUR AMATEUR-SATELLITE ***5.150***	**24-24.05 GHz** AMATEUR **BHR2** AMATEUR-SATELLITE **BHR4**		Maximum power for Amateur is 50W (e.i.r.p).
24.05-24.25 GHz RADIOLOCATION Amateur Earth exploration-satellite (active) ***5.150***	**24.05-24.25 GHz** RADIOLOCATION Amateur **BHR2** Earth exploration-satellite (active) **BHR4**		Maximum power for Amateur is 50W (e.i.r.p).
24.25-24.45 GHz FIXED	**24.25-24.45 GHz** FIXED **BHR4**		
24.45-24.65 GHz FIXED INTER-SATELLITE	**24.45-24.65 GHz** FIXED **BHR3** INTER-SATELLITE **BHR4**	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
24.65-24.75 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.532B*** INTER-SATELLITE	**24.65-24.75 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE **BHR4**	FIXED	
24.75-25.25 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.532B***	**24.75-25.25 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) **BHR4**	FIXED	
25.25-25.5 GHz FIXED INTER-SATELLITE **5.536** MOBILE Standard frequency and time signal-satellite (Earth-to-space)	**25.25-25.5 GHz** FIXED **BHR3** INTER-SATELLITE MOBILE Standard frequency and time signal-satellite (Earth-to-space) **BHR4**	FIXED	Refer to the ITU Radio Regulation Article 26

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
25.5-27 GHz EARTH EXPLORATION-SATELLITE(space-to Earth) ***5.536B*** FIXED INTER-SATELLITE ***5.536*** MOBILE SPACE RESEARCH (space-to-Earth) ***5.536C*** Standard frequency and time signal-satellite (Earth-to-space) ***5.536A***	**25.5-27 GHz** EARTH EXPLORATION-SATELLITE (space-to Earth) FIXED **BHR3** INTER-SATELLITE MOBILE SPACE RESEARCH (space-to-Earth) Standard frequency and time signal-satellite (Earth-to-space) **BHR4**	FIXED	Refer to the ITU Radio Regulation Article 26
27-27.5 GHz FIXED INTER-SATELLITE ***5.536*** MOBILE	**27-27.5 GHz** FIXED INTER-SATELLITE MOBILE		
27.5-28.5 GHz FIXED 5.537A FIXED-SATELLITE (Earth-to-space) ***5.484A 5.516B 5.539*** MOBILE ***5.538 5.540***	**27.5-28.5 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
28.5-29.1 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.484A 5.516B 5.523A 5.539*** MOBILE Earth exploration-satellite (Earth-to-space) ***5.541*** ***5.540***	**28.5-29.1 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE Earth exploration-satellite (Earth-to-space)	FIXED	
29.1-29.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.516B 5.523C 5.523E 5.535A 5.539 5.541A*** MOBILE Earth exploration-satellite (Earth-to-space) ***5.541*** ***5.540***	**29.1-29.5 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE Earth exploration-satellite (Earth-to-space)	FIXED	
29.5-29.9 GHz FIXED-SATELLITE (Earth-to-space) ***5.484A 5.484B 5.516B 5.539 5.527A*** Earth exploration-satellite (Earth-to-space) ***5.541*** Mobile-satellite (Earth-to-space) ***5.540 5.542***	**29.5-29.9 GHz** FIXED-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) Mobile-satellite (Earth-to-space) Fixed Mobile		VSAT uplink

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
29.9-30 GHz FIXED-SATELLITE (Earth-to-space) ***5.484A*** ***5.484B*** ***5.516B*** ***5.539*** ***5.527A*** MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) ***5.541*** ***5.543*** ***5.525*** ***5.526*** ***5.527*** ***5.538*** ***5.540*** ***5.542***	**29.9-30 GHz** FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) Fixed Mobile		VSAT uplink
30-31 GHz FIXED-SATELLITE (Earth-to-space) ***5.338A*** MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) ***5.542***	**30-31 GHz** FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) Fixed Mobile		Refer to the ITU Radio Regulation Article 26 VSAT uplink
31-31.3 GHz FIXED ***5.338A*** ***5.543A*** MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research ***5.544*** 5.545 ***5.149***	**31-31.3 GHz** FIXED **BHR3** MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research	FIXED	Refer to the ITU Radio Regulation Article 26

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
31.3-31.5 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340***	**31.3-31.5 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		
31.5-31.8 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile ***5.149*** ***5.546***	**31.5-31.8 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed **BHR 3** Mobile except aeronautical mobile		
31.8-32 GHz FIXED ***5.547A*** RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) ***5.547*** 5.547B ***5.548***	**31.8-32 GHz** FIXED **BHR3** SPACE RESEARCH (deep space) (space-to-Earth)	FIXED	
32-32.3 GHz FIXED ***5.547A*** RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) ***5.547*** 5.547C ***5.548***	**32-32.3 GHz** FIXED **BHR3** SPACE RESEARCH (deep space) (space-to-Earth)	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
32.3-33 GHz FIXED ***5.547A*** INTER-SATELLITE RADIONAVIGATION ***5.547*** 5.547D ***5.548***	**32.3-33 GHz** FIXED **BHR3** INTER-SATELLITE	FIXED	
33-33.4 GHz FIXED ***5.547A*** RADIONAVIGATION ***5.547*** 5.547E	**33-33.4 GHz** FIXED **BHR3**	FIXED	
33.4-34.2 GHz RADIOLOCATION ***5.549***	**33.4-34.2 GHz** RADIOLOCATION FIXED MOBILE		
34.2-34.7 GHz RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) ***5.549***	**34.2-34.7 GHz** RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) FIXED MOBILE		
34.7-35.2 GHz RADIOLOCATION Space research 5.550 ***5.549***	**34.7-35.2 GHz** RADIOLOCATION FIXED MOBILE Space research		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
35.2-35.5 GHz METEOROLOGICAL AIDS RADIOLOCATION ***5.549***	**35.2-35.5 GHz** METEOROLOGICAL AIDS RADIOLOCATION FIXED MOBILE		
35.5-36 GHz METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) ***5.549*** ***5.549A***	**35.5-36 GHz** METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) FIXED MOBILE		
36-37 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) ***5.149*** ***5.550A***	**36-37 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED **BHR3** MOBILE SPACE RESEARCH (passive)	FIXED	
37-37.5 GHz FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) ***5.547***	**37-37.5 GHz** FIXED **BHR3** MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth)	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
37.5-38 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) ***5.547***	**37.5-38 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth)	FIXED	
38-39.5 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth) ***5.547***	**38-39.5 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth)	FIXED	
39.5-40 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.516B*** MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth) ***5.547***	**39.5-40 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth)	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
40-40.5 GHz EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) ***5.516B*** MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)	**40-40.5 GHz** EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)	FIXED	
40.5-41 GHz FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile ***5.547***	**40.5-41 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile	FIXED	
41-42.5 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.516B*** BROADCASTING BROADCASTING-SATELLITE Mobile ***5.547*** 5.551F ***5.551H*** ***5.551I***	**41-42.5 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
42.5-43.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.552*** MOBILE except aeronautical mobile RADIO ASTRONOMY ***5.149*** ***5.547***	**42.5-43.5 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile RADIO ASTRONOMY	FIXED	
43.5-47 GHz MOBILE ***5.553*** MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE ***5.554***	**43.5-47 GHz** MOBILE MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE		
47-47.2 GHz AMATEUR AMATEUR-SATELLITE	**47-47.2 GHz** AMATEUR **BHR2** AMATEUR-SATELLITE		Maximum power for Amateur is 50W (e.i.r.p).
47.2-47.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.552*** MOBILE ***5.552A***	**47.2-47.5 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
47.5-47.9 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.552*** (space-to-Earth) ***5.516B*** ***5.554A*** MOBILE	**47.5-47.9 GHz** FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) MOBILE		
47.9-48.2 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.552*** MOBILE ***5.552A***	**47.9-48.2 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		
48.2-48.54 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.552*** (space-to-Earth) ***5.516B*** ***5.554A*** ***5.555B*** MOBILE	**48.2-48.54 GHz** FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) MOBILE		
48.54-49.44 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.552*** MOBILE ***5.149*** ***5.340*** ***5.555***	**48.54-49.44 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE	FIXED	The band 48.94-49.04 GHz is also allocated to the radio astronomy service on a primary basis

