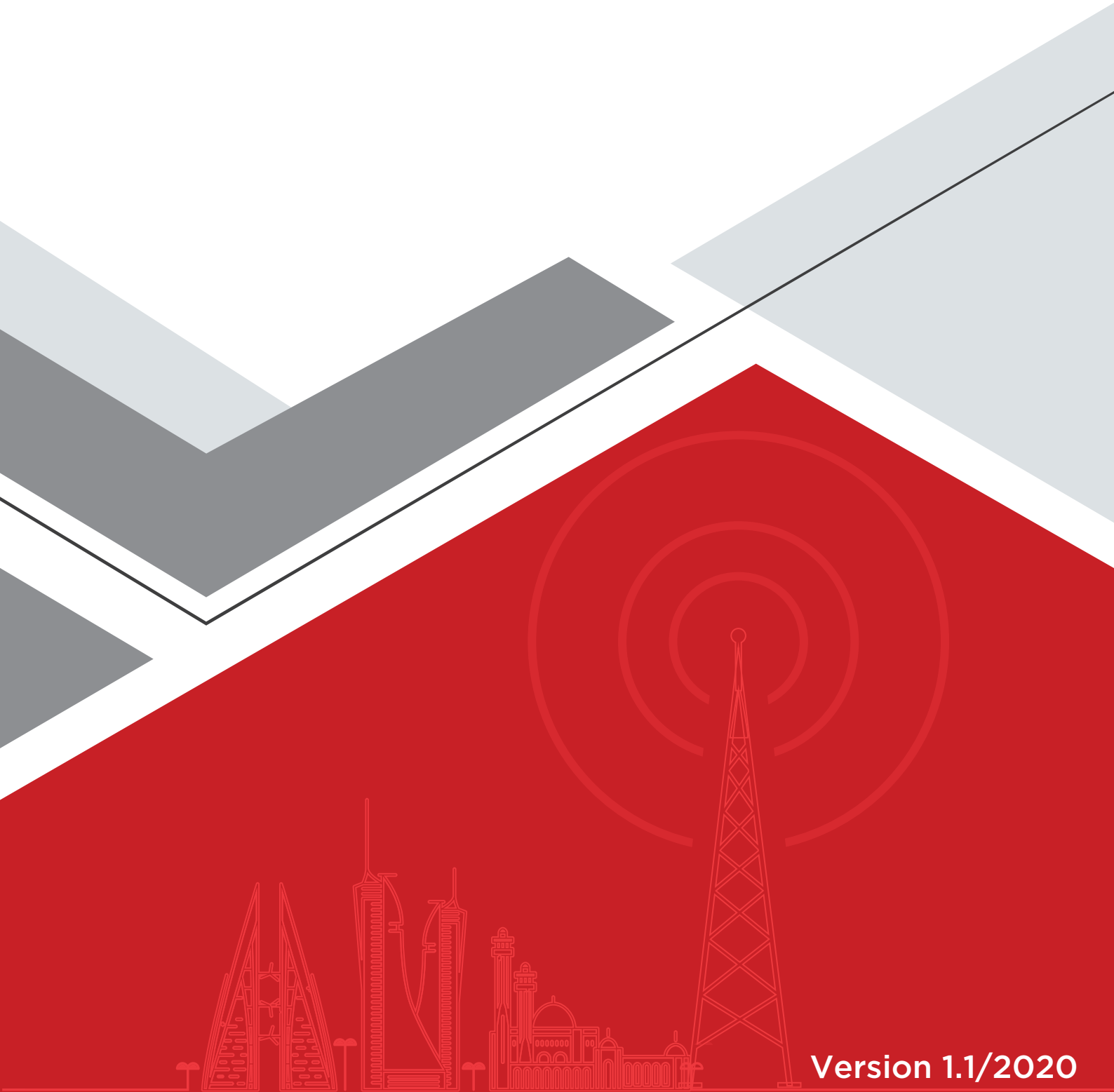
INFORMATION &
eGOVERNMENT AUTHORITY

Kingdom of Bahrain
National Frequency Plan



Version 1.1/2020

Contents

Introduction

The radio frequency spectrum is a finite national resource, and it is therefore vitally important that the spectrum resource is utilised efficiently and effectively. The National Frequency Plan (NFP) is a key instrument in spectrum resource management providing information on which radiocommunication's services are permitted in each frequency band in the Kingdom of Bahrain.

In addition to honouring international agreements, the NFP should reflect national policy on the use of the radio spectrum (in support of the broader objectives for the telecom munications, 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. (25) of 2019 that amends the Decision No. (50) of 2015 for 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, 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.

NFP-Details

The NFP is based on current and forecasted spectrum requirements in the Kingdom for the foreseeable future.

Where a more extended term implementation is expected, this is mentioned in the additional information column. It is expected that the NFP will be implemented in part or whole, as soon as is practicably possible.

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

Frequency allocations of Radio Regulations keep changing following the end of each World Radiocommunication Conference as new frequency allocations are redefined for the favour of specific services with the most growing demands, and old ones phased out. Changes on spectrum utilisation 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 are arising from service-based national consultative committees.

The activities of other United Nations specialized agencies are also relevant, in particular the International Civil Aviation Organisation (ICAO) and the International Maritime Organisation (IMO). Since radio frequencies do not respect national borders, it is also necessary to take account of spectrum usage in neighbouring states.

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 Article 5 of ITU Radio Regulations (RR-2019). 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.
- RR Article 5 footnotes which are relevant to GCC countries, neighbouring states and the Kingdom in particular, which are **underlined italic bolded** text.

See also Annex 1 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 are relevant to the frequency band in question.

See also Section 4 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 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. Besides other relevant information may also be included in this column.

Underlined italic bolded footnotes numbers: Indicates the footnotes related to Bahrain or neighbouring countries. Conditions, constraints and other limitations stated in the bolded footnotes are mandatory to be observed or complied within the utilisation 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 neighbouring 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.

Footnotes

The National footnote is a note that denotes the type of service or the regulations related to it locally, as explained below:

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 latest Amateur regulation in Bahrain. (Available in www.iga.gov.bh)

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

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

Key ITU Definitions

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

5.1 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. *(No.1.16 in RR)*

5.2 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. *(No.1.17 in RR)*

5.3 Assignment (of a radio frequency or radio frequency channel): Authorisation is given by an administration for a radio station to use a radio frequency or radio frequency channel under specified conditions. *(No.1.18 in RR)*

5.4 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 territories 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)**. *(No.5.3 in RR)*

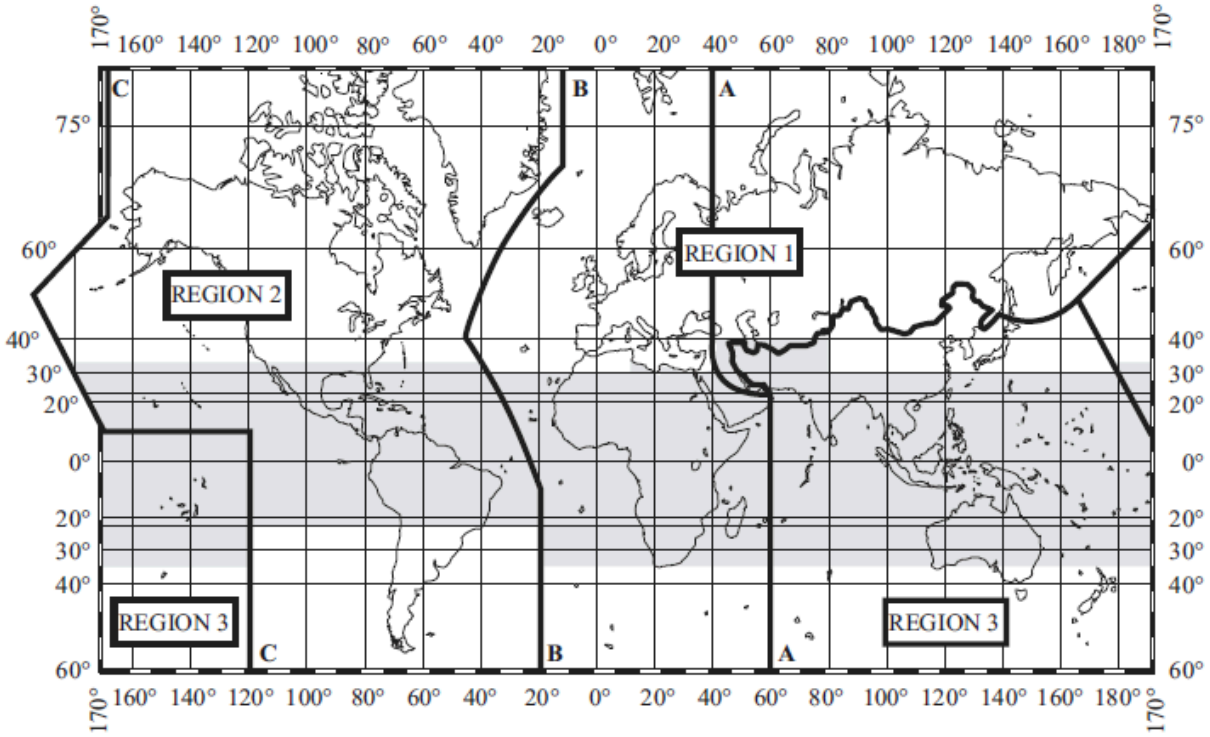


Figure (1)

5.5 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). *(No.5.4 in RR)*

5.6 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. *(No.5.5 in RR)*

5.7 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. (No.5.7 in RR)

5.8 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. *(No.5.8 in RR)*

5.9 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. *(No.5.9 in RR)*

5.10 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; *(No.5.25.a in RR)*

5.11 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; *(Nos.5.26.b to 5.33.5 in RR)*

5.11.1 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 another secondary service(s) to which frequencies may be assigned at a later date.

5.11.2 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.

5.12 1) Where it is indicated in these Regulations that a service or stations in a service may operate in a specific frequency band subject to not causing harmful interference to another service or to another station in the same service, this means also that the service which is subject to not causing harmful interference cannot claim protection from harmful interference caused by the other service or other station in the same service. *(No.5.43 in RR)*

5.13 1bis) Where it is indicated in these Regulations that a service or stations in a service may operate in a specific frequency band subject to not claiming protection from another service or from another station in the same service, this means also that the service which is subject to not claiming protection shall not cause harmful interference to the other service or other station in the same service. *(No.5.43A in RR)*

National FrequencyPlan

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	
70-72 kHz RADIONAVIGATION ***5.60***	**70-72 kHz** RADIONAVIGATION **BHR4**	Inductive Systems	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	**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**		
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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
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 ***5.82C***	**495-505 kHz** MARITIME MOBILE **BHR4**		Used for international NAVDAT system as described in the most recent version of Recommendation ITU-R M.2010. NAVDAT transmitting stations are limited to coast stations
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**		
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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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 are prescribed in Article 31 (5.111)
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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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 for SFTS
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)	
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 kHz** 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**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
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	
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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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)
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**		
4 650-4 700 kHz AERONAUTICAL MOBILE (R)	**4 650-4 700 kHz** AERONAUTICAL MOBILE (R) **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
4 700-4 750 kHz AERONAUTICAL MOBILE (OR)	**4 700-4 750 kHz** AERONAUTICAL MOBILE (OR) **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
4 850-4 995 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 for SFTS
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	
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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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**		
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 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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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
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).
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).

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
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)

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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**		
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
10 005-10 100 kHz AERONAUTICAL MOBILE (R) ***5.111***	**10 005-10 100 kHz** AERONAUTICAL MOBILE (R) **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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
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**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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**		
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)	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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
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
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 for SFTS
15 010-15 100 kHz AERONAUTICAL MOBILE (OR)	**15 010-15 100 kHz** AERONAUTICAL MOBILE (OR) **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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**		
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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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**		
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)	
19 800-19 990 kHz FIXED	**19 800-19 990 kHz** FIXED **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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 for SFTS
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**		
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**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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 for SFTS
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**		
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**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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**		
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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
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**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
42-42.5 MHz FIXED MOBILE Radiolocation ***5.132A*** 5.160 5.161B	**42-42.5 MHz** FIXED MOBILE Radiolocation **BHR4**		
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**		
47-50 MHz BROADCASTING 5.162A 5.163 5.164 5.165	**47-50 MHz** BROADCASTING **BHR4**		Refer to the ITU GE89 Plan
50-52 MHz BROADCASTING Amateur 5.166A ***5.166B*** ***5.166C*** 5.166D 5.166E 5.169 ***5.169A*** ***5.169B*** 5.162A 5.164 5.165	**50-52 MHz** BROADCASTING AMATEUR **BHR2**		For Broadcasting refer to the ITU GE89 Plan The field strength generated by an amateur station shall not exceed a value of +6 dB(µV/m) at a height of 10 m above ground for more than 10% of time along the borders of the countries listed in 5.169A
52-68MHz BROADCASTING 5.162A 5.163 5.164 5.165 5.169 ***5.169A*** ***5.169B*** 5.171	**52-54 MHz** AMATEUR **BHR2** **54-68 MHz** BROADCASTING		The field strength generated by an amateur station shall not exceed a value of +6 dB(µV/m) at a height of 10 m above ground for more than 10% of time along the borders of the countries listed in 5.169A For BC refer to the ITU GE89 Plan

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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		
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		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
117.975-137 MHz AERONAUTICAL MOBILE (R) ***5.111*** ***5.200*** 5.201 ***5.202***	**117.975-136 MHz** AERONAUTICAL MOBILE (R) **136-137 MHz** AERONAUTICAL MOBILE (R) AERONAUTICAL MOBILE (OR)	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)
137-137.025 MHz SPACE OPERATION (space-to-Earth) ***5.203C*** METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) ***5.208A*** ***5.208B*** ***5.209*** SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) ***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) ***5.203C*** METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) ***5.208A*** ***5.208B*** ***5.209*** ***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) ***5.203C*** ***5.209A*** METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) ***5.208A*** ***5.208B*** ***5.209*** SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) ***5.204*** 5.205 5.206 5.207 ***5.208***	**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) ***5.203C*** METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) ***5.208A*** ***5.208B*** ***5.209*** ***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)		
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**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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
148-149.9 MHz FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) ***5.209 5.218 5.218A 5.219 5.221***	**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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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)	From 156.025 MHz VHF maritime mobile band channels	Standard Maritime channels according to Appendix 18.
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.

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
156.8375-157.1875 MHz FIXED MOBILE except aeronautical mobile ***5.226***	**156.8375-157.1875 MHz** FIXED MOBILE except aeronautical mobile		Standard Maritime channels according to Appendix 18.
157.1875-157.3375 MHz FIXED MOBILE except aeronautical mobile Maritime mobile-satellite ***5.208A 5.208B 5.228AB 5.228AC 5.226***	**157.1875-157.3375 MHz** FIXED MOBILE except aeronautical mobile Maritime mobile-satellite		Maritime mobile-satellite service (Earth-to-space) is limited to non-GSO satellite systems operating in accordance with Appendix 18. Standard Maritime channels according to Appendix 18.
157.3375-161.7875 MHz FIXED MOBILE except aeronautical mobile ***5.226***	**157.3375-161.7875 MHz** FIXED MOBILE except aeronautical mobile Maritime mobile-satellite		Standard Maritime channels according to Appendix 18.
161.7875-161.9375 MHz FIXED MOBILE except aeronautical mobile Maritime mobile-satellite ***5.208A 5.208B 5.228AB 5.228AC 5.226***	**161.7875-161.9375 MHz** FIXED MOBILE except aeronautical mobile Maritime mobile-satellite		Maritime mobile-satellite service (Earth-to-space) is limited to non- GSO satellite systems operating in accordance with Appendix 18. Standard Maritime channels according to Appendix 18.
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.

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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.
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 5.235 5.237 5.243	**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**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
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 **BHR4**		
312-315 MHz FIXED MOBILE Mobile-satellite (Earth-to-space) ***5.254*** ***5.255***	**312-315 MHz** FIXED MOBILE Mobile-satellite (Earth-to-space) **BHR4**		315 MHz Bahrain keyless system
315-322 MHz FIXED MOBILE ***5.254***	**315-322 MHz** FIXED MOBILE **BHR4**		
322-328.6 MHz FIXED MOBILE RADIO ASTRONOMY ***5.149***	**322-328.6 MHz** FIXED MOBILE RADIO ASTRONOMY **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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 5.260A 5.260B***	**399.9-400.05 MHz** MOBILE-SATELLITE (Earth-to-space) **BHR4**		
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 for SFTS

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
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 ***5.264A*** ***5.264B***	**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 ***5.264A*** ***5.264B***	**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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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.
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 radiobeacons	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	Private PMR and eLTE networks
420-430 MHz FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271	**420-430 MHz** FIXED MOBILE except aeronautical mobile **BHR4**		Private PMR and eLTE networks

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 **BHR4**		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
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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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
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 5.312	**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*** 5.312	**694-790 MHz** MOBILE except aeronautical mobile **BHR4**	IMT 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)

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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**	IMT	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)
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	SRD 863-870 MHz GCC harmonized Railways 876-880 paired with 921-925 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
942-960 MHz FIXED MOBILE except aeronautical mobile ***5.317A*** BROADCASTING 5.322 5.323	**942-960 MHz** MOBILE except aeronautical mobile **BHR4**	IMT	
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**		
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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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**		
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	
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	
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	Commercial and Private LTE Networks

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	
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
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)

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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
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
1 613.8-1 621.35 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***	**1 613.8-1 621.35 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
1 621.35-1 626.5 MHz MARIIME MOBILE-SATELLITE (space-to-Earth) ***5.373*** ***5.373A*** MOBILE-SATELLITE (Earth-to-space) ***5.351A*** AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) except maritime mobile satellite (space-to-Earth) ***5.208B*** ***5.341*** ***5.355*** ***5.359*** ***5.364*** ***5.365*** ***5.366*** ***5.367*** ***5.368*** 5.369 ***5.371*** ***5.372***	**1 621.35-1 626.5 MHz** MARIIME MOBILE-SATELLITE (space-to-Earth) MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) except maritime mobile satellite (space-to-Earth) Fixed **BHR4**		Mobile Satellite Systems
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)		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
1 675-1 690 MHz METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-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**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	DECT 1880-1900 MHz
1 930-1 970 MHz FIXED MOBILE ***5.388A*** ***5.388B*** ***5.388***	**1 930-1 970 MHz** FIXED MOBILE **BHR4**	IMT	
1 970-1 980 MHz FIXED MOBILE ***5.388A*** ***5.388B*** ***5.388***	**1 970-1 980 MHz** FIXED MOBILE **BHR4**	IMT	
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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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 band by the mobilesatellite 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. (refer to 5.389E)
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***	**2 025-2 080 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**	FIXED MOBILE	
	2 080-2 110 MHz SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION SATELLITE (Earth-to-space) (space-to-space) SPACE RESEARCH (Earth-to-space) (space-to-space) **BHR4**	SPACE OPERATION EARTH EXPLORATION SATELLITE SPACE RESEARCH	
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	
2 120-2 160 MHz FIXED MOBILE ***5.388A*** ***5.388B*** ***5.388***	**2 120-2 160 MHz** FIXED MOBILE **BHR4**	IMT	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
2 160-2 170 MHz FIXED MOBILE ***5.388A*** ***5.388B*** ***5.388***	**2 160-2 170 MHz** FIXED MOBILE **BHR4**	IMT	The use of the band by the mobilesatellite 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. (refer to 5.389E)
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**	SPACE OPERATION FIXED	Wireless camera Applications.
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**	FIXED MOBILE SPACE RESEARCH	Wireless camera Applications.

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. IMT (2300-2400 MHz) Wireless camera Applications.
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	

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	
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	
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	
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**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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
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 MOBILE except aeronautical mobile **BHR4**	IMT	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
3 600-4 200 MHz FIXED FIXED-SATELLITE (space-to-Earth) Mobile	**3 600-3 700 MHz** FIXED MOBILE **BHR1** **BHR4**	MOBILE	This band is allocated nationally for MOBILE in primary basis to be used by IMT applications
	3 700-4 200 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile **BHR1** **BHR4**	FIXED SATELLITE (space-to-Earth) MOBILE	VSAT Downlink 3700-3850 MHz is allocated nationally for MOBILE in primary basis
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**		
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 **BHR4**		
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 **BHR4**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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) **BHR4**	FIXED MOBILE except aeronautical mobile	
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) **BHR4**		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*** 5.446D 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
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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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) **BHR4**		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) **BHR4**		Shipborne and VTS radar Weather radar
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 **BHR4**		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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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).
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
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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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**		
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**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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 MOBILE-SATELLITE (space-to-Earth) **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
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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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
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 MOBILE-SATELLITE (Earth-to-space) **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 / Downlink
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 **BHR3** MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) **BHR4**	FIXED MOBILE except aeronautical mobile	Uni-directional only
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**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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
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 MH 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

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
9 300-9 500 MHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION ***5.475*** SPACE RESEARCH (active) ***5.427*** ***5.474*** ***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
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
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).

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
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**	BROADCASING SATELLITE	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-to-Earth) ***5.499A*** ***5.499B*** RADIOLOCATION SPACE RESEARCH ***5.499C*** ***5.499D*** Standard frequency and time signal-satellite (Earth-to-space) ***5.499E*** ***5.500*** 5.501 ***5.501B***	**13.4-13.65 GHz** EARTH EXPLORATION-SATELLITE (active) FIXED-SATELLITE (space-to-Earth) RADIOLOCATION SPACE RESEARCH FIXED MOBILE Standard frequency and time signal-satellite (Earth-to-space) **BHR4**		Refer to the ITU Radio Regulation Article 26 for SFTS
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 for SFTS
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 for SFTS VSAT Uplink

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
14-14.25 GHz FIXED-SATELLITE (Earth-to-space) ***5.457A*** ***5.457B*** ***5.484A*** ***5.484B*** ***5.506*** ***5.506B*** RADIONAVIGATION ***5.504*** Mobile-satellite (Earth-to-space) ***5.504B*** ***5.504C*** ***5.506A*** Space research ***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
14.25-14.3 GHz FIXED-SATELLITE (Earth-to-space) ***5.457A*** ***5.457B*** ***5.484A*** ***5.484B*** ***5.506*** ***5.506B*** RADIONAVIGATION ***5.504*** Mobile-satellite (Earth-to-space) ***5.504B*** ***5.506A*** ***5.508A*** Space research ***5.504A*** ***5.505*** 5.508	**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*** ***5.484B*** ***5.506*** ***5.506B*** 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-tospace)	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	
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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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		
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		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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**		
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*** ***5.517A*** (Earth-to-space) ***5.516*** MOBILE	**17.7-18.1 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) (Earth-to-space) MOBILE	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
18.1-18.4 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.484A 5.516B 5.517A*** (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 5.517A*** MOBILE	**18.4-18.6 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE	FIXED	
18.6-18.8 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) ***5.517A 5.522B*** MOBILE except aeronautical mobile Space research (passive) ***5.522A 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	The carrier power to the input of antenna shall not exceed –3dBW for Fixed point to point link
18.8-19.3 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.516.B 5.517A 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) ***5.517A 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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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
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 for SFTS 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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
21.4-22 GHz FIXED MOBILE BROADCASTING-SATELLITE ***5.208B*** ***5.530A*** ***5.530B***	**21.4-22 GHz** FIXED **BHR3** MOBILE BROADCASTING-SATELLITE	FIXED	For Broadcasting-Satellite refer to the Radio Regulations Res. 552, 553, 554 and 555 Stations shall not exceed a power fluxdensity of -120.4 dB (W/(m2 · MHz)) at 3 m above the ground of any point of the territory of neighbouring countries for more than 20% of the time for Fixed point to point link
22-22.21 GHz FIXED MOBILE except aeronautical mobile ***5.149***	**22-22.21 GHz** FIXED **BHR3** MOBILE except aeronautical mobile	FIXED	Paired with 23 – 23.6 GHz for 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	Paired with 23 – 23.6 GHz for Fixed
22.5-22.55 GHz FIXED MOBILE	**22.5-22.55 GHz** FIXED **BHR3** MOBILE	FIXED	Paired with 23 – 23.6 GHz for 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	22 – 22.6 GHz Paired with 23 – 23.6 GHz for Fixed 23 – 23.6 GHz Paired with 22 – 22.6 GHz for Fixed