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
49.44-50.2 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.338A*** ***5.552*** (space-to-Earth) ***5.516B*** ***5.554A*** ***5.555B*** MOBILE	**49.44-50.2 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) (space-to-Earth) MOBILE	FIXED	
50.2-50.4 GHz EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) ***5.340***	**50.2-50.4 GHz** EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive)		
50.4-51.4 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.338A*** MOBILE Mobile-satellite (Earth-to-space)	**50.4-51.4 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Mobile-satellite (Earth-to-space)		
51.4-52.6 GHz FIXED ***5.338A*** MOBILE ***5.547*** ***5.556***	**51.4-52.6 GHz** FIXED **BHR3** MOBILE	FIXED	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
52.6-54.25 GHz EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) ***5.340*** ***5.556***	**52.6-54.25 GHz** EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive)		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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
54.25-55.78 GHz EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE ***5.556A*** SPACE RESEARCH (passive) 5.556B	**54.25-55.78 GHz** EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE SPACE RESEARCH (passive)		
55.78-56.9 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED ***5.557A*** INTER-SATELLITE ***5.556A*** MOBILE ***5.558*** SPACE RESEARCH (passive) ***5.547*** 5.557	**55.78-56.9 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED **BHR3** INTER-SATELLITE MOBILE SPACE RESEARCH (passive)	FIXED	
56.9-57 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE ***5.558A*** MOBILE ***5.558*** SPACE RESEARCH (passive) ***5.547*** 5.557	**56.9-57 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED **BHR3** INTER-SATELLITE MOBILE SPACE RESEARCH (passive)	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
57-58.2 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE ***5.556A*** MOBILE ***5.558*** SPACE RESEARCH (passive) ***5.547*** 5.557	**57-58.2 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED **BHR3** INTER-SATELLITE MOBILE SPACE RESEARCH (passive) **BHR4**	FIXED	
58.2-59 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) ***5.547 5.556***	**58.2-59 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED **BHR3** MOBILE SPACE RESEARCH (passive) **BHR4**	FIXED	
59-59.3 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE ***5.556A*** MOBILE ***5.558*** RADIOLOCATION ***5.559*** SPACE RESEARCH (passive)	**59-59.3 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED **BHR3** INTER-SATELLITE MOBILE RADIOLOCATION SPACE RESEARCH (passive) **BHR4**	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
59.3-64 GHz FIXED INTER-SATELLITE MOBILE ***5.558*** RADIOLOCATION ***5.559*** ***5.138***	**59.3-64 GHz** FIXED **BHR3** INTER-SATELLITE MOBILE RADIOLOCATION **BHR4**	FIXED	
64-65 GHz FIXED INTER-SATELLITE MOBILE except aeronautical mobile ***5.547 5.556***	**64-65 GHz** FIXED **BHR3** INTER-SATELLITE MOBILE except aeronautical mobile **BHR4**	FIXED	
65-66 GHz EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH ***5.547***	**65-66 GHz** EARTH EXPLORATION-SATELLITE FIXED **BHR3** INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH **BHR4**	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
66-71 GHz INTER-SATELLITE MOBILE ***5.553*** ***5.558*** MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE ***5.554***	**66-71 GHz** INTER-SATELLITE MOBILE MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE		
71-74 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)	**71-74 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)	FIXED	Paired with 81 – 86 GHz
74-76 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) ***5.561***	**74-76 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) **BHR4**	FIXED	Paired with 81 – 86 GHz

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
76-77.5 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) ***5.149***	**76-77.5 GHz** RADIO ASTRONOMY RADIOLOCATION Amateur **BHR2** Amateur-satellite Space research (space-to-Earth) **BHR4**		Maximum power for Amateur is 100W (e.i.r.p).
77.5-78 GHz AMATEUR AMATEUR-SATELLITE RADIOLOCATION ***5.559B*** Radio astronomy Space research (space-to-Earth) ***5.149***	**77.5-78 GHz** AMATEUR **BHR2** AMATEUR-SATELLITE RADIOLOCATION Radio astronomy Space research (space-to-Earth) **BHR4**		Maximum power for Amateur is 100W (e.i.r.p).
78-79 GHz RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth) ***5.149*** ***5.560***	**78-79 GHz** RADIOLOCATION Amateur **BHR2** Amateur-satellite Radio astronomy Space research (space-to-Earth) **BHR4**		Maximum power for Amateur is 100W (e.i.r.p).

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
79-81 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) ***5.149***	**79-81 GHz** RADIO ASTRONOMY RADIOLOCATION Amateur **BHR2** Amateur-satellite Space research (space-to-Earth) **BHR4**		Maximum power for Amateur is 100W (e.i.r.p).
81-84 GHz FIXED ***5.338A*** FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) ***5.149 5.561A***	**81-84 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) **BHR4**	FIXED	Paired with 71 – 76 GHz
84-86 GHz FIXED ***5.338A*** FIXED-SATELLITE (Earth-to-space) 5.561B MOBILE RADIO ASTRONOMY ***5.149***	**84-86 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY **BHR4**	FIXED	Paired with 71 – 76 GHz

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
86-92 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340***	**86-92 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		
92-94 GHz FIXED ***5.338A*** MOBILE RADIO ASTRONOMY RADIOLOCATION ***5.149***	**92-94 GHz** FIXED **BHR3** MOBILE RADIO ASTRONOMY RADIOLOCATION	FIXED	
94-94.1 GHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy ***5.562 5.562A***	**94-94.1 GHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy		
94.1-95 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION ***5.149***	**94.1-95 GHz** FIXED **BHR3** MOBILE RADIO ASTRONOMY RADIOLOCATION	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
95-100 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE ***5.149 5.554***	**95-100 GHz** FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE		
100-102 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340 5.341***	**100-102 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		
102-105 GHz FIXED MOBILE RADIO ASTRONOMY ***5.149 5.341***	**102-105 GHz** FIXED MOBILE RADIO ASTRONOMY		
105-109.5 GHz FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.562B*** ***5.149 5.341***	**105-109.5 GHz** FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive)		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
109.5-111.8 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340 5.341***	**109.5-111.8 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		
111.8-114.25 GHz FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.562B*** ***5.149 5.341***	**111.8-114.25 GHz** FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive)		
114.25-116 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340 5.341***	**114.25-116 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		
116-119.98 GHz EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE ***5.562C*** SPACE RESEARCH (passive) ***5.341***	**116-119.98 GHz** EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE SPACE RESEARCH (passive)		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
119.98-122.25 GHz EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE ***5.562C*** SPACE RESEARCH (passive) ***5.138*** ***5.341***	**119.98-122.25 GHz** EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE SPACE RESEARCH (passive) **BHR4**		
122.25-123 GHz FIXED INTER-SATELLITE MOBILE ***5.558*** Amateur ***5.138***	**122.25-123 GHz** FIXED INTER-SATELLITE MOBILE Amateur **BHR2** **BHR4**		Maximum power for Amateur is 100W (e.i.r.p).
123-130 GHz FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.562D ***5.149*** ***5.554***	**123-130 GHz** FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
130-134 GHz EARTH EXPLORATION-SATELLITE (active) ***5.562E*** FIXED INTER-SATELLITE MOBILE ***5.558*** RADIO ASTRONOMY ***5.149*** ***5.562A***	**130-134 GHz** EARTH EXPLORATION-SATELLITE (active) FIXED INTER-SATELLITE MOBILE RADIO ASTRONOMY		
134-136 GHz AMATEUR AMATEUR-SATELLITE Radio astronomy	**134-136 GHz** AMATEUR **BHR2** AMATEUR-SATELLITE Radio astronomy		Maximum power for Amateur is 100W (e.i.r.p).
136-141 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite ***5.149***	**136-141 GHz** RADIO ASTRONOMY RADIOLOCATION Amateur **BHR2** Amateur-satellite		Maximum power for Amateur is 100W (e.i.r.p).
141-148.5 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION ***5.149***	**141-148.5 GHz** FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
148.5-151.5 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340***	**148.5-151.5 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		
151.5-155.5 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION ***5.149***	**151.5-155.5 GHz** FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION		
155.5-158.5 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.562B*** ***5.149 5.562F 5.562G***	**155.5-158.5 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive)		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
158.5-164 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)	**158.5-164 GHz** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
164-167 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340***	**164-167 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		
167-174.5 GHz FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE ***5.558*** ***5.149*** 5.562D	**167-174.5 GHz** FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE		
174.5-174.8 GHz FIXED INTER-SATELLITE MOBILE ***5.558***	**174.5-174.8 GHz** FIXED INTER-SATELLITE MOBILE		
174.8-182 GHz EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE ***5.562H*** SPACE RESEARCH (passive)	**174.8-182 GHz** EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE SPACE RESEARCH (passive)		
182-185 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340***	**182-185 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
185-190 GHz EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE ***5.562H*** SPACE RESEARCH (passive)	**185-190 GHz** EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE SPACE RESEARCH (passive)		
190-191.8 GHz EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) ***5.340***	**190-191.8 GHz** EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive)		
191.8-200 GHz FIXED INTER-SATELLITE MOBILE ***5.558*** MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE ***5.149 5.341 5.554***	**191.8-200 GHz** FIXED INTER-SATELLITE MOBILE MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE		
200-209 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340 5.341 5.563A***	**200-209 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
209-217 GHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY ***5.149 5.341***	**209-217 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY		
217-226 GHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.562B*** ***5.149 5.341***	**217-226 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive)		
226-231.5 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340***	**226-231.5 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		
231.5-232 GHz FIXED MOBILE Radiolocation	**231.5-232 GHz** FIXED MOBILE Radiolocation		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
232-235 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	**232-235 GHz** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation		
235-238 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) ***5.563A*** ***5.563B***	**235-238 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive)		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
238-240 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE	**238-240 GHz** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE		
240-241 GHz FIXED MOBILE RADIOLOCATION	**240-241 GHz** FIXED MOBILE RADIOLOCATION		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
241-248 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite ***5.138*** ***5.149***	**241-248 GHz** RADIO ASTRONOMY RADIOLOCATION Amateur **BHR2** Amateur-satellite **BHR4**		Maximum power for Amateur is 100W (e.i.r.p).
248-250 GHz AMATEUR AMATEUR-SATELLITE Radio astronomy ***5.149***	**248-250 GHz** AMATEUR **BHR2** AMATEUR-SATELLITE Radio astronomy **BHR4**		Maximum power for Amateur is 100W (e.i.r.p).
250-252 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340*** ***5.563A***	**250-252 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)		
252-265 GHz FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE ***5.149*** ***5.554***	**252-265 GHz** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
265-275 GHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY ***5.149 5.563A***	**265-275 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY		
275-3 000 GHz (Not allocated) ***5.565***	**275-3 000 GHz** (Not allocated)		

Annex 1 Glossary of Acronyms, Terms and Definitions

AIS	Automatic Identification System
Appendix 4	Appendix 4 of the Radio Regulations: Consolidated list and tables of characteristics for use in the application of the procedures of Chapter III
Appendix 5	Appendix 5 of the Radio Regulations: Identification of administrations with which coordination is to be effected or agreement sought under the provisions of Article 9
Appendix 17	Appendix 17 of the Radio Regulations: Frequencies and channeling arrangements in the high-frequency bands for the maritime mobile service
Appendix 18	Appendix 18 of the Radio Regulations: Table of transmitting frequencies in the VHF maritime mobile band
Appendix 30	Appendix 30 of the Radio Regulations: Provisions for all services and associated plans and list for the broadcasting-satellite service in the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2)
Appendix 30A	Appendix 30A of the Radio Regulations: Provisions and associated plans and list for feeder links for the broadcasting-satellite service (11.7-12.5 GHz in Region 1, 12.2-12.7 GHz in Region 2 and 11.7-12.2 GHz in Region 3) in the frequency bands 14.5-14.8 GHz and 17.3-18.1 GHz in Regions 1 and 3, and 17.3-17.8 GHz in Region 2
Appendix 30B	Appendix 30B of the Radio Regulations: Provisions and associated plan for the fixed-satellite service in the frequency bands 4 500-4 800 MHz, 6 725-7 025 MHz, 10.70-10.95 GHz, 11.20-11.45 GHz and 12.75-13.25 GHz
Article 5	Article 5 of the Radio Regulations: Frequency allocations
Article 12	Article 12 of the Radio Regulations: Seasonal planning of the high frequency bands allocated to the broadcasting service between 5 900 kHz and 26 100 kHz
Article 23	Article 23 of the Radio Regulations: Broadcasting services
Article 26	Article 26 of the Radio Regulations: Standard frequency and time signal service
Article 31	Article 31 of the Radio Regulations: Frequencies for the global maritime distress and safety system (GMDSS)
ASMG	Arab Spectrum Management Group
BHR	Bahrain national footnote
BFWA	Broadband Fixed Wireless Access
DAB	Digital Audio Broadcasting
DME	Distance Measuring Equipment
e.i.r.p.	Equivalent isotropically radiated power - the product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna (absolute or isotropic gain)
FM	Frequency Modulation
GCC	Gulf Cooperation Council
GHz	Gigahertz (1 000 000 000 Hz)
GMDSS	Global Maritime Distress and Safety System
GPS	Global Positioning System
HAPS	High-Altitude Platform System
HF	High Frequency (Short Wave)
Hz	Hertz, the unit of frequency measurement
ICAO	International Civil Aviation Organization
IMT	International Mobile Telecommunications
ISM	Industrial, Scientific and Medical applications
ITU	International Telecommunication Union
ITU Geneva 1975 plan (GE75)	Plan for the assignment of frequencies to broadcasting stations in the medium frequency bands in Regions 1 and 3 and in the low frequency bands in Region 1
ITU Geneva 1984 plan (GE84)	Frequency assignment plan for FM sound broadcasting stations in Region 1 and part of Region 3 in the band 87.5-108 MHz
ITU Geneva 2006 plan (GE06)	The Plans for VHF/UHF analogue and digital broadcasting in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz, Geneva 2006
ITU RR	ITU Radio Regulation
ITU-R	The Radiocommunication Sector of the ITU
kHz	kilohertz (1 000 Hz)
MHz	Megahertz (1 000 000 Hz)
NAVTEX	Navigation Text Messaging system
NFP	National Frequency Plan
PMR	Private (or Professional) Mobile Radio
PPDR	Public Protection and Disaster Relief
SAB	Services Ancillary to Broadcasting
SART	Search and Rescue Transponder
SRD	Short Range Device
SSCC	Spectrum Strategy and Coordination Committee (of Bahrain)
TDD	Time Division Duplex
VSAT	Very Small Aperture Terminal
VTS	Vessel Traffic Services

Aeronautical mobile (OR) service An aeronautical mobile service intended for communications, including those relating to flight coordination, primarily outside national or international civil air routes.
Aeronautical mobile (R) service An aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.
Aeronautical mobile 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-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.

Annex 1 Glossary of Acronyms, Terms and Definitions

Aeronautical mobile-satellite service

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

Aeronautical 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.

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.

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.

Deep space

Space at distances from the Earth equal to, or greater than, 2 × 106 km.

Earth exploration-satellite service

A radiocommunication service between earth stations and one or more space stations, which may include links between space stations, in which:
– information relating to the characteristics of the Earth and its natural phenomena, including data relating to the state of the environment, is obtained from active sensors or passive sensors on Earth satellites;
– similar information is collected from airborne or Earth-based platforms;
– such information may be distributed to earth stations within the system concerned;
– platform interrogation may be included.
This service may also include feeder links necessary for its operation.