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
23.15-23.55 GHz FIXED INTER-SATELLITE ***5.338A*** MOBILE	**23.15-23.55 GHz** FIXED **BHR3** INTER-SATELLITE MOBILE	FIXED	Paired with 22 – 22.6 GHz for Fixed
23.55-23.6 GHz FIXED MOBILE	**23.55-23.6 GHz** FIXED **BHR3** MOBILE	FIXED	Paired with 22 – 22.6 GHz for 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 MOBILE except aeronautical mobile ***5.338A*** ***5.532AB***	**24.25-24.45 GHz** FIXED MOBILE except aeronautical mobile **BHR4**	IMT	
24.45-24.65 GHz FIXED INTER-SATELLITE MOBILE except aeronautical mobile ***5.338A*** ***5.532AB***	**24.45-24.65 GHz** FIXED **BHR3** INTER-SATELLITE MOBILE except aeronautical mobile **BHR4**	FIXED IMT	

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 MOBILE except aeronautical mobile ***5.338A*** ***5.532AB***	**24.65-24.75 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE MOBILE except aeronautical mobile **BHR4**	FIXED IMT	
24.75-25.25 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.532B*** MOBILE except aeronautical mobile ***5.338A*** ***5.532AB***	**24.75-25.25 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile **BHR4**	FIXED IMT	
25.25-25.5 GHz FIXED ***5.534A*** INTER-SATELLITE ***5.536*** MOBILE ***5.338A*** ***5.532AB*** Standard frequency and time signal-satellite (Earth-to-space)	**25.25-25.5 GHz** FIXED **BHR3** INTER-SATELLITE MOBILE Standard frequency and time signal-satellite (Earth-to-space) **BHR4**	FIXED IMT	Refer to the ITU Radio Regulation Article 26 for SFTS
25.5-27 GHz EARTH EXPLORATION-SATELLITE (space-to Earth) ***5.536B*** FIXED ***5.534A*** INTER-SATELLITE ***5.536*** MOBILE ***5.338A*** ***5.532AB*** SPACE RESEARCH (space-to-Earth) ***5.536C*** Standard frequency and time signal-satellite (Earth-to-space) ***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 IMT	Refer to the ITU Radio Regulation Article 26 for SFTS

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
27-27.5 GHz FIXED INTER-SATELLITE ***5.536*** MOBILE ***5.338A*** ***5.532AB***	**27-27.5 GHz** FIXED INTER-SATELLITE MOBILE	IMT	
27.5-28.5 GHz FIXED 5.537A FIXED-SATELLITE (Earth-to-space) ***5.484A*** ***5.516B*** ***5.517A*** ***5.539*** MOBILE ***5.538*** ***5.540***	**27.5-28.5 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	FIXED	Point to Multipoint
28.5-29.1 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.484A*** ***5.516B*** ***5.517A*** ***5.523A*** ***5.539*** MOBILE Earth exploration-satellite (Earth-to-space) ***5.541*** ***5.540***	**28.5-29.1 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Earth exploration-satellite (Earth-to-space)	FIXED	Point to Multipoint
29.1-29.5 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.516B*** ***5.517A*** ***5.523C*** ***5.523E*** ***5.535A*** ***5.539*** ***5.541A*** MOBILE Earth exploration-satellite (Earth-to-space) ***5.541*** ***5.540***	**29.1-29.5 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Earth exploration-satellite (Earth-to-space)	FIXED	Point to Multipoint
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 for SFTS VSAT uplink
31-31.3 GHz FIXED ***5.338A*** ***5.543B*** MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research ***5.544*** 5.545 ***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 for SFTS HAPS identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a co-primary basis and does not establish priority in the Radio Regulations. Such use of the fixedservice allocation by HAPS shall be in accordance with the provisions of Resolution 167 (WRC-19)

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 **BHR3** MOBILE except aeronautical mobile	FIXED	
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	
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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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		
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		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	The maximum elevation angle is 20 degrees, the maximum transmitter power at the input of antenna is -10 dBW or -7 dBW if ATPC is used for Fixed point to point link
37-37.5 GHz FIXED MOBILE except aeronautical mobile ***5.550B*** SPACE RESEARCH (space-to-Earth) ***5.547***	**37-37.5 GHz** FIXED **BHR3** MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth)	FIXED IMT	
37.5-38 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.550C*** MOBILE except aeronautical mobile ***5.550B*** SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) ***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 IMT	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
38-39.5 GHz FIXED ***5.550D*** FIXED-SATELLITE (space-to-Earth) ***5.550C*** MOBILE ***5.550B*** Earth exploration-satellite (space-to-Earth) ***5.547***	**38-39.5 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth)	FIXED IMT	HAPS ground station shall not claim protection from stations in the fixed, mobile and fixed-satellite services; and No. 5.43A does not apply. This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a coprimary basis and does not establish priority in the Radio Regulations. Furthermore, the development of the fixed-satellite, fixed and mobile services shall not be unduly constrained by HAPS. Such use of the fixed-service allocation by HAPS shall be in accordance with the provisions of Resolution 168 (WRC-19)
39.5-40 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.516B*** ***5.550C*** MOBILE ***5.550B*** MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth) ***5.547*** ***5.550E***	**39.5-40 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth)	FIXED IMT	

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*** ***5.550C*** MOBILE ***5.550B*** MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth) ***5.550E***	**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 IMT	
40.5-41 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.550C*** LAND MOBILE ***5.550B*** BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile ***5.547***	**40.5-41 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE LAND MOBILE	FIXED IMT	
41-42.5 GHz FIXED FIXED-SATELLITE (space-to-Earth) ***5.516B*** ***5.550C*** LAND MOBILE ***5.550B*** BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile ***5.547*** 5.551F ***5.551H*** ***5.551I***	**41-42.5 GHz** FIXED **BHR3** FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE LAND MOBILE	FIXED IMT	

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 ***5.550B*** 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 IMT	
43.5-47 GHz MOBILE ***5.553*** ***5.553A*** MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE ***5.554***	**43.5-45.5 GHz** MOBILE MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE	Satellite Operations	
	45.5-47 GHz MOBILE MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE	IMT	
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) ***5.550C*** ***5.552*** MOBILE ***5.553B*** ***5.552A***	**47.2-47.5 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	IMT	HAPS identification does not preclude the use of this frequency band by any application of the services to which it is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixedservice allocation in the frequency band by HAPS shall be in accordance with the provisions of Resolution 122 (Rev.WRC-19)

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) ***5.550C*** ***5.552*** (space-to-Earth) ***5.516B*** ***5.554A*** MOBILE ***5.553B***	**47.5-47.9 GHz** FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) MOBILE	IMT	
47.9-48.2 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.550C*** ***5.552*** MOBILE ***5.553B*** ***5.552A***	**47.9-48.2 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	IMT	HAPS identification does not preclude the use of this frequency band by any application of the services to which it is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixedservice allocation in the frequency band by HAPS shall be in accordance with the provisions of Resolution 122 (Rev.WRC-19)
48.2-48.54 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.550C*** ***5.552*** (space-to-Earth) ***5.516B*** ***5.554A*** ***5.555B*** MOBILE	**48.2-48.54 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) (space-to-Earth) MOBILE	FIXED	
48.54-49.44 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.550C*** ***5.552*** MOBILE ***5.149*** ***5.340*** ***5.555***	**48.54-49.44 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) RADIO ASTRONOMY MOBILE	FIXED	
49.44-50.2 GHz FIXED FIXED-SATELLITE (Earth-to-space) ***5.338A*** ***5.550C*** ***5.552*** (space-to-Earth) ***5.516B*** ***5.554A*** ***5.555B*** MOBILE	**49.44-50.2 GHz** FIXED **BHR3** FIXED-SATELLITE (Earth-to-space) (space-to-Earth) MOBILE	FIXED	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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*** ***5.550C*** MOBILE Mobile-satellite (Earth-to-space)	**50.4-51.4 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Mobile-satellite (Earth-to-space)		
51.4-52.4 GHz FIXED ***5.338A*** FIXED-SATELLITE (Earth-to-space) ***5.555C*** MOBILE ***5.547*** ***5.556***	**51.4-52.4 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
52.4-52.6 GHz FIXED ***5.338A*** MOBILE ***5.547*** ***5.556***	**52.4-52.6 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
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)		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	55.78-56.26 GHz, the maximum power density delivered by a transmitter to the antenna is limited to – 26 dB (W/MHz)"
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	
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	Fixed point to point systems may be provided within the technical parameters "Maximum EIRP +55 dBm, Minimum antenna gain +30 dBi and Maximum transmitter output power +10 dBm"
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	Fixed point to point systems may be provided within the technical parameters "Maximum EIRP +55 dBm, Minimum antenna gain +30 dBi and Maximum transmitter output power +10 dBm"

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	Fixed point to point systems may be provided within the technical parameters "Maximum EIRP +55 dBm, Minimum antenna gain +30 dBi and Maximum transmitter output power +10 dBm" and limit on the transmit output power density (-10dBm/MHz) and can be implemented to support the deployment of wideband systems for bandwidth higher than 100 MHz by consequently limiting the maximum transmitter output power for narrow band systems bandwidth lower than 100 MHz below that of the maximum (+10dBm) allowed in the 59 - 64 GHz band. This limit will not apply for implement narrowband systems in the band
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	Fixed point to point systems may be provided within the technical parameters "Maximum EIRP +55 dBm, Minimum antenna gain +30 dBi and Maximum transmitter output power +10 dBm" and limit on the transmit output power density (-10dBm/MHz) and can be implemented to support the deployment of wideband systems for bandwidth higher than 100 MHz by consequently limiting the maximum transmitter output power for narrow band systems bandwidth lower than 100 MHz below that of the maximum (+10dBm) allowed in the 59 - 64 GHz band. This limit will not apply for implement narrowband systems in theband

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
66-71 GHz INTER-SATELLITE MOBILE ***5.553*** ***5.558*** ***5.559AA*** MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE ***5.554***	**66-71 GHz** INTER-SATELLITE MOBILE MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE	IMT	
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 for Fixed

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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 for Fixed
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 for Fixed
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 for Fixed
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	

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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	
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		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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)		
109.5-111.8 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ***5.340 5.341***	**109.5-111.8 GH** 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)		
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**		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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		
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).

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
141-148.5 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION ***5.149***	**141-148.5 GHz** FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION		
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 FIXED MOBILE RADIO ASTRONOMY ***5.149***	**155.5-158.5 GHz** FIXED MOBILE RADIO ASTRONOMY		
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)		
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)		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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)		
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)		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
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)		
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)		

RR Region 1 Allocations	The Kingdom's National Frequency Allocations	Major Utilisation	Additional Information
231.5-232 GHz FIXED MOBILE Radiolocation	**231.5-232 GHz** FIXED MOBILE Radiolocation		
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 explorationsatellite 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		
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) ***5.564A 5.565***	**275-3 000 GHz** (Not allocated)		

Annex 1 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 protectionfrom 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)
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 narrowband direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles **31** and **52**. In using the frequency band 415-495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz. In using the frequency band 472-479 kHz for the amateur service, administrations shall ensure that no harmful interference is caused to the frequency 490 kHz. (WRC-12)
5.82C	The frequency band 495-505 kHz is used for the international NAVDAT system as described in the most recent version of Recommendation ITU-R M.2010. NAVDAT transmitting stations are limited to coast stations. (WRC-19)
5.84	The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles **31** and **52**. (WRC-07)
5.92	Some countries of Region 1 use radiodetermination systems in the bands 1 606.5-1 625 kHz, 1 635-1 800 kHz, 1 850-2 160 kHz, 2 194-2 300 kHz, 2 502-2 850 kHz and 3 500-3 800 kHz, subject to agreement obtained under No. **9.21**. The radiated mean power of these stations shall not exceed 50 W.
5.99	*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, Eswatini, Ethiopia, Iraq, Libya and Somalia, the frequency 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-19)
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**).
5.130	The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles **31** and **52**. (WRC-07)
5.131	The frequency 4 209.5 kHz is used exclusively for the transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing techniques.(WRC-97)
5.132	The frequencies 4 210 kHz, 6 314 kHz, 8 416.5 kHz, 12 579 kHz, 16 806.5 kHz, 19 680.5 kHz, 22 376 kHz and 26 100.5 kHz are the international frequencies for the transmission of maritime safety information (MSI) (see Appendix **17**).
5.132A	Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution **612 (Rev.WRC-12)**. (WRC-12)