Fixed service
A radiocommunication service between specified fixed points.

Fixed-satellite service

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

Harmful interference

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

Industrial, scientific and medical (ISM) applications (of radio frequency energy)

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

Instrument landing system

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

Interference

The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radiocommunication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy.

Inter-satellite service

A radiocommunication service providing links between artificial satellites.

Land mobile service

A mobile service between base stations and land mobile stations, or between land mobile stations.

Maritime mobile service

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

Maritime mobile-satellite service

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

Maritime radionavigation service

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

Annex 1 Glossary of Acronyms, Terms and Definitions

Maritime radionavigation-satellite service

A radionavigation-satellite service in which earth stations are located on board ships.

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.

Mobile service

A radiocommunication service between mobile and land stations, or between mobile stations.

Mobile-satellite service

A radiocommunication service

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

Radar

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

Radar beacon (racon)

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

Radio astronomy

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

Radio astronomy service

A service involving the use of radio astronomy.

Radiocommunication service

A service involving the transmission, emission and/or reception of radio waves for specific telecommunication purposes.

Radiodetermination

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

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.

Radiolocation

Radiodetermination used for purposes other than those of radionavigation.

Radiolocation service

A radiodetermination service for the purpose of radiolocation.

Radiolocation-satellite service

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

Radionavigation

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

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.

Safety service

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

Space research service

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

Space telemetry

The use of telemetry for the transmission from a space station of results of measurements made in a spacecraft, including those relating to the functioning of the spacecraft.

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.

Annex 1 Glossary of Acronyms, Terms and Definitions

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 its operation.
Telecommunication Any transmission, emission or reception of signs, signals, writings, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems.
Telemetry The use of telecommunication for automatically indicating or recording measurements at a distance from the measuring instrument.

Kingdom of Bahrain National Frequency Plan

Annex 2 Relevant footnotes from ITU Radio Regulations

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

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

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

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

5.56 The stations of services to which the bands 14-19.95 kHz and 20.05-70 kHz and in Region 1 also the bands 72-84 kHz and 86-90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC-12)

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

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

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

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

5.67A Stations in the amateur service using frequencies in the band 135.7-137.8 kHz shall not exceed a maximum radiated power of 1 W (e.i.r.p.) and shall not cause harmful interference to stations of the radionavigation service operating in countries listed in No. 5.67. (WRC-07)

5.73 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.

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

5.80A The maximum equivalent isotropically radiated power (e.i.r.p.) of stations in the amateur service using frequencies in the band 472-479 kHz shall not exceed 1 W. Administrations may increase this limit of e.i.r.p. to 5 W in portions of their territory which are at a distance of over 800 km from the borders of Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, China, Comoros, Djibouti, Egypt, United Arab Emirates, the Russian Federation, Iran (Islamic Republic of), Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Oman, Uzbekistan, Qatar, Syrian Arab Republic, Kyrgyzstan, Somalia, Sudan, Tunisia, Ukraine and Yemen. In this frequency band, stations in the amateur service shall not cause harmful interference to, or claim protection from, stations of the aeronautical radionavigation service. (WRC-12)

Annex 2 Relevant footnotes from ITU Radio Regulations

5.80B The use of the frequency band 472-479 kHz in Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, China, Comoros, Djibouti, Egypt, United Arab Emirates, the Russian Federation, Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Mauritania, Oman, Uzbekistan, Qatar, Syrian Arab Republic, Kyrgyzstan, Somalia, Sudan, Tunisia and Yemen is limited to the maritime mobile and aeronautical radionavigation services. The amateur service shall not be used in the above-mentioned countries in this frequency band, and this should be taken into account by the countries authorizing such use. (WRC-12)

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

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

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

5.99 *Additional allocation:* in Saudi Arabia, Austria, Iraq, Libya, Uzbekistan, Slovakia, Romania, Slovenia, Chad, and Togo, the band 1 810-1 830 kHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)

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

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

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

5.107 *Additional allocation:* in Saudi Arabia, Eritrea, Ethiopia, Iraq, Libya, Somalia and Swaziland, the band 2 160-2 170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of stations in these services shall not exceed 50 W. (WRC-12)

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

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

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

5.111 The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 MHz, 156.525 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article **31**.
The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of ± 3 kHz about the frequency. (WRC-07)

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

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

5.116 Administrations are urged to authorize the use of the band 3 155-3 195 kHz to provide a common worldwide channel for low power wireless hearing aids. Additional channels for these devices may be assigned by administrations in the bands between 3 155 kHz and 3 400 kHz to suit local needs.
It should be noted that frequencies in the range 3 000 kHz to 4 000 kHz are suitable for hearing aid devices which are designed to operate over short distances within the induction field.

5.127 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**).

Annex 2 Relevant footnotes from ITU Radio Regulations

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

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

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

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

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

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 the band 5 900-5 950 kHz may be used by stations in the following services, communicating only within the boundary of the country in which they are located: fixed service (in all three Regions), land mobile service (in Region 1), mobile except aeronautical mobile (R) service (in Regions 2 and 3), on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.137 On condition that harmful interference is not caused to the maritime mobile service, the bands 6 200-6 213.5 kHz and 6 220.5-6 525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above conditions.

5.138 The following bands:

6 765-6 795 kHz	(centre frequency 6 780 kHz),
433.05-434.79 MHz	(centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. **5.280**,
61-61.5 GHz	(centre frequency 61.25 GHz),
122-123 GHz	(centre frequency 122.5 GHz), and
244-246 GHz	(centre frequency 245 GHz)

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

5.141B *Additional allocation:* in Algeria, Saudi Arabia, Australia, Bahrain, Botswana, BruneiDarussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United ArabEmirates, Eritrea, Guinea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, Libya,Mali, Morocco, Mauritania, Niger, New Zealand, Oman, Papua New Guinea, Qatar, the SyrianArab Republic, Singapore, Sudan, South Sudan, Tunisia, Viet Nam and Yemen, the frequency band7 100-7 200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R),services on a primary basis. (WRC-15)

5.143 *Additional allocation:* frequencies in the band 7 300-7 350 kHz may be used by stations in the fixed service and in the land mobile service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.143B In Region 1, frequencies in the band 7 350-7 450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located on condition that harmful interference is not caused to the broadcasting service. The total radiated power of each station shall not exceed 24 dBW. (WRC-12)

Annex 2 Relevant footnotes from ITU Radio Regulations

5.143C *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), Jordan, Kuwait, Libya, Morocco, Mauritania, Niger, Oman, Qatar, the Syrian Arab Republic, Sudan, South Sudan, Tunisia and Yemen, the bands 7 350-7 400 kHz and 7 400-7 450 kHz are also allocated to the fixed service on a primary basis. (WRC-12)

5.145 The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles **31** and **52**. (WRC-07)

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

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

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

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

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

are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **4.5** and **4.6** and Article **29**). (WRC-07)

5.150 The following bands:

13 553-13 567 kHz	(centre frequency 13 560 kHz),
26 957-27 283 kHz	(centre frequency 27 120 kHz),
40.66-40.70 MHz	(centre frequency 40.68 MHz),
902-928 MHz	in Region 2 (centre frequency 915 MHz),
2 400-2 500 MHz	(centre frequency 2 450 MHz),
5 725-5 875 MHz	(centre frequency 5 800 MHz), and
24-24.25 GHz	(centre frequency 24.125 GHz)

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

Annex 2 Relevant footnotes from ITU Radio Regulations

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.

5.180 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.