5.133B	Stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 15 W (e.i.r.p.). However, in Region 2 in Mexico, stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 20 W (e.i.r.p.). In the following Region 2 countries: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Dominica, El Salvador, Ecuador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela, as well as the overseas countries and territories within the Kingdom of the 90 Netherlands in Region 2, stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 25 W (e.i.r.p.). (WRC-19)
5.134	The use of the frequency bands 5 900-5 950 kHz, 7 300-7 350 kHz, 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 13 570-13 600 kHz, 13 800-13 870 kHz, 15 600- 15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz by the broadcasting service is subject to the application of the procedure of Article **12**. Administrations are encouraged to use these frequency bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution **517 (Rev.WRC-19)**. (WRC-19)
5.136	*Additional allocation:* frequencies in the band 5 900-5 950 kHz may be used by stations in the following services, communicating only within the boundary of the country in which they are located: fixed service (in all three Regions), land mobile service (in Region 1), mobile except aeronautical mobile (R) service (in Regions 2 and 3), on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)
5.137	On condition that harmful interference is not caused to the maritime mobile service, the bands 6 200- 6 213.5 kHz and 6 220.5-6 525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above conditions.
5.138	The following bands: 6 765-6 795 kHz (centre frequency 6 780 kHz), 433.05-434.79 MHz (centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. **5.280**, 61-61.5 GHz (centre frequency 61.25 GHz), 122-123 GHz (centre frequency 122.5 GHz), and 244-246 GHz (centre frequency 245 GHz) are designated for industrial, scientific and medical (ISM) applications. The use of these frequency bands for ISM applications shall be subject to special authorization by the administration concerned, in agreement with other administrations whose radiocommunication services might be affected. In applying this provision, administrations shall have due regard to the latest relevant ITU-R Recommendations.
5.141B	Additional allocation: in Algeria, Saudi Arabia, Australia, **Bahrain**, Botswana, Brunei Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United Arab Emirates, Eritrea, Guinea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, Libya, Mali, Morocco, Mauritania, Niger, New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sudan, South Sudan, Tunisia, Viet Nam and Yemen, the frequency band 7 100-7 200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis. (WRC-19)
5.143	*Additional allocation:* frequencies in the band 7 300-7 350 kHz may be used by stations in the fixed service and in the land mobile service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.143B	In Region 1, frequencies in the band 7 350-7 450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located on condition that harmful interference is not caused to the broadcasting service. The total radiated power of each station shall not exceed 24 dBW. (WRC-12)
5.143C	*Additional allocation:* in Algeria, Saudi Arabia, **Bahrain**, Comoros, Djibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), Jordan, Kuwait, Libya, Morocco, Mauritania, Niger, Oman, Qatar, the Syrian Arab Republic, Sudan, South Sudan, Tunisia and Yemen, the bands 7 350-7 400 kHz and 7 400-7 450 kHz are also allocated to the fixed service on a primary basis. (WRC-12)
5.145	The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles **31** and **52**. (WRC-07)
5.145A	Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed service. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution **612 (Rev.WRC--12)**. (WRC-12)
5.146	*Additional allocation:* frequencies in the bands 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)
5.147	On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9 775-9 900 kHz, 11 650-11 700 kHz and 11 975-12 050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.
5.149	In making assignments to stations of other services to which the bands: 13 360-13 410 kHz, 25 550-25 670 kHz, 37.5-38.25 MHz, 73-74.6 MHz in Regions 1 and 3, 150.05-153 MHz in Region 1, 322-328.6 MHz, 406.1-410 MHz, 608-614 MHz in Regions 1 and 3, 1 330-1 400 MHz, 1 610.6-1 613.8 MHz, 1 660-1 670 MHz, 1 718.8-1 722.2 MHz, 2 655-2 690 MHz, 3 260-3 267 MHz, 3 332-3 339 MHz, 3 345.8-3 352.5 MHz, 4 825-4 835 MHz, 4 950-4 990 MHz, 4 990-5 000 MHz, 6 650-6 675.2 MHz, 10.6-10.68 GHz, 14.47-14.5 GHz, 22.01-22.21 GHz, 22.21-22.5 GHz, 22.81-22.86 GHz, 23.07-23.12 GHz, 31.2-31.3 GHz, 31.5-31.8 GHz in Regions 1 and 3, 36.43-36.5 GHz, 42.5-43.5 GHz, 48.94-49.04 GHz, 76-86 GHz, 92-94 GHz, 94.1-100 GHz, 102-109.5 GHz, 111.8-114.25 GHz, 128.33-128.59 GHz, 129.23-129.49 GHz, 130-134 GHz, 136-148.5 GHz, 151.5-158.5 GHz, 168.59-168.93 GHz, 171.11-171.45 GHz, 172.31-172.65 GHz, 173.52-173.85 GHz, 195.75-196.15 GHz, 209-226 GHz, 241-250 GHz, 252-275 GHz are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **4.5** and **4.6** and Article **29**). (WRC-07)

5.150	The following bands: 13 553-13 567 kHz (centre frequency 13 560 kHz), 26 957-27 283 kHz (centre frequency 27 120 kHz), 40.66-40.70 MHz (centre frequency 40.68 MHz), 902-928 MHz in Region 2 (centre frequency 915 MHz), 2 400-2 500 MHz (centre frequency 2 450 MHz), 5 725-5 875 MHz (centre frequency 5 800 MHz), and 24-24.25 GHz (centre frequency 24.125 GHz) are also designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within these bands must accept harmful interference which may be caused by these applications. ISM equipment operating in these bands is subject to the provisions of No. **15.13**.
5.151	*Additional allocation:* frequencies in the bands 13 570-13 600 kHz and 13 800-13 870 kHz may be used by stations in the fixed service and in the mobile except aeronautical mobile (R) service, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)
5.155B	The band 21 870-21 924 kHz is used by the fixed service for provision of services related to aircraft flight safety.
5.156A	The use of the band 23 200-23 350 kHz by the fixed service is limited to provision of services related to aircraft flight safety.
5.157	The use of the band 23 350-24 000 kHz by the maritime mobile service is limited to inter-ship radiotelegraphy.
5.166B	In Region 1, stations in the amateur service operating on a secondary basis shall not cause harmful interference to, or claim protection from, stations of the broadcasting service. The field strength generated by an amateur station in Region 1 in the frequency band 50-52 MHz shall not exceed a calculated value of +6 dB(µV/m) at a height of 10 m above ground for more than 10% of time along the border of a country with operational analogue broadcasting stations in Region 1 and of neighbouring countries with broadcasting stations in Region 3 listed in Nos. **5.167** and **5.168**. (WRC-19)
5.166C	In Region 1, stations in the amateur service in the frequency band 50-52 MHz, with the exception of those countries listed in No. **5.169**, shall not cause harmful interference to, or claim protection from, wind profiler radars operating in the radiolocation service under No. **5.162A**. (WRC-19)
5.169A	*Alternative allocation:* in the following countries in Region 1: Angola, Saudi Arabia, **Bahrain**, Burkina Faso, Burundi, the United Arab Emirates, Gambia, Jordan, Kenya, Kuwait, Mauritius, Mozambique, Oman, Uganda, Qatar, South Sudan and Tanzania, the frequency band 50- 54 MHz is allocated to the amateur service on a primary basis. In Guinea-Bissau, the frequency band 50.0-50.5 MHz is allocated to the amateur service on a primary basis. In Djibouti, the frequency band 50-52 MHz is allocated to the amateur service on a primary basis. With the exception of those countries listed in No. **5.169**, stations in the amateur service operating in Region 1 under this footnote, in all or part of the frequency band 50-54 MHz, shall not cause harmful interference to, or claim protection from, stations of other services operating in accordance with the Radio Regulations in Algeria, Egypt, Iran (Islamic Republic of), Iraq, Israel, Libya, Palestine 1, the Syrian Arab Republic, the Dem. People's Republic of Korea, Sudan and Tunisia. The field strength generated by an amateur station in the frequency band 50-54 MHz shall not exceed a value of +6 dB(µV/m) at a height of 10 m above ground for more than 10% of time along the borders of listed countries requiring protection. (WRC-19)

5.169B	Except countries listed under No. **5.169**, stations in the amateur service used in Region 1, in all or part of the 50-54 MHz frequency band, shall not cause harmful interference to, or claim protection from, stations of other services used in accordance with the Radio Regulations in Algeria, Armenia, Azerbaijan, Belarus, Egypt, Russian Federation, Iran (Islamic Republic of), Iraq, Kazakhstan, Kyrgyzstan, Libya, Uzbekistan, Palestine [1], the Syrian Arab Republic, Sudan, Tunisia and Ukraine. The field strength generated by an amateur station in the frequency band 50-54 MHz shall not exceed a value of +6 dB(μV/m) at a height of 10 m above ground for more than 10% of time along the borders of the countries listed in this provision. (WRC-19) *[1] Pursuant to Resolution 99 (Rev. Dubai, 2018) and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.*
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)** [2]. The use of the band 108-112 MHz by the aeronautical mobile (R) service shall be limited to systems composed of groundbased transmitters and associated receivers that provide navigational information in support of air. *[2] Note by the Secretariat: This Resolution was revised by WRC-12.*
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.
5.200	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, **Bahrain**, Belarus, Bulgaria, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Mali, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, Senegal, 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-19)
5.203C	The use of the space operation service (space-to-Earth) with non-geostationary satellite short-duration mission systems in the frequency band 137-138 MHz is subject to Resolution **660 (WRC-19)**. Resolution **32 (WRC-19)** applies. These systems shall not cause harmful interference to, or claim protection from, the existing services to which the frequency band is allocated on a primary basis. (WRC-19)
5.204	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, Singapore, Thailand and Yemen, the frequency 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-19)
5.208	The use of the band 137-138 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-97)
5.208A	In making assignments to space stations in the mobile-satellite service in the frequency bands 137-138 MHz, 387-390 MHz and 400.15-401 MHz and in the maritime mobile-satellite service (space-to-Earth) in the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the frequency bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions as shown in the most recent version of Recommendation ITU-R RA.769. (WRC-19)

5.208B [3]	In the frequency bands: 137-138 MHz, 157.1875-157.3375 MHz, 161.7875-161.9375 MHz, 387-390 MHz, 400.15-401 MHz, 1 452-1 492 MHz, 1 525-1 610 MHz, 1 613.8-1 626.5 MHz, 2 655-2 690 MHz, 21.4-22 GHz, Resolution **739 (Rev.WRC-19)** applies. (WRC-19) *[3] 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)
5.209A	The use of the frequency band 137.175-137.825 MHz by non-geostationary satellite systems in the space operation service identified as short-duration mission in accordance with Appendix **4** is not subject to No. **9.11A**. (WRC-19)
5.211	*Additional allocation:* in Germany, Saudi Arabia, Austria, **Bahrain**, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Guinea, Ireland, Israel, Kenya, Kuwait, Lebanon, Liechtenstein, Luxembourg, North Macedonia, 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-19)
5.218	*Additional allocation:* the band 148-149.9 MHz is also allocated to the space operation service (Earth-tospace) on a primary basis, subject to agreement obtained under No. **9.21**. The bandwidth of any individual transmission shall not exceed ± 25 kHz.
5.218A	The frequency band 148-149.9 MHz in the space operation service (Earth-to-space) may be used by nongeostationary satellite systems with short-duration missions. Non-geostationary satellite systems in the space operation service used for a short-duration mission in accordance with Resolution **32 (WRC-19)** of the Radio Regulations are not subject to agreement under No. **9.21**. At the stage of coordination, the provisions of Nos. **9.17** and **9.18** also apply. In the frequency band 148-149.9 MHz, non-geostationary satellite systems with shortduration missions shall not cause unacceptable interference to, or claim protection from, existing primary services within this frequency band, or impose additional constraints on the space operation and mobilesatellite services. In addition, earth stations in non-geostationary satellite systems in the space operation service with short-duration missions in the frequency band 148-149.9 MHz shall ensure that the power flux-density does not exceed −149 dB(W/(m2 · 4 kHz)) for more than 1% of time at the border of the territory of the following countries: Armenia, Azerbaijan, Belarus, China, Korea (Rep. of), Cuba, Russian Federation, India, Iran (Islamic Republic of), Japan, Kazakhstan, Malaysia, Uzbekistan, Kyrgyzstan, Thailand and Viet Nam. In case this power flux-density limit is exceeded, agreement under No. **9.21** is required to be obtained from countries mentioned in this footnote. (WRC-19)
5.219	The use of the frequency band 148-149.9 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the frequency band 148-149.9 MHz. The use of the frequency band 148-149.9 MHz by non-geostationary-satellite systems in the space operation service identified as short-duration mission is not subject to No. **9.11A**. (WRC-19)
5.220	The use of the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-15)