5.197A *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

** Note by the Secretariat: This Resolution was revised by WRC-12.*

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)

5.202 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the frequency band 136-137 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC-15)

5.204 *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Kuwait, Montenegro, Oman, Pakistan, the Philippines, Qatar, Serbia, Singapore, Thailand and Yemen, the band 137-138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. 5.33). (WRC-07)

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

5.208A In making assignments to space stations in the mobile-satellite service in the 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)

5.208B* In the bands:
137-138 MHz,
387-390 MHz,
400.15-401 MHz,
1 452-1 492 MHz,
1 525-1 610 MHz,
1 613.8-1 626.5 MHz,
2 655-2 690 MHz,
21.4-22 GHz,
Resolution **739 (Rev.WRC-15)** applies. (WRC-15)

** This provision was previously numbered as No.* **5.347A**. *It was renumbered to preserve the sequential order.*

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

5.211 *Additional allocation:* in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Guinea, Ireland, Israel, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Liechtenstein, Luxembourg, Mali, Malta, Montenegro, Norway, the Netherlands, Qatar, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia and Turkey, the frequency band 138-144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis. (WRC-15)

Annex 2 Relevant footnotes from ITU Radio Regulations

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 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 No. **9.11A**. (WRC-15)

5.221 Stations of the mobile-satellite service in the frequency band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Djibouti, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Georgia, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-15)

5.226 The frequency 156.525 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service using digital selective calling (DSC). The conditions for the use of this frequency and the band 156.4875-156.5625 MHz are contained in Articles **31** and **52**, and in Appendix **18**.
The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency and the band 156.7625-156.8375 MHz are contained in Article **31** and Appendix **18**.
In the bands 156-156.4875 MHz, 156.5625-156.7625 MHz, 156.8375-157.45 MHz, 160.6-160.975 MHz and 161.475-162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles **31** and **52**, and Appendix **18**). Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.
However, the frequencies 156.8 MHz and 156.525 MHz and the frequency bands in which priority is given to the maritime mobile service may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations and taking into account current frequency usage and existing agreements. (WRC-07)

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

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

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

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

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

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

Annex 2 Relevant footnotes from ITU Radio Regulations

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

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

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

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

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

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

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

5.262 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Botswana, Colombia, Cuba, Egypt, the United Arab Emirates, Ecuador, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Liberia, Malaysia, Moldova, Oman, Uzbekistan, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Kyrgyzstan, Singapore, Somalia, Tajikistan, Chad, Turkmenistan and Ukraine, the band 400.05-401 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

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

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

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

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

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

5.268 Use of the band 410-420 MHz by the space research service is limited to space-to-space communication links with an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from transmitting stations of the space research service (space-to-space) in the frequency band 410-420 MHz shall not exceed –153 dB(W/m²) for 0°≤ δ ≤ 5° , -153 ° 0.077 (δ-5) dB(W/m²) for 5°≤ δ ≤ 70° and –148 dB(W/m²) for 70°≤ δ ≤ 90° where δ is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. In this frequency band, stations of the space research service (space-tospace) shall not claim protection from, nor constrain the use and development of, stations of fixed and mobile services. No. **4.10** does not apply. (WRC-15)

5.276 *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Djibouti, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Jordan, Kenya, Kuwait, Libya, Malaysia, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Switzerland, Thailand, Togo, Turkey and Yemen, the frequency band 430-440 MHz is also allocated to the fixed service on a primary basis and the frequency bands 430-435 MHz and 438-440 MHz are also allocated, except in Ecuador, to the mobile, except aeronautical mobile, service on a primary basis. (WRC-15)

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

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

Annex 2 Relevant footnotes from ITU Radio Regulations

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

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

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

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

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

5.294 *Additional allocation:* in Saudi Arabia, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Israel, Libya, the Syrian Arab Republic, Chad and Yemen, the band 470-582 MHz is also allocated to the fixed service on a secondary basis. (WRC-12)

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

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

5.311A For the frequency band 620-790 MHz, see also Resolution **549 (WRC-07)**. (WRC-07)

5.312A In Region 1, the use of the band 694-790 MHz by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution **760 (WRC-15)**. See also Resolution **224 (Rev.WRC-15)**. (WRC-15)

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

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

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

5.328 The use of the band 960-1 215 MHz by the aeronautical radionavigation service is reserved on a worldwide basis for the operation and development of airborne electronic aids to air navigation and any directly associated ground-based facilities. (WRC-2000)

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

Annex 2 Relevant footnotes from ITU Radio Regulations

5.328AA The frequency band 1 087.7-1 092.3 MHz is also allocated to the aeronautical mobilesatellite (R) service (Earth-to-space) on a primary basis, limited to the space station reception of Automatic Dependent Surveillance-Broadcast (ADS-B) emissions from aircraft transmitters that operate in accordance with recognized international aeronautical standards. Stations operating in the aeronautical mobile-satellite (R) service shall not claim protection from stations operating in the aeronautical radionavigation service. Resolution **425 (WRC-15)** shall apply. (WRC-15)

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

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

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

5.330 *Additional allocation:* in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Nepal, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the band 1 215-1 300 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

5.331 *Additional allocation:* in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, Pakistan, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sudan, South Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the band 1 215-1 300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the band 1 240-1 300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service. (WRC-12)

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

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

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

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

5.341A In Region 1, the frequency bands 1 427-1 452 MHz and 1 492-1 518 MHz are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**. This identification does not preclude the use of these frequency bands by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of IMT stations is subject to agreement obtained under No. **9.21** with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. **5.342**. (WRC-15)

Annex 2 Relevant footnotes from ITU Radio Regulations

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

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

5.340 All emissions are prohibited in the following bands:

1 400-1 427 MHz,
2 690-2 700 MHz, except those provided for by No. **5.422**,
10.68-10.7 GHz, except those provided for by No. **5.483**,
15.35-15.4 GHz, except those provided for by No. **5.511**,
23.6-24 GHz,
31.3-31.5 GHz,
31.5-31.8 GHz, in Region 2,
48.94-49.04 GHz, from airborne stations
50.2-50.4 GHz[1],
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)

[1] **5.340.1** *The allocation to the Earth exploration-satellite service (passive) and the space research service (passive) in the band 50.2-50.4 GHz should not impose undue constraints on the use of the adjacent bands by the primary allocated services in those bands. (WRC-97)*

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)***.

** Note by the Secretariat: This Resolution was revised by WRC-03.*

5.346 In Algeria, Angola, Saudi Arabia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Congo (Rep. of the), Côte d›Ivoire, Djibouti, Egypt, United Arab Emirates, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Kenya, Kuwait, Lesotho, Lebanon, Liberia, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Palestine, Qatar, Dem. Rep. of the Congo, Rwanda, Senegal, Seychelles, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Tunisia, Zambia, and Zimbabwe, the frequency band 1 452-1 492 MHz is identified for use by administrations listed above wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**. This identification does not preclude the use of this frequency band by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained under No. **9.21** with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. **5.342**. See also Resolution **761 (WRC-15)**. (WRC-15)

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

5.348A 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)

Annex 2 Relevant footnotes from ITU Radio Regulations

5.349 *Different category of service:* in Saudi Arabia, Azerbaijan, Bahrain, Cameroon, Egypt, France, Iran (Islamic Republic of), Iraq, Israel, Kazakhstan, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Morocco, Qatar, Syrian Arab Republic, Kyrgyzstan, Turkmenistan and Yemen, the allocation of the band 1 525-1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-07)

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

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

** Note by the Secretariat: This Resolution was revised by WRC-12.*

5.352A In the frequency band 1 525-1 530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in Algeria, Saudi Arabia, Egypt, France and French overseas communities of Region 3, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Viet Nam and Yemen notified prior to 1 April 1998. (WRC-15)

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

** Note by the Secretariat: This Resolution was revised by WRC-07 and WRC-12.*

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

5.355 *Additional allocation:* in Bahrain, Bangladesh, Congo (Rep. of the), Djibouti, Egypt, Eritrea, Iraq, Israel, Kuwait, Qatar, Syrian Arab Republic, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the bands 1 540-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a secondary basis. (WRC-12)

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

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

5.359 *Additional allocation:* in Germany, Saudi Arabia, Armenia, Azerbaijan, Belarus, Benin, Cameroon, the Russian Federation, France, Georgia, Guinea, Guinea-Bissau, Jordan, Kazakhstan, Kuwait, Lithuania, Mauritania, Uganda, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Tajikistan, Tunisia, Turkmenistan and Ukraine, the frequency bands 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 frequency bands. (WRC-15)

5.364 The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. **9.11A**. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of -15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. **5.366** (to which No. **4.10** applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed –3 dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. **5.366** and stations in the fixed service operating in accordance with the provisions of No. **5.359**. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. **5.366**.

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

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

Annex 2 Relevant footnotes from ITU Radio Regulations

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

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

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

5.372 Harmful interference shall not be caused to stations of the radio astronomy service using the 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 stations in the fixed service operating in the countries listed in No. **5.359**. (WRC-97)

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

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

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

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

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

5.379C In order to protect the radio astronomy service in the band 1 668-1 670 MHz, the aggregate power flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed –181 dB(W/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)

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

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

5.382 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Iraq, Israel, Jordan, Kazakhstan, Kuwait, the Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Turkmenistan, Ukraine and Yemen, the allocation of the frequency band 1 690-1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**), and in the Dem. People's Rep. of Korea, the allocation of the frequency band 1 690-1 700 MHz to the fixed service is on a primary basis (see No. **5.33**) and to the mobile, except aeronautical mobile, service on a secondary basis. (WRC-15)

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

5.385 *Additional allocation:* the band 1 718.8-1 722.2 MHz is also allocated to the radio astronomy service on a secondary basis for spectral line observations. (WRC-2000)

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

Annex 2 Relevant footnotes from ITU Radio Regulations

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

5.388B In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire, China, Cuba, Djibouti, Egypt, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Libya, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, South Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT base station in neighbouring countries, in the bands referred to in No. **5.388A**, shall not exceed a co-channel power flux-density of –127 dB(W/(m2 · MHz)) at the Earth's surface outside a country's borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS. (WRC-12)

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)

** Note by the Secretariat: This Resolution was revised by WRC-12.*

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

5.391 In making assignments to the mobile service in the frequency bands 2 025-2 110 MHz and 2 200-2 290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154-0, and shall take that Recommendation into account for the introduction of any other type of mobile system. (WRC-15)

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

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

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

5.410 The band 2 500-2 690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. **9.21**. No. **9.21** does not apply to tropospheric scatter links situated entirely outside Region 1. Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in this band. When planning new tropospheric scatter radio-relay links in this band, all possible measures shall be taken to avoid directing the antennas of these links towards the geostationary-satellite orbit. (WRC-12)

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

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

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

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

5.422 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Brunei Darussalam, Congo (Rep. of the), Côte d'Ivoire, Cuba, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Mauritania, Mongolia, Montenegro, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, the Dem. Rep. of the Congo, Romania, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine and Yemen, the band 2 690-2 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-12)

Annex 2 Relevant footnotes from ITU Radio Regulations

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

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

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

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

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

5.429 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Benin, Brunei Darussalam, Cambodia, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Egypt, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Sudan and Yemen, the frequency band 3 300-3 400 MHz is also allocated to the fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-15)

5.429A *Additional allocation:* in Angola, Benin, Botswana, Burkina Faso, Burundi, Ghana, Guinea, Guinea-Bissau, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300-3 400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. Stations in the mobile service operating in the frequency band 3 300-3 400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-15)

429B In the following countries of Region 1 south of 30° parallel north: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Congo (Rep. of the), Côte d'Ivoire, Egypt, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Uganda, the Dem. Rep. of the Congo, Rwanda, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). The use of this frequency band shall be in accordance with Resolution **223 (Rev.WRC-15)**. The use of the frequency band 3 300-3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to protect operations within the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.430A The allocation of the frequency band 3 400-3 600 MHz to the mobile, except aeronautical mobile, service is subject to agreement obtained under No. **9.21**. This frequency band is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The provisions of Nos. **9.17** and **9.18** shall also apply in the coordination phase. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed –154.5 dB(W/(m^2 . 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) and with the assistance of the Bureau if so requested. In case of disagreement, calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-15)

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

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

Annex 2 Relevant footnotes from ITU Radio Regulations

5.438 Use of the frequency band 4 200-4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. (WRC-15)

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

5.441 The use of the bands 4 500-4 800 MHz (space-to-Earth), 6 725-7 025 MHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix **30B**. The use of the bands 10.7-10.95 GHz (space-to-Earth), 11.2-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by geostationary-satellite systems in the fixed-satellite service shall be in accordance with the provisions of Appendix **30B**. The use of the bands 10.7-10.95 GHz (space-to-Earth), 11.2-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)

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

5.443B In order not to cause harmful interference to the microwave landing system operating above 5 030 MHz, the aggregate power flux-density produced at the Earth's surface in the frequency band 5 030-5 150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the frequency band 5 010-5 030 MHz shall not exceed −124.5 dB(W/m2) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the frequency band 4 990-5 000 MHz, radionavigation-satellite service systems operating in the frequency band 5 010-5 030 MHz shall comply with the limits in the frequency band 4 990-5 000 MHz defined in Resolution **741 (Rev.WRC-15)**. (WRC-15)

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

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

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

5.444A The use of the allocation to the fixed-satellite service (Earth-to-space) in the frequency band 5 091-5 150 MHz is limited to feeder links of non-geostationary satellite systems in the mobilesatellite service and is subject to coordination under No. **9.11A**. The use of the frequency band 5 091-5 150 MHz by feeder links of non-geostationary satellite systems in the mobile-satellite service shall be subject to application of Resolution **114 (Rev.WRC-15)**. Moreover, to ensure that the aeronautical radionavigation service is protected from harmful interference, coordination is required for feeder-link earth stations of the non-geostationary satellite systems in the mobilesatellite service which are separated by less than 450 km from the territory of an administration operating ground stations in the aeronautical radionavigation service. (WRC-15)

5.444B The use of the frequency band 5 091-5 150 MHz by the aeronautical mobile service is limited to:

- systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution **748 (Rev.WRC-15)**;
- aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **418 (Rev.WRC-15)**. (WRC-15)

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 (Rev.WRC-12)**. (WRC-12)

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)

Annex 2 Relevant footnotes from ITU Radio Regulations

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

5.447A The allocation to the fixed-satellite service (Earth-to-space) in the band 5 150-5 250 MHz is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A**.

5.447B *Additional allocation:* the band 5 150-5 216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to provisions of No. **9.11A**. The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5 150-5 216 MHz shall in no case exceed –164 dB(W/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 No. **9.11A** with administrations responsible for non-geostationary-satellite networks operated under No. **5.446** and brought into use prior to 17 November 1995. Satellite networks operated under No. **5.446** brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. **5.447A** and **5.447B**.

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

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

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

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

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

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

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

5.450A In the frequency band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU-R M.1638-0. (WRC-15)

5.450B In the frequency band 5 470-5 650 MHz, stations in the radiolocation service, except ground-based radars used for meteorological purposes in the band 5 600-5 650 MHz, shall not cause harmful interference to, nor claim protection from, radar systems in the maritime radionavigation service. (WRC-03)

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

5.453 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Niger, Nigeria, Oman, Uganda, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Swaziland, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the band 5 650-5 850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution **229 (Rev.WRC-12)** do not apply. (WRC-12)

Annex 2

Relevant footnotes from ITU Radio Regulations

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

5.457B In the frequency bands 5 925-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution **902 (WRC-03)** in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Jordan, Kuwait, Libya, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Sudan, Tunisia and Yemen, in the maritime mobile-satellite service on a secondary basis. Such use shall be in accordance with Resolution **902 (WRC-03)**. (WRC-15)

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

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

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

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

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

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

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

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

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

5.461AA The use of the frequency band 7 375-7 750 MHz by the maritime mobile-satellite service is limited to geostationary-satellite networks. (WRC-15)

5.461AB In the frequency band 7 375-7 750 MHz, earth stations in the maritime mobile-satellite service shall not claim protection from, nor constrain the use and development of, stations in the fixed and mobile, except aeronautical mobile, services. No. **5.43A** does not apply. (WRC-15)