5.221	Stations of the mobile-satellite service in the frequency band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, **Bahrain**, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Djibouti, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Eswatini, Ethiopia, the Russian Federation, Finland, France, Gabon, Georgia, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Tanzania, Chad, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-19)
5.226	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 longrange AIS broadcast messages (Message 27, see the most recent version of Recommendation ITUR 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)
5.228AB	The use of the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz by the maritime mobile-satellite service (Earth-to-space) is limited to non-GSO satellite systems operating in accordance with Appendix **18**. (WRC-19)
5.228AC	The use of the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz by the maritime mobile-satellite service (space-to-Earth) is limited to non-GSO satellite systems operating in accordance with Appendix **18**. Such use is subject to agreement obtained under No. **9.21** with respect to the terrestrial services in Azerbaijan, Belarus, China, Korea (Rep. of), Cuba, the Russian Federation, the Syrian Arab Republic, the Dem. People's Rep. of Korea, South Africa and Viet Nam. (WRC-19)
5.247	*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).
5.260A	In the frequency band 399.9-400.05 MHz, the maximum e.i.r.p. of any emission of earth stations in the mobilesatellite service shall not exceed 5 dBW in any 4 kHz band and the maximum e.i.r.p. of each earth station in the mobile-satellite service shall not exceed 5 dBW in the whole 399.9-400.05 MHz frequency band. Until 22 November 2022, this limit shall not apply to satellite systems for which complete notification information has been received by the Radiocommunication Bureau by 22 November 2019 and that have been brought into use by that date. After 22 November 2022, these limits shall apply to all systems within the mobile-satellite service operating in this frequency band. In the frequency band 399.99-400.02 MHz, the e.i.r.p. limits as specified above shall apply after 22 November 2022 to all systems within the mobile-satellite service. Administrations are requested that their mobile-satellite service satellite links in the 399.99-400.02 MHz frequency band comply with the e.i.r.p. limits as specified above, after 22 November 2019. (WRC-19)
5.260B	In the frequency band 400.02-400.05 MHz, the provisions of No. **5.260A** are not applicable for telecommand uplinks within the mobile-satellite service. (WRC-19)
5.261	Emissions shall be confined in a band of ± 25 kHz about the standard frequency 400.1 MHz.
5.262	*Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, **Bahrain**, Belarus, Botswana, Colombia, Cuba, Egypt, the United Arab Emirates, Ecuador, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Liberia, Malaysia, Moldova, Oman, Uzbekistan, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Kyrgyzstan, Singapore, Somalia, Tajikistan, Chad, Turkmenistan and Ukraine, the band 400.05-401 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
5.263	The band 400.15-401 MHz is also allocated to the space research service in the space-to-space direction for communications with manned space vehicles. In this application, the space research service will not be regarded as a safety service.

5.264	The use of the band 400.15-401 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. The power flux-density limit indicated in Annex 1 of Appendix **5** shall apply until such time as a competent world radiocommunication conference revises it.
5.264A	In the frequency band 401-403 MHz, the maximum e.i.r.p. of any emission of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 22 dBW in any 4 kHz band for geostationary systems and non-geostationary systems with an orbit of apogee equal or greater than 35 786 km. The maximum e.i.r.p. of any emission of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 7 dBW in any 4 kHz band for non-geostationary systems with an orbit of apogee lower than 35 786 km. The maximum e.i.r.p. of each earth station in the meteorological-satellite service and the Earth explorationsatellite service shall not exceed 22 dBW for geostationary systems and non-geostationary systems with an orbit of apogee equal or greater than 35 786 km in the whole 401-403 MHz frequency band. The maximum e.i.r.p. of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 7 dBW for non-geostationary systems with an orbit of apogee lower than 35 786 km in the whole 401-403 MHz frequency band. Until 22 November 2029, these limits shall not apply to satellite systems for which complete notification information has been received by the Radiocommunication Bureau by 22 November 2019 and that have been brought into use by that date. After 22 November 2029, these limits shall apply to all systems within the meteorological-satellite service and the Earth exploration-satellite service operating in this frequency band. (WRC-19)
5.264B	Non-geostationary satellite systems in the meteorological-satellite service and the Earth exploration-satellite service for which complete notification information has been received by the Radiocommunication Bureau before 28 April 2007 are exempt from provisions of No. **5.264A** and may continue to operate in the frequency band 401.898-402.522 MHz on a primary basis without exceeding a maximum e.i.r.p. level of 12 dBW. (WRC-19)
5.265	In the frequency band 403-410 MHz, Resolution **205 (Rev.WRC-19)** applies. (WRC-19)
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/m^2) for $0° \le \delta \le 5°$, $-153 + 0.077 (\delta - 5)$ dB(W/m^2) for $5° \le \delta \le 70°$ and -148 dB(W/m^2) for $70° \le \delta \le 90°$, where d is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. In this frequency band, stations of the space research service (space-to-space) shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. No. **4.10** does not apply. (WRC-15)
5.276	*Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, **Bahrain**, Bangladesh, Brunei Darussalam, Burkina Faso, Djibouti, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Jordan, Kenya, Kuwait, Libya, Malaysia, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Switzerland, Thailand, Togo, Turkey and Yemen, the frequency band 430-440 MHz is also allocated to the fixed service on a primary basis and the frequency bands 430-435 MHz and 438- 440 MHz are also allocated, except in Ecuador, to the mobile, except aeronautical mobile, service on a primary basis. (WRC-15)
5.279A	The use of the frequency band 432-438 MHz by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU-R RS.1260-2. 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-19)

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 Earthto-space direction.
5.286	The band 449.75-450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), subject to agreement obtained under No. **9.21**.
5.286A	The use of the bands 454-456 MHz and 459-460 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-97)
5.286AA	The frequency band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) - see Resolution **224 (Rev.WRC-19)**. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-19)
5.287	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.1174-4. The use of these frequency bands in territorial waters is subject to the national regulations of the administration concerned. (WRC-19)
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, Eswatini. Finland, France, Gabon, Georgia, Ghana, Hungary, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, North Macedonia, 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, Romania, the United Kingdom, Rwanda, San Marino, Serbia, Sudan, South Africa, Sweden, Switzerland, 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-19)
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)
5.312A	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 (Rev.WRC-19)**. See also Resolution **224 (Rev.WRC-19)**. (WRC-19)
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-19)** and **749 (Rev.WRC-19)** shall apply, as appropriate. (WRC-19)

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-19)**, **760 (Rev.WRC-19)** and **749 (Rev. WRC-19)**, 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–19)
5.327A	The use of the frequency band 960-1 164 MHz by the aeronautical mobile (R) service is limited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **417 (Rev.WRC-15)**. (WRC-15)
5.328	The use of the band 960-1 215 MHz by the aeronautical radionavigation service is reserved on a worldwide basis for the operation and development of airborne electronic aids to air navigation and any directly associated ground-based facilities. (WRC-2000)
5.328A	Stations in the radionavigation-satellite service in the band 1 164-1 215 MHz shall operate in accordance with the provisions of Resolution **609 (Rev.WRC--07)** and shall not claim protection from stations in the aeronautical radionavigation service in the band 960-1 215 MHz. No. **5.43A** does not apply. The provisions of No. **21.18** shall apply. (WRC-07)
5.328AA	The frequency band 1 087.7-1 092.3 MHz is also allocated to the aeronautical 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 (Rev.WRC-19)** shall apply. (WRC-19)
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 (Rev.WRC-19)** shall apply. (WRC-19)
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 Republ ic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, Pakistan, the Kingdom of 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 frequency band 1 215-1 300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the frequency 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-19)
5.332	In the band 1 215-1 260 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the radionavigation-satellite- service and other services allocated on a primary basis. (WRC-2000)
5.335A	In the band 1 260-1 300 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service and other services allocated by footnotes on a primary basis. (WRC-2000)
5.337	The use of the bands 1 300-1 350 MHz, 2 700-2 900 MHz and 9 000-9 200 MHz by the aeronautical radionavigation service is restricted to ground-based radars and to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.
5.337A	The use of the band 1 300-1 350 MHz by earth stations in the radionavigation-satellite service and by stations in the radiolocation service shall not cause harmful interference to, nor constrain the operation and development of, the aeronautical-radionavigation service. (WRC-2000)
5.338A	In the frequency bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 24.25-27.5 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-19)** applies. (WRC-19)
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 [4], 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) *[4] *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.
5.341A	In Region 1, the frequency bands 1 427-1 452 MHz and 1 492-1 518 MHz are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**. This identification does not preclude the use of these frequency bands by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of IMT stations is subject to agreement obtained under No. **9.21** with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. **5.342**. (WRC-15)
5.345	Use of the frequency 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 (Rev.WRC-19)**. (WRC-19)

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, Eswatini, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Kenya, Kuwait, Lesotho, Lebanon, Liberia, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Palestine [5], Qatar, Dem. Rep. of the Congo, Rwanda, Senegal, Seychelles, Sudan, South Sudan, South Africa, 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-19)**. (WRC-19) *[5] The use by Palestine of the allocation to the mobile service in the frequency band 1 452- 1 492 MHz identified for IMT is noted, pursuant to Resolution 99 (Rev. Busan, 2014) and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.*
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/m^2) 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. No. **5.43A** does not apply. (WRC-03)
5.349	*Different category of service:* in Saudi Arabia, Azerbaijan, **Bahrain**, Cameroon, Egypt, Iran (Islamic Republic of), Iraq, Israel, Kazakhstan, Kuwait, Lebanon, North Macedonia, Morocco, Qatar, Syrian Arab Republic, Kyrgyzstan, Turkmenistan and Yemen, the allocation of the frequency band 1 525-1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-19)
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)** [6] and **225 (Rev.WRC-07)** [7]. (WRC-07) *[6] Note by the Secretariat: This Resolution was revised by WRC-15.* *[7] 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, 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-19)

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. Mobilesatellite 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)** [8] shall apply.) (WRC-2000) [*8] *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, Cameroon, the Russian Federation, 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 fixedservice stations in these frequency bands. (WRC-19)
5.364	The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. **9.11A**. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of –15 dB(-W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. **5.366** (to which No. **4.10** applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed –3 dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. **5.366** and stations in the fixed service operating in accordance with the provisions of No. **5.359**. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. **5.366**.
5.365	The use of the band 1 613.8-1 626.5 MHz by the mobile-satellite service (space-to-Earth) is subject to coordination under No. **9.11A**.
5.366	The band 1 610-1 626.5 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is subject to agreement obtained under No. **9.21**.
5.367	*Additional allocation:* The frequency band 1 610-1 626.5 MHz is also allocated to the aeronautical mobilesatellite (R) service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-12)

5.368	The provisions of No. **4.10** do not apply with respect to the radiodetermination-satellite and mobile-satellite services in the frequency band 1 610-1 626.5 MHz. However, No. **4.10** applies in the frequency band 1 610-1 626.5 MHz with respect to the aeronautical radionavigation-satellite service when operating in accordance with No. **5.366**, the aeronautical mobile satellite (R) service when operating in accordance with No. **5.367**, and in the frequency band 1 621.35-1 626.5 MHz with respect to the maritime mobile-satellite service when used for GMDSS. (WRC-19)
5.371	*Additional allocation:* in Region 1, the band 1 610-1 626.5 MHz (Earth-to-space) is also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. **9.21**. (WRC-12)
5.372	Harmful interference shall not be caused to stations of the radio astronomy service using the frequency band 1 610.6-1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. **29.13** applies). The equivalent power flux-density (epfd) produced in the frequency band 1 610.6-1 613.8 MHz by all space stations of a non-geostationary-satellite system in the mobile-satellite service (space-to-Earth) operating in frequency band 1 613.8-1 626.5 MHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, using the methodology given in Recommendation ITU-R M.1583-1, and the radio astronomy antenna pattern described in Recommendation ITU-R RA.1631-0. (WRC-19)
5.373	Maritime mobile earth stations receiving in the frequency band 1 621.35-1 626.5 MHz shall not impose additional constraints on earth stations operating in the maritime mobile-satellite service or maritime earth stations of the radiodetermination-satellite service operating in accordance with the Radio Regulations in the frequency band 1 610-1 621.35 MHz or on earth stations operating in the maritime mobile-satellite service operating in accordance with the Radio Regulations in the frequency band 1 626.5-1 660.5 MHz, unless otherwise agreed between the notifying administrations. (WRC-19)
5.373A	Maritime mobile earth stations receiving in the frequency band 1 621.35-1 626.5 MHz shall not impose constraints on the assignments of earth stations of the mobile-satellite service (Earth-to-space) and the radiodetermination-satellite service (Earth-to-space) in the frequency band 1 621.35-1 626.5 MHz in networks for which complete coordination information has been received by the Radiocommunication Bureau before 28 October 2019. (WRC-19)
5.374	Mobile earth stations in the mobile-satellite service operating in the bands 1 631.5-1 634.5 MHz and 1 656.5-1 660 MHz shall not cause harmful interference to stations in the fixed service operating in the countries listed in No. **5.359**. (WRC-97)
5.375	The use of the band 1 645.5-1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article **31**).
5.376	Transmissions in the band 1 646.5-1 656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.
5.376A	Mobile earth stations operating in the band 1 660-1 660.5 MHz shall not cause harmful interference to stations in the radio astronomy service. (WRC-97)
5.379A	Administrations are urged to give all practicable protection in the band 1 660.5-1 668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1 664.4-1 668.4 MHz as soon as practicable.
5.379B	The use of the band 1 668-1 675 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. In the band 1 668-1 668.4 MHz, Resolution **904 (WRC-07)** shall apply. (WRC-07)
5.379C	In order to protect the radio astronomy service in the band 1 668-1 670 MHz, the aggregate power flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed –181 dB(W/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, Lebanon, North Macedonia, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Turkmenistan, Ukraine and Yemen, the allocation of the frequency band 1 690-1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**), and in the Dem. People's Rep. of Korea, the allocation of the frequency band 1 690-1 700 MHz to the fixed service is on a primary basis (see No. **5.33**) and to the mobile, except aeronautical mobile, service on a secondary basis. (WRC-19)
5.384A	The frequency bands 1 710-1 885 MHz, 2 300-2 400 MHz 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)
5.388A	In Regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz and, in Region 2, the bands 1 885-1 980 MHz and 2 110-2 160 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications (IMT), in accordance with Resolution **221 (Rev.WRC-07)**. Their use by IMT applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-12)
5.388B	In Algeria, Saudi Arabia, **Bahrain**, Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire, China, Cuba, Djibouti, Egypt, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lebanon, Libya, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, South Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT base station in neighbouring countries, in the frequency bands referred to in No. **5.388A**, shall not exceed a co-channel power flux-density of $-127\ \mathrm{dB(W/(m2 \cdot MHz))}$ at the Earth's surface outside a country's borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS. (WRC-19)
5.389A	The use of the bands 1 980-2 010 MHz and 2 170-2 200 MHz by the mobile-satellite service is subject to coordination under No. **9.11A** and to the provisions of Resolution **716 (Rev.WRC--2000)** [9]. (WRC-07) [*9] *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-tospace, 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)
5.418	*Additional allocation:* in India, the frequency band 2 535-2 655 MHz is also allocated to the broadcastingsatellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev.WRC-19)**. The provisions of No. **5.416** and Table **21-4** of Article **21** do not apply to this additional allocation. Use of nongeostationary- satellite systems in the broadcasting-satellite service (sound) is subject to Resolution **539 (Rev.WRC-19)**. Geostationary broadcasting-satellite service (sound) systems for which complete Appendix **4** coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the frequency band 2 630-2 655 MHz, and for which complete Appendix **4** coordination information has been received after 1 June 2005, shall not exceed the following limits, for all conditions and for all methods of modulation: -130 dB(W/(m2 · MHz)) for $0° \le \theta \le 5°$ $-130 + 0.4\,(\theta - 5)$ dB(W/(m2 · MHz)) for $5° < \theta \le 25°$ -122 dB(W/(m2 · MHz)) for $25° < \theta \le 90°$ where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. As an exception to the limits above, the pfd value of -122 dB(W/(m2 · MHz)) shall be used as a threshold for coordination under No. **9.11** in an area of 1 500 km around the territory of the administration notifying the broadcasting-satellite service (sound) system. In addition, an administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. **5.416** for systems for which complete Appendix **4** coordination information has been received after 1 June 2005. (WRC-19)
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)
5.423	In the band 2 700-2 900 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the aeronautical radionavigation service.
5.424A	In the band 2 900-3 100 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the radionavigation service. (WRC-03)
5.425	In the band 2 900-3 100 MHz, the use of the shipborne interrogator-transponder (SIT) system shall be confined to the sub-band 2 930 -2 950 MHz.
5.426	The use of the band 2 900-3 100 MHz by the aeronautical radionavigation service is limited to ground-based radars.
5.427	In the bands 2 900-3 100 MHz and 9 300-9 500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. **4.9**.
5.429	*Additional allocation:* in Saudi Arabia, **Bahrain**, Bangladesh, Benin, Brunei Darussalam, Cambodia, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Egypt, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, New Zealand, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Sudan and Yemen, the frequency band 3 300-3 400 MHz is also allocated to the fixed and mobile services on a primary basis. New Zealand and the countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-19)
5.429A	*Additional allocation:* in Angola, Benin, Botswana, Burkina Faso, Burundi, Djibouti, Eswatini, Ghana, Guinea, Guinea-Bissau, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sudan, South Sudan, South Africa, 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-19)
5.429B	In the following countries of Region 1 south of 30° parallel north: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Congo (Rep. of the), Côte d'Ivoire, Egypt, Eswatini, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Uganda, the Dem. Rep. of the Congo, Rwanda, Sudan, South Sudan, South Africa, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). The use of this frequency band shall be in accordance with Resolution **223 (Rev.WRC-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-19)

5.430A	The allocation of the frequency band 3 400-3 600 MHz to the mobile, except aeronautical mobile, service is subject to agreement obtained under No. **9.21**. This frequency band is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The provisions of Nos. **9.17** and **9.18** shall also apply in the coordination phase. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m² . 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) and with the assistance of the Bureau if so requested. In case of disagreement, calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-15)
5.436	Use of the frequency band 4 200-4 400 MHz by stations in the aeronautical mobile (R) service is reserved exclusively for wireless avionics intra-communication systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **424 (WRC-15)**. (WRC-15)
5.437	Passive sensing in the Earth exploration-satellite and space research services may be authorized in the frequency band 4 200-4 400 MHz on a secondary basis. (WRC-15)
5.438	Use of the frequency band 4 200-4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. (WRC-15)
5.440	The standard frequency and time signal-satellite service may be authorized to use the frequency 4 202 MHz for space-to-Earth transmissions and the frequency 6 427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of ± 2 MHz of these frequencies, subject to agreement obtained under No. **9.21**.
5.441	The use of the bands 4 500-4 800 MHz (space-to-Earth), 6 725-7 025 MHz (Earth-to-space) by the fixedsatellite 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 geostationarysatellite 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, radionavigationsatellite service systems operating in the frequency band 5 010-5 030 MHz shall comply with the limits in the frequency band 4 990-5 000 MHz defined in Resolution **741 (Rev.WRC-15)**. (WRC-15)

5.443C	The use of the frequency band 5 030-5 091 MHz by the aeronautical mobile (R) service is limited to internationally standardized aeronautical systems. Unwanted emissions from the aeronautical mobile (R) service in the frequency band 5 030-5 091 MHz shall be limited to protect RNSS system downlinks in the adjacent 5 010-5 030 MHz band. Until such time that an appropriate value is established in a relevant ITU-R Recommendation, the e.i.r.p. density limit of −75 dBW/MHz in the frequency band 5 010-5 030 MHz for any AM(R)S station unwanted emission should be used. (WRC-12)
5.443D	In the frequency band 5 030-5 091 MHz, the aeronautical mobile-satellite (R) service is subject to coordination under No. **9.11A**. The use of this frequency band by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems. (WRC-12)
5.444	The frequency band 5 030-5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. In the frequency band 5 030-5 091 MHz, the requirements of this system shall have priority over other uses of this frequency band. For the use of the frequency band 5 091-5 150 MHz, No. **5.444A** and Resolution **114 (Rev. WRC-15)** apply. (WRC-15)
5.444A	The use of the allocation to the fixed-satellite service (Earth-to-space) in the frequency band 5 091-5 150 MHz is limited to feeder links of non-geostationary satellite systems in the mobile- satellite service and is subject to coordination under No. **9.11A**. The use of the frequency band 5 091-5 150 MHz by feeder links of nongeostationary satellite systems in the mobile-satellite service shall be subject to application of Resolution **114 (Rev.WRC-15)**. Moreover, to ensure that the aeronautical radionavigation service is protected from harmful interference, coordination is required for feeder-link earth stations of the non-geostationary satellite systems in the mobile- satellite service which are separated by less than 450 km from the territory of an administration operating ground stations in the aeronautical radionavigation service. (WRC-15)
5.444B	The use of the frequency band 5 091-5 150 MHz by the aeronautical mobile service is limited to: • systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution **748 (Rev.WRC-19)**; • aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **418 (Rev.WRC-19)**. (WRC-19)
5.446A	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-19)**. (WRC-19)
5.446B	In the band 5 150-5 250 MHz, stations in the mobile service shall not claim protection from earth stations in the fixed-satellite service. No. **5.43A** does not apply to the mobile service with respect to fixed-satellite service earth stations. (WRC-03)
5.446C	*Additional allocation:* in Region 1 (except in Algeria, Saudi Arabia, **Bahrain**, Egypt, United Arab Emirates, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan, South Sudan and Tunisia), the frequency 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-19)**. These stations shall not claim protection from other stations operating in accordance with Article 5. No. **5.43A** does not apply. (WRC-19)
5.447A	The allocation to the fixed-satellite service (Earth-to-space) in the band 5 150-5 250 MHz is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A**.
5.447B	*Additional allocation:* the band 5 150-5 216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non- geostationary-satellite systems in the mobile-satellite service and is subject to provisions of No. **9.11A**. The power flux-density at the Earth's surface produced by space stations of the fixed- satellite service operating in the space-to-Earth direction in the band 5 150-5 216 MHz shall in no case exceed -164 dB(W/m^2) in any 4 kHz band for all angles of arrival.

5.447C	Administrations responsible for fixed-satellite service networks in the band 5 150-5 250 MHz operated under Nos. **5.447A** and **5.447B** shall coordinate on an equal basis in accordance with No. **9.11A** with administrations responsible for non-geostationary satellite- networks operated under No. **5.446** and brought into use prior to 17 November 1995. Satellite networks operated under No. **5.446** brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. **5.447A** and **5.447B**.
5.447D	The allocation of the band 5 250-5 255 MHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis. (WRC-97)
5.447F	In the frequency band 5 250-5 350 MHz,) stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). The radiolocation service, the Earth exploration-satellite service (active) and the space research service (active) shall not impose more stringent conditions upon the mobile service than those stipulated in Resolution **229 (Rev.WRC-19)**. (WRC-19)
5.448A	The Earth exploration-satellite (active) and space research (active) services in the frequency band 5 250- 5 350 MHz shall not claim protection from the radiolocation service. No. **5.43A** does not apply. (WRC-03)
5.448B	The Earth exploration-satellite service (active) operating in the band 5 350-5 570 MHz and space research service (active) operating in the band 5 460-5 570 MHz shall not cause harmful interference to the aeronautical radionavigation service in the band 5 350-5 460 MHz, the radionavigation service in the band 5 460-5 470 MHz and the maritime radionavigation service in the band 5 470-5 570 MHz. (WRC-03)
5.448C	The space research service (active) operating in the band 5 350-5 460 MHz shall not cause harmful interference to nor claim protection from other services to which this band is allocated. (WRC-03)
5.448D	In the frequency band 5 350-5 470 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the aeronautical radionavigation service operating in accordance with No. **5.449**. (WRC-03)
5.449	The use of the band 5 350-5 470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.
5.450A	In the frequency band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. The radiodetermination services shall not impose more stringent conditions upon the mobile service than those stipulated in Resolution **229 (Rev.WRC-19)**. (WRC-19)
5.450B	In the frequency band 5 470-5 650 MHz, stations in the radiolocation service, except ground based radars used for meteorological purposes in the band 5 600-5 650 MHz, shall not cause harmful interference to, nor claim protection from, radar systems in the maritime radionavigation service. (WRC-03)
5.452	Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.
5.453	*Additional allocation:* in Saudi Arabia, **Bahrain**, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Eswatini, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Niger, Nigeria, Oman, Uganda, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the 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. In addition, in Afghanistan, Angola, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Dem. Rep. of the Congo, Fiji, Ghana, Kiribati, Lesotho, Malawi, Maldives, Mauritius, Micronesia, Mongolia, Mozambique, Myanmar, Namibia, Nauru, New Zealand, Papua New Guinea, Rwanda, Solomon Islands, South Sudan, South Africa, Tonga, Vanuatu, Zambia and Zimbabwe, the band 5 725-5 850 MHz is allocated to the fixed service on a primary basis, and stations operating in the fixed service shall not cause harmful interference to and shall not claim protection from other primary services in the frequency band. (WRC-19)