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

-135 dB(W/m²) in a 1 MHz band for $0° \leq \theta < 5°$
$-135 + 0.5\,(\theta - 5)$ dB(W/m²) in a 1 MHz band for $5° \leq \theta < 5°$
-125 dB(W/m²) in a 1 MHz band for $25° \leq \theta \leq 90°$ (WRC-12)

Annex 2 Relevant footnotes from ITU Radio Regulations

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

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

5.468 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Djibouti, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Sudan, Swaziland, Chad, Togo, Tunisia and Yemen, the frequency band 8 500-8 750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)

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

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

5.471 *Additional allocation:* in Algeria, Germany, Bahrain, Belgium, China, Egypt, the United Arab Emirates, France, Greece, Indonesia, Iran (Islamic Republic of), Libya, the Netherlands, Qatar and Sudan, the frequency bands 8 825-8 850 MHz and 9 000-9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only. (WRC-15)

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

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

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

5.474A The use of the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz by the Earth exploration-satellite service (active) is limited to systems requiring necessary bandwidth greater than 600 MHz that cannot be fully accommodated within the frequency band 9 300-9 900 MHz.
Such use is subject to agreement to be obtained under No. **9.21** from Algeria, Saudi Arabia, Bahrain, Egypt, Indonesia, Iran (Islamic Republic of), Lebanon and Tunisia. An administration that has not replied under No. **9.52** is considered as not having agreed to the coordination request. In this case, the notifying administration of the satellite system operating in the Earth exploration-satellite service (active) may request the assistance of the Bureau under Sub-Section IID of Article **9**. (WRC-15)

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

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

5.474D Stations in the Earth exploration-satellite service (active) shall not cause harmful interference to, or claim protection from, stations of the maritime radionavigation and radiolocation services in the frequency band 9 200-9 300 MHz, the radionavigation and radiolocation services in the frequency band 9 900-10 000 MHz and the radiolocation service in the frequency band 10.0- 10.4 GHz. (WRC-15)

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

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

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

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

Annex 2 Relevant footnotes from ITU Radio Regulations

5.477 *Different category of service:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Trinidad and Tobago, and Yemen, the allocation of the frequency band 9 800-10 000 MHz to the fixed service is on a primary basis (see No. **5.33**). (WRC-15)

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

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

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

5.482 In the band 10.6-10.68 GHz, the power delivered to the antenna of stations of the fixed and mobile, except aeronautical mobile, services shall not exceed −3 dBW. This limit may be exceeded, subject to agreement obtained under No. **9.21**. However, in Algeria, Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, Egypt, United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Moldova, Nigeria, Oman, Uzbekistan, Pakistan, Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, Singapore, Tajikistan, Tunisia, Turkmenistan and Viet Nam, this restriction on the fixed and mobile, except aeronautical mobile, services is not applicable. (WRC-07)

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

5.483 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, China, Colombia, Korea (Rep. of), Costa Rica, Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, Tajikistan, Turkmenistan and Yemen, the band 10.68-10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-12)

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

5.484A The use of the bands 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 13.75-14.5 GHz (Earth-to-space), 17.8-18.6 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), 29.5-30 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)

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

5.487 In the band 11.7-12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to, or claim protection from, broadcasting-satellite stations operating in accordance with the Regions 1 and 3 Plan in Appendix **30**. (WRC-03)

5.487A *Additional allocation:* in Region 1, the band 11.7-12.5 GHz, in Region 2, the band 12.2-12.7 GHz and, in Region 3, the band 11.7-12.2 GHz, are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-geostationary systems and subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the broadcasting-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-03)

Annex 2 Relevant footnotes from ITU Radio Regulations

5.492 Assignments to stations of the broadcasting-satellite service which are in conformity with the appropriate regional Plan or included in the Regions 1 and 3 List in Appendix **30** may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference, or require more protection from interference, than the broadcasting-satellite service transmissions operating in conformity with the Plan or the List, as appropriate. (WRC-2000)

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

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

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

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

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

5.499C The allocation of the frequency band 13.4-13.65 GHz to the space research service on a primary basis is limited to:
- satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015,
- active spaceborne sensors,
- satellite systems operating in the space research service (space-to-Earth) to relay data from space stations in the geostationary-satellite orbit to associated earth stations.

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

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

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

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

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

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

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

Annex 2 Relevant footnotes from ITU Radio Regulations

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;

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

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

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

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

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

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

5.504B Aircraft earth stations operating in the aeronautical mobile-satellite service in the frequency band 14-14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M.1643-0, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz frequency band located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa. (WRC-15)

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

5.505 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Djibouti, Egypt, the United Arab Emirates, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Swaziland, Chad, Viet Nam and Yemen, the frequency band 14-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-15)

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

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

5.508A In the frequency band 14.25-14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-15)

Annex 2 Relevant footnotes from ITU Radio Regulations

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

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

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

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

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

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

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

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

5.511 *Additional allocation:* in Saudi Arabia, Bahrain, Cameroon, Egypt, the United Arab Emirates, Guinea, Iran (Islamic Republic of), Iraq, Israel, Kuwait, Lebanon, Oman, Pakistan, Qatar, the Syrian Arab Republic and Somalia, the band 15.35-15.4 GHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-12)

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

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

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

5.511F In order to protect the radio astronomy service in the frequency band 15.35-15.4 GHz, radiolocation stations operating in the frequency band 15.4-15.7 GHz shall not exceed the power flux-density level of −156 dB(W/m2) in a 50 MHz bandwidth in the frequency band 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2 per cent of the time. (WRC-12)

Relevant footnotes from ITU Radio Regulations

5.512 *Additional allocation:* in Algeria, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Congo (Rep. of the), Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Montenegro, Nepal, Nicaragua, Niger, Oman, Pakistan, Qatar, Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)

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

5.514 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Cameroon, El Salvador, the United Arab Emirates, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kuwait, Libya, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Sudan and South Sudan, the frequency band 17.3-17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. **21.3** and **21.5** shall apply. (WRC-15)

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

5.516 The use of the band 17.3-18.1 GHz by geostationary-satellite systems in the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. The use of the band 17.3-17.8 GHz in Region 2 by systems in the fixed-satellite service (Earth-to-space) is limited to geostationary satellites. For the use of the band 17.3-17.8 GHz in Region 2 by feeder links for the broadcasting-satellite service in the band 12.2-12.7 GHz, see Article **11**. The use of the bands 17.3-18.1 GHz (Earth-to-space) in Regions 1 and 3 and 17.8-18.1 GHz (Earth-to-space) in Region 2 by non-geostationary-satellite systems in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)

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

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

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

This identification does not preclude the use of these bands by other fixed-satellite service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in these Radio Regulations among users of the bands. Administrations should take this into account when considering regulatory provisions in relation to these bands. See Resolution **143 (WRC-03)***. (WRC-03)

** Note by the Secretariat: This Resolution was revised by WRC-07.*

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

5.520 The use of the band 18.1-18.4 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links of geostationary-satellite systems in the broadcasting-satellite service. (WRC-2000)

Annex 2 Relevant footnotes from ITU Radio Regulations

5.521 *Alternative allocation:* in the United Arab Emirates and Greece, the frequency band 18.1-18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis (see No. **5.33**). The provisions of No. **5.519** also apply. (WRC-15)

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

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

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

5.523A The use of the bands 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) by geostationary and non-geostationary fixed-satellite service networks is subject to the application of the provisions of No. **9.11A** and No. **22.2** does not apply. Administrations having geostationary-satellite networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. **9.11A** with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-geostationary-satellite networks shall not cause unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix **4** notification information is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

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

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

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

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

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

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

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

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

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

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

Annex 2 Relevant footnotes from ITU Radio Regulations

5.530A Unless otherwise agreed between the administrations concerned, any station in the fixed or mobile services of an administration shall not produce a power flux-density in excess of –120.4 dB(W/(m² · MHz)) at 3 m above the ground of any point of the territory of any other administration in Regions 1 and 3 for more than 20% of the time. In conducting the calculations, administrations should use the most recent version of Recommendation ITU-R P.452 (see also the most recent version of Recommendation ITU-R BO.1898). (WRC-15)

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

5.530D See Resolution 555 **(WRC-12)**. (WRC-12)

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

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

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

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

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

5.536A Administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account the most recent version of Recommendation ITU-R SA.1862. (WRC-12)

5.536B In Saudi Arabia, Austria, Bahrain, Belgium, Brazil, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Estonia, Finland, Hungary, India, Iran (Islamic Republic of), Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, 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, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the frequency band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-15)

5.536C In Algeria, Saudi Arabia, Bahrain, Botswana, Brazil, Cameroon, Comoros, Cuba, Djibouti, Egypt, United Arab Emirates, Estonia, Finland, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lithuania, Malaysia, Morocco, Nigeria, Oman, Qatar, Syrian Arab Republic, Somalia, Sudan, South Sudan, Tanzania, Tunisia, Uruguay, Zambia and Zimbabwe, earth stations operating in the space research service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-12)

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.