5.457A	In the frequency bands 5 925-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution **902 (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 explorationsatellite service using geostationary satellites shall not produce a power flux-density in excess of the following values for angles of arrival (θ), without the consent of the affected administration: -135 dB(W/m^2) in a 1 MHz band for $0 \leq \theta < 5°$ $-135 + 0.5\,(\theta - 5)$ dB(W/m^2) in a 1 MHz band for $5 \leq \theta < 25°$ -125 dB(W/m^2) in a 1 MHz band for $25 \leq \theta \leq 90°$ (WRC-12)
5.463	Aircraft stations are not permitted to transmit in the band 8 025-8 400 MHz. (WRC-97)
5.465	In the space research service, the use of the band 8 400-8 450 MHz is limited to deep space.
5.468	*Additional allocation:* in Saudi Arabia, **Bahrain**, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Djibouti, Egypt, the United Arab Emirates, Eswatini, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Sudan, Chad, Togo, Tunisia and Yemen, the frequency band 8 500-8 750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-19)
5.469A	In the band 8 550-8 650 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radiolocation service. (WRC-97)
5.470	The use of the band 8 750-8 850 MHz by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8 800 MHz.
5.471	Additional allocation: in Algeria, Germany, **Bahrain**, Belgium, China, Egypt, the United Arab Emirates, France, Greece, Indonesia, Iran (Islamic Republic of), Libya, the Netherlands, Qatar and Sudan, the frequency bands 8 825-8 850 MHz and 9 000-9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only. (WRC-15)
5.472	In the bands 8 850-9 000 MHz and 9 200-9 225 MHz, the maritime radionavigation service is limited to shorebased radars.
5.473A	In the band 9 000-9 200 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, systems identified in No. **5.337** operating in the aeronautical radionavigation service, or radar systems in the maritime radionavigation service operating in this band on a primary basis in the countries listed in No. **5.471**. (WRC-07)
5.474	In the band 9 200-9 500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article **31**).
5.474A	The use of the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz by the Earth exploration-satellite service (active) is limited to systems requiring necessary bandwidth greater than 600 MHz that cannot be fully accommodated within the frequency band 9 300-9 900 MHz. Such use is subject to agreement to be obtained under No. **9.21** from Algeria, Saudi Arabia, **Bahrain**, Egypt, Indonesia, Iran (Islamic Republic of), Lebanon and Tunisia. An administration that has not replied under No. **9.52** is considered as not having agreed to the coordination request. In this case, the notifying administration of the satellite system operating in the Earth exploration-satellite service (active) may request the assistance of the Bureau under Sub-Section IID of Article **9**. (WRC-15)
5.474B	Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU-R RS.2066-0. (WRC-15)
5.474C	Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU-R RS.2065-0. (WRC-15)

5.474D	Stations in the Earth exploration-satellite service (active) shall not cause harmful interference to, or claim protection from, stations of the maritime radionavigation and radiolocation services in the frequency band 9 200-9 300 MHz, the radionavigation and radiolocation services in the frequency band 9 900-10 000 MHz and the radiolocation service in the frequency band 10.0- 10.4 GHz. (WRC-15)
5.475	The use of the band 9 300-9 500 MHz by the aeronautical radionavigation service is limited to airborne weather radars and ground-based radars. In addition, ground-based radar beacons in the aeronautical radionavigation service are permitted in the band 9 300-9 320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. (WRC-07)
5.475A	The use of the band 9 300-9 500 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 300 MHz that cannot be fully accommodated within the 9 500-9 800 MHz band. (WRC-07)
5.475B	In the band 9 300-9 500 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, radars operating in the radionavigation service in conformity with the Radio Regulations. Ground-based radars used for meteorological purposes have priority over other radiolocation uses. (WRC-07)
5.476A	In the band 9 300-9 800 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from, stations of the radionavigation and radiolocation services. (WRC-07)
5.477	*Different category of service:* in Algeria, Saudi Arabia, **Bahrain**, Bangladesh, Brunei Darussalam, Cameroon, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Trinidad and Tobago, and Yemen, the allocation of the frequency band 9 800-10 000 MHz to the fixed service is on a primary basis (see No. **5.33**). (WRC-15)
5.478A	The use of the band 9 800-9 900 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 500 MHz that cannot be fully accommodated within the 9 300-9 800 MHz band. (WRC-07)
5.478B	In the band 9 800-9 900 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from stations of the fixed service to which this band is allocated on a secondary basis. (WRC-07)
5.479	The band 9 975-10 025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.
5.482	In the band 10.6-10.68 GHz, the power delivered to the antenna of stations of the fixed and mobile, except aeronautical mobile, services shall not exceed −3 dBW. This limit may be exceeded, subject to agreement obtained under No. **9.21**. However, in Algeria, Saudi Arabia, Armenia, Azerbaijan, **Bahrain**, Bangladesh, Belarus, Egypt, United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Moldova, Nigeria, Oman, Uzbekistan, Pakistan, Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, Singapore, Tajikistan, Tunisia, Turkmenistan and Viet Nam, this restriction on the fixed and mobile, except aeronautical mobile, services is not applicable. (WRC-07)
5.482A	For sharing of the band 10.6-10.68 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile, except aeronautical mobile, services, Resolution **751 (WRC-07)** applies. (WRC-07)
5.483	*Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, **Bahrain**, Belarus, China, Colombia, Korea (Rep. of), Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, Tajikistan, Turkmenistan and Yemen, the frequency band 10.68-10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-19)
5.484	In Region 1, the use of the band 10.7-11.7 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.

5.484A	The use of the bands 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 13.75-14.5 GHz (Earth-to-space), 17.8-18.6 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), 29.5-30 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary- satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationarysatellite 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-geostationarysatellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the broadcasting- satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-03)
5.492	Assignments to stations of the broadcasting-satellite service which are in conformity with the appropriate regional Plan or included in the Regions 1 and 3 List in Appendix **30** may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference, or require more protection from interference, than the broadcasting-satellite service transmissions operating in conformity with the Plan or the List, as appropriate. (WRC-2000)
5.494	*Additional allocation:* in Algeria, Saudi Arabia, **Bahrain**, Cameroon, the Central African Rep., Congo (Rep.of the), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Madagascar, Mali, Morocco, Mongolia, Nigeria, Oman, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-15)
5.497	The use of the band 13.25-13.4 GHz by the aeronautical radionavigation service is limited to Doppler navigation aids.
5.498A	The Earth exploration-satellite (active) and space research (active) services operating in the band 13.25-13.4 GHz shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service. (WRC-97)
5.499A	The use of the frequency band 13.4-13.65 GHz by the fixed-satellite service (space-to- Earth) is limited to geostationary-satellite systems and is subject to agreement obtained under No. **9.21** with respect to satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015. (WRC-15)

5.499B	Administrations shall not preclude the deployment and operation of transmitting earth stations in the standard frequency and time signal-satellite service (Earth-to-space) allocated on a secondary basis in the frequency band 13.4-13.65 GHz due to the primary allocation to FSS (space -to- Earth). (WRC-15)
5.499C	The allocation of the frequency band 13.4-13.65 GHz to the space research service on a primary basis is limited to: • satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015, • active spaceborne sensors, • satellite systems operating in the space research service (space-to-Earth) to relay data from space stations in the geostationary-satellite orbit to associated earth stations. Other uses of the frequency band by the space research service are on a secondary basis. (WRC-15)
5.499D	In the frequency band 13.4-13.65 GHz, satellite systems in the space research service (space-to-Earth) and/or the space research service (space-to-space) shall not cause harmful interference to, nor claim protection from, stations in the fixed, mobile, radiolocation and Earth exploration-satellite (active) services. (WRC-15)
5.499E	In the frequency band 13.4-13.65 GHz, geostationary-satellite networks in the fixed-satellite service (spaceto-Earth) shall not claim protection from space stations in the Earth exploration-satellite service (active) operating in accordance with these Regulations, and No. **5.43A** does not apply. The provisions of No. **22.2** do not apply to the Earth exploration-satellite service (active) with respect to the fixed-satellite service (space-to-Earth) in this frequency band. (WRC-15)
5.500	*Additional allocation:* in Algeria, Saudi Arabia, **Bahrain**, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Morocco, Mauritania, Niger, Nigeria, Oman, Qatar, the Syrian Arab Republic, Singapore, Sudan, South Sudan, Chad and Tunisia, the frequency band 13.4-14 GHz is also allocated to the fixed and mobile services on a primary basis. In Pakistan, the frequency band 13.4-13.75 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)
5.501A	The allocation of the frequency band 13.65-13.75 GHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the frequency band by the space research service are on a secondary basis. (WRC-15)
5.501B	In the band 13.4-13.75 GHz, the Earth exploration-satellite (active) and space research (active) services shall not cause harmful interference to, or constrain the use and development of, the radiolocation service. (WRC-97)
5.502	In the band 13.75-14 GHz, an earth station of a geostationary fixed-satellite service network shall have a minimum antenna diameter of 1.2 m and an earth station of a non-geostationary- fixed satellite service system shall have a minimum antenna diameter of 4.5 m. In addition, the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services shall not exceed 59 dBW for elevation angles above 2° and 65 dBW at lower angles. Before an administration brings into use an earth station in a geostationary-satellite network in the fixed-satellite service in this band with an antenna diameter smaller than 4.5 m, it shall ensure that the power flux-density produced by this earth station does not exceed: -115 dB$(W/(m^2 \cdot 10\ MHz))$ for more than 1% of the time produced at 36 m above sea level at the low water mark, as officially recognized by the coastal State; -115 dB$(W/(m^2 \cdot 10\ MHz))$ for more than 1% of the time produced 3 m above ground at the border of the territory of an administration deploying or planning to deploy land mobile radars in this band, unless prior agreement has been obtained. For earth stations within the fixed-satellite service having an antenna diameter greater than or equal to 4.5 m, the e.i.r.p. of any emission should be at least 68 dBW and should not exceed 85 dBW. (WRC-03)

5.503	In the band 13.75-14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. Until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band: • in the band 13.77-13.78 GHz, the e.i.r.p. density of emissions from any earth station in the fixedsatellite service operating with a space station in geostationary-satellite orbit shall not exceed: i. 4.7D + 28 dB(W/40 kHz), where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 1.2 m and less than 4.5 m; ii. 49.2 + 20 log(D/4.5) dB(W/40 kHz), where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 4.5 m and less than 31.9 m; iii. 66.2 dB(W/40 kHz) for any fixed-satellite service earth station for antenna diameters (m) equal to or greater than 31.9 m; iv. 56.2 dB(W/4 kHz) for narrow-band (less than 40 kHz of necessary bandwidth) fixed-satellite service earth station emissions from any fixed-satellite service earth station having an antenna diameter of 4.5 m or greater; • the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in non-geostationary-satellite orbit shall not exceed 51 dBW in the 6 MHz band from 13.772 to 13.778 GHz. Automatic power control may be used to increase the e.i.r.p. density in these frequency ranges to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use by an earth station of an e.i.r.p. meeting the above limits in clear-sky conditions. (WRC-03)
5.504	The use of the band 14-14.3 GHz by the radionavigation service shall be such as to provide sufficient protection to space stations of the fixed-satellite service.
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, Eswatini, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Chad, Viet Nam and Yemen, the frequency band 14-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-19)
5.506	The band 14-14.5 GHz may be used, within the fixed-satellite service (Earth-to-space), for feeder links for the broadcasting-satellite service, subject to coordination with other networks in the fixed-satellite service. Such use of feeder links is reserved for countries outside Europe.