Annex 2 Relevant footnotes from ITU Radio Regulations

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

5.542 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Oman, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, South Sudan, Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **21.3** and **21.5** shall apply. (WRC-12)

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

5.543A In Bhutan, Cameroon, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sudan, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the frequency band 31-31.3 GHz may also be used by systems using high altitude platform stations (HAPS) in the ground-to-HAPS direction. The use of the frequency band 31-31.3 GHz by systems using HAPS is limited to the territory of the countries listed above and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems, systems in the mobile service and systems operated under No. **5.545**. Furthermore, the development of these services shall not be constrained by HAPS. Systems using HAPS in the frequency band 31- 31.3 GHz shall not cause harmful interference to the radio astronomy service having a primary allocation in the frequency band 31.3-31.8 GHz, taking into account the protection criterion as given in the most recent version of Recommendation ITU-R RA.769. In order to ensure the protection of satellite passive services, the level of unwanted power density into a HAPS ground station antenna in the frequency band 31.3-31.8 GHz shall be limited to −106 dB(W/MHz) under clear-sky conditions, and may be increased up to −100 dB(W/MHz) under rainy conditions to mitigate fading due to rain, provided the effective impact on the passive satellite does not exceed the impact under clear-sky conditions. See Resolution **145 (Rev.WRC-12)**. (WRC-15)

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, Oman, 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-12)

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)

** Note by the Secretariat: This Resolution was revised by WRC-12.*

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. (WRC2000)

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

5.549 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan, Sri Lanka, Togo, Tunisia and Yemen, the band 33.4-36 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

5.549A In the band 35.5-36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed -73.3 dB(W/m²) in this band. (WRC-03)

Annex 2 Relevant footnotes from ITU Radio Regulations

5.550A For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution **752 (WRC-07)** shall apply. (WRC-07)

5.551H 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 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/m2) in 1 GHz and –246 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
–209 dB(W/m2) in any 500 kHz of the 42.5-43.5 GHz at the site of any radio astronomy station registered as a very long baseline interferometry station.
These epfd values shall be evaluated using the methodology given in Recommendation ITU-R S.1586-1 and the reference antenna pattern and the maximum gain of an antenna in the radio astronomy service given in Recommendation ITU-R RA.1631-0 and shall apply over the whole sky and for elevation angles higher than the minimum operating angle θmin 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 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 Bureau before 4 January 2004; or
– was notified before the date of receipt of the complete Appendix **4** information for coordination or notification, as appropriate, for the space station to which the limits apply.
Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC-03)** shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-15)

5.552 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**). (WRC-2000)

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

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

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

5.555B The power flux-density in the band 48.94-49.04 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth) operating in the bands 48.2-48.54 GHz and 49.44-50.2 GHz shall not exceed –151.8 dB(W/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. (WRC-2000)

5.556A Use of the bands 54.25-56.9 GHz, 57-58.2 GHz and 59-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m² . 100 MHz)) for all angles of arrival. (WRC-97)

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

Annex 2 Relevant footnotes from ITU Radio Regulations

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

5.558A Use of the band 56.9-57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m² 100 MHz)) for all angles of arrival. (WRC-97)

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

5.559B The use of the frequency band 77.5-78 GHz by the radiolocation service shall be limited to short-range radar for ground-based applications, including automotive radars. The technical characteristics of these radars are provided in the most recent version of Recommendation ITU-R M.2057. The provisions of No. **4.10** do not apply. (WRC-15)

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

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

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

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

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

5.562B In the bands 105-109.5 GHz, 111.8-114.25 GHz, 155.5-158.5 GHz and 217-226 GHz, the use of this allocation is limited to space-based radio astronomy only. (WRC-2000)

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. (WRC-2000)

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

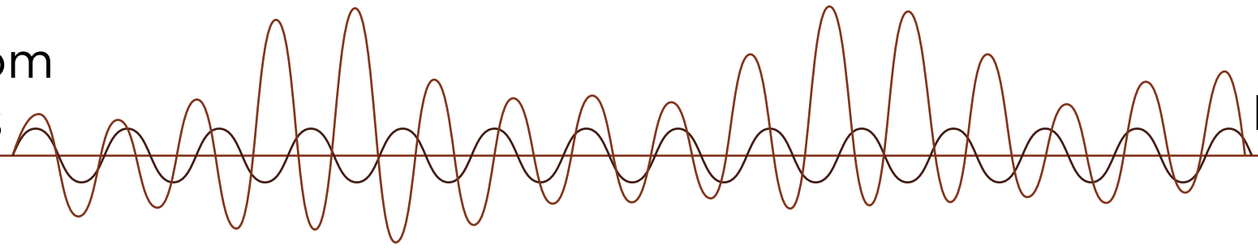
5.562F In the band 155.5-158.5 GHz, the allocation to the Earth exploration-satellite (passive) and space research (passive) services shall terminate on 1 January 2018. (WRC-2000)

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. (WRC-2000)

5.562H Use of the bands 174.8-182 GHz and 185-190 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed –144 dB(W/(m² . MHz)) for all angles of arrival. (WRC-2000)

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

5.563B The band 237.9-238 GHz is also allocated to the Earth exploration-satellite service (active) and the space research service (active) for spaceborne cloud radars only. (WRC-2000)



5.565 The following frequency bands in the range 275-1 000 GHz are identified for use by administrations for passive service applications:
– radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;

– Earth exploration-satellite service (passive) and space research service (passive): 275-286 GHz, 296-306 GHz, 313-356 GHz, 361-365 GHz, 369-392 GHz, 397-399 GHz, 409-411 GHz, 416-434 GHz, 439-467 GHz, 477-502 GHz, 523-527 GHz, 538-581 GHz, 611-630 GHz, 634-654 GHz, 657-692 GHz, 713-718 GHz, 729-733 GHz, 750-754 GHz, 771-776 GHz, 823-846 GHz, 850-854 GHz, 857-862 GHz, 866-882 GHz, 905-928 GHz, 951-956 GHz, 968-973 GHz and 985-990 GHz.

The use of the range 275-1 000 GHz by the passive services does not preclude use of this range by active services. Administrations wishing to make frequencies in the 275-1 000 GHz range available for active service applications are urged to take all practicable steps to protect these passive services from harmful interference until the date when the Table of Frequency Allocations is established in the above-mentioned 275-1 000 GHz frequency range.
All frequencies in the range 1 000-3 000 GHz may be used by both active and passive services. (WRC-12)

BHR1: One or all of the services mentioned in column 2 is allocated on a national basis in Bahrain. Stations of such national services shall not cause harmful interference to stations of a service of administrations operating in accordance with Article 5 of the ITU Radio Regulations.

BHR2: This band or part of it is used by the Amateur service on a primary or secondary basis in accordance with Amateur regulation in Bahrain.

BHR3: This band or part of it is used by Point to Point Fixed Link in accordance with Fixed Wireless Point to Point Regulation (FLR) / Policy in Bahrain.

BHR4: This band or part of it is used by the Short Range Devices (SRD) on a secondary basis in accordance with SRD regulation in Bahrain.

Kingdom of Bahrain National Frequency Plan

@igabahrain

P.O. Box 33305 - Tel: 17878000