5.506A	In the band 14-14.5 GHz, ship earth stations with an e.i.r.p. greater than 21 dBW shall operate under the same conditions as earth stations located on board vessels, as provided in Resolution **902 (WRC-03)**. This footnote shall not apply to ship earth stations for which the complete Appendix **4** information
5.506B	Earth stations located on board vessels communicating with space stations in the fixed-satellite service may operate in the frequency band 14-14.5 GHz without the need for prior agreement from Cyprus and Malta, within the minimum distance given in Resolution 902 (WRC-03) from these countries. (WRC-15)
5.508A	In the frequency band 14.25-14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, **Bahrain**, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-15)
5.509A	In the frequency band 14.3-14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, **Bahrain**, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Morocco, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom, Sri Lanka, Tunisia and Viet Nam by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-15)
5.509B	The use of the frequency bands 14.5-14.75 GHz in countries listed in Resolution **163 (WRC-15)** and 14.5-14.8 GHz in countries listed in Resolution **164 (WRC-15)** by the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service is limited to geostationary-satellites. (WRC-15)
5.509C	For the use of the frequency bands 14.5-14.75 GHz in countries listed in Resolution **163 (WRC-15)** and 14.5-14.8 GHz in countries listed in Resolution **164 (WRC-15)** by the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service, the fixed-satellite service earth stations shall have a minimum antenna diameter of 6 m and a maximum power spectral density of −44.5 dBW/Hz at the input of the antenna. The earth stations shall be notified at known locations on land. (WRC-15)
5.509D	Before an administration brings into use an earth station in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service in the frequency bands 14.5-14.75 GHz (in countries listed in Resolution **163 (WRC-15)**) and 14.5-14.8 GHz (in countries listed in Resolution **164 (WRC-15)**), it shall ensure that the power flux-density produced by this earth station does not exceed −151.5 dB(W/(m^2 · 4 kHz)) produced at all altitudes from 0 m to 19 000 m above sea level at 22 km seaward from all coasts, defined as the low-water mark, as officially recognized by each coastal State. (WRC-15)
5.509E	In the frequency bands 14.50-14.75 GHz in countries listed in Resolution **163 (WRC-15)** and 14.50-14.8 GHz in countries listed in Resolution **164 (WRC-15)**, the location of earth stations in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service shall maintain a separation distance of at least 500 km from the border(s) of other countries unless shorter distances are explicitly agreed by those administrations. No. **9.17** does not apply. When applying this provision, administrations should consider the relevant parts of these Regulations and the latest relevant ITU-R Recommendations. (WRC-15)
5.509F	In the frequency bands 14.50-14.75 GHz in countries listed in Resolution **163 (WRC-15)** and 14.50-14.8 GHz in countries listed in Resolution **164 (WRC-15)**, earth stations in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service shall not constrain the future deployment of the fixed and mobile services. (WRC-15)

5.509G	The frequency band 14.5-14.8 GHz is also allocated to the space research service on a primary basis. However, such use is limited to the satellite systems operating in the space research service (Earth-to-space) to relay data to space stations in the geostationary-satellite orbit from associated earth stations. Stations in the space research service shall not cause harmful interference to, or claim protection from, stations in the fixed and mobile services and in the fixed-satellite service limited to feeder links for the broadcasting-satellite service and associated space operations functions using the guardbands under Appendix **30A** and feeder links for the broadcasting-satellite service in Region 2. Other uses of this frequency band by the space research service are on a secondary basis. (WRC-15)
5.510	Except for use in accordance with Resolution **163 (WRC-15)** and Resolution **164 (WRC-15)**, the use of the frequency band 14.5-14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe. Uses other than feeder links for the broadcasting-satellite service are not authorized in Regions 1 and 2 in the frequency band 14.75-14.8 GHz. (WRC-15)
5.511	*Additional allocation:* in Saudi Arabia, **Bahrain**, Cameroon, Egypt, the United Arab Emirates, Guinea, Iran (Islamic Republic of), Iraq, Israel, Kuwait, Lebanon, Oman, Pakistan, Qatar, the Syrian Arab Republic and Somalia, the band 15.35-15.4 GHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-12)
5.511A	Use of the frequency band 15.43-15.63 GHz by the fixed-satellite service (Earth-to- space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. **9.11A**. (WRC-15)
5.511C	Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R S.1340-0. The minimum coordination distance required to protect the aeronautical radionavigation stations (No. **4.10** applies) from harmful interference from feeder-link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder-link earth station shall be in accordance with Recommendation ITU-R S.1340-0. (WRC-15)
5.511E	In the frequency band 15.4-15.7 GHz, stations operating in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the aeronautical radionavigation service. (WRC-12)
5.511F	In order to protect the radio astronomy service in the frequency band 15.35-15.4 GHz, radiolocation stations operating in the frequency band 15.4-15.7 GHz shall not exceed the power flux-density level of -156 dB(W/m^2) in a 50 MHz bandwidth in the frequency band 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2 per cent of the time. (WRC-12)
5.512	*Additional allocation:* in Algeria, Saudi Arabia, Austria, **Bahrain**, Bangladesh, Brunei Darussalam, Cameroon, Congo (Rep. of the), Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Montenegro, Nepal, Nicaragua, Niger, Oman, Pakistan, Qatar, Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)
5.513A	Spaceborne active sensors operating in the band 17.2-17.3 GHz shall not cause harmful interference to, or constrain the development of, the radiolocation and other services allocated on a primary basis. (WRC-97)
5.514	*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 broadcastingsatellite 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-tospace) 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 nongeostationary- 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 nongeostationary- 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. Nongeostationary- 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 1,27.5-27.82 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 (Earthto-space) in all Regions,48.2-50.2 GHz (Earth-to-space) in Region 2. This identification does not preclude the use of these frequency bands by other fixed-satellite service applications or by other services to which these frequency bands are allocated on a co-primary basis and does not establish priority in these Radio Regulations among users of the frequency bands. Administrations should take this into account when considering regulatory provisions in relation to these frequency bands. See Resolution **143 (Rev.WRC-19)**. (WRC-19)
5.517A	The operation of earth stations in motion communicating with geostationary fixed-satellite service space stations within the frequency bands 17.7-19.7 GHz (space-to-Earth) and 27.5-29.5 GHz (Earth-to-space) shall be subject to the application of Resolution **169 (WRC-19)**. (WRC-19)
5.519	*Additional allocation:* the bands 18-18.3 GHz in Region 2 and 18.1-18.4 GHz in Regions 1 and 3 are also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Their use is limited to geostationary satellites. (WRC-07)
5.520	The use of the band 18.1-18.4 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links of geostationary-satellite systems in the broadcasting-satellite service. (WRC-2000)
5.521	*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 nongeostationary 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 nongeostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **4** coordination information, or notification information, is considered as having been received by the Bureau by 21 November 1997. (WRC-97)
5.524	*Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, **Bahrain**, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Costa Rica, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Chad, Togo and Tunisia, the frequency band 19.7-21.2 GHz is also allocated to the fixed and mobile services on a primary basis. This additional use shall not impose any limitation on the power flux-density of space stations in the fixed-satellite service in the frequency band 19.7-21.2 GHz and of space stations in the mobile-satellite service in the frequency band 19.7-20.2 GHz where the allocation to the mobile-satellite service is on a primary basis in the latter frequency band. (WRC-15)
5.525	In order to facilitate interregional coordination between networks in the mobile-satellite and fixed-satellite services, carriers in the mobile-satellite service that are most susceptible to interference shall, to the extent practicable, be located in the higher parts of the bands 19.7-20.2 GHz and 29.5-30 GHz.
5.526	In the bands 19.7-20.2 GHz and 29.5-30 GHz in Region 2, and in the bands 20.1-20.2 GHz and 29.9-30 GHz in Regions 1 and 3, networks which are both in the fixed-satellite service and in the mobile-satellite service may include links between earth stations at specified or unspecified points or while in motion, through one or more satellites for point-to-point and point-to-multipoint communications.
5.527	In the bands 19.7-20.2 GHz and 29.5-30 GHz, the provisions of No. **4.10** do not apply with respect to the mobile-satellite service.

5.527A	The operation of earth stations in motion communicating with the FSS is subject to Resolution **156 (WRC-15)**. (WRC-15)
5.528	The allocation to the mobile-satellite service is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Administrations operating systems in the mobile-satellite service in the band 19.7-20.1 GHz in Region 2 and in the band 20.1-20.2 GHz shall take all practicable steps to ensure the continued availability of these bands for administrations operating fixed and mobile systems in accordance with the provisions of No. **5.524**.
5.530A	Unless otherwise agreed between the administrations concerned, any station in the fixed or mobile services of an administration shall not produce a power flux-density in excess of −120.4 dB(W/(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)
5.532	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)
5.532AB	The frequency band 24.25-27.5 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution **242 (WRC-19)** applies. (WRC-19)
5.534A	the allocation to the fixed service in the frequency band 25.25-27.5 GHz is identified in Region 2 for use by high-altitude platform stations (HAPS) in accordance with the provisions of Resolution **166 (WRC-19)**. Such use of the fixed-service allocation by HAPS shall be limited to the ground-to-HAPS direction in the frequency band 25.25-27.0 GHz and to the HAPS-to-ground direction in the frequency band 27.0-27.5 GHz. Furthermore, the use of the frequency band 25.5-27.0 GHz by HAPS shall be limited to gateway links. This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this band is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. (WRC-19)
5.535A	The use of the band 29.1-29.5 GHz (Earth-to-space) by the fixed-satellite service is limited to geostationarysatellite 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 explorationsatellite applications, and also transmissions of data originating from industrial and medical activities in space.
5.536A	Administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account the most recent version of Recommendation ITU-R SA.1862. Resolution **242 (WRC-19)** applies. (WRC-19)

5.536B	In Algeria, Saudi Arabia, Austria, **Bahrain**, Belgium, Brazil, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Estonia, Finland, Hungary, India, Iran (Islamic Republic of), Iraq, Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Slovenia, Sudan, Sweden, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the frequency band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. Resolution **242 (WRC-19)** applies. (WRC-19)
5.536C	In Algeria, Saudi Arabia, **Bahrain**, Botswana, Brazil, Cameroon, Comoros, Cuba, Djibouti, Egypt, United Arab Emirates, Estonia, Finland, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lithuania, Malaysia, Morocco, Nigeria, Oman, Qatar, Syrian Arab Republic, Somalia, Sudan, South Sudan, Tanzania, Tunisia, Uruguay, Zambia and Zimbabwe, earth stations operating in the space research service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-12)
5.538	*Additional allocation:* the bands 27.500-27.501 GHz and 29.999-30.000 GHz are also allocated to the fixedsatellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of +10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. (WRC-07)
5.539	The band 27.5-30 GHz may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service.
5.540	*Additional allocation:* the band 27.501-29.999 GHz is also allocated to the fixed-satellite service (space-to- Earth) on a secondary basis for beacon transmissions intended for up-link power control.
5.541	In the band 28.5-30 GHz, the earth exploration-satellite service is limited to the transfer of data between stations and not to the primary collection of information by means of active or passive sensors.
5.541A	Feeder links of non-geostationary networks in the mobile-satellite service and geostationary networks in the fixed-satellite service operating in the band 29.1-29.5 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix **4** coordination information is considered as having been received by the Bureau after 17 May 1996 and until they are changed by a future competent world radiocommunication conference. Administrations submitting Appendix **4** information for coordination before this date are encouraged to utilize these techniques to the extent practicable. (WRC-2000)
5.542	*Additional allocation:* in Algeria, Saudi Arabia, **Bahrain**, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Oman, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, South Sudan, Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **21.3** and **21.5** shall apply. (WRC-12)
5.543	The band 29.95-30 GHz may be used for space-to-space links in the Earth exploration-satellite service for telemetry, tracking, and control purposes, on a secondary basis.
5.543B	The allocation to the fixed service in the frequency band 31-31.3 GHz is identified for worldwide use by highaltitude platform stations (HAPS). This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation by HAPS shall be in accordance with the provisions of Resolution **167 (WRC-19)**. (WRC-19)
5.544	In the band 31-31.3 GHz the power flux-density limits specified in Article **21**, Table **21-4** shall apply to the space research service.

5.546	*Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, **Bahrain**, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Lebanon, Moldova, Mongolia, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, the United Kingdom, South Africa, Tajikistan, Turkmenistan and Turkey, the allocation of the frequency band 31.5-31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**). (WRC-19)
5.547	The bands 31.8-33.4 GHz, 37-40 GHz, 40.5-43.5 GHz, 51.4-52.6 GHz, 55.78-59 GHz and 64-66 GHz are available for high-density applications in the fixed service (see Resolution **75 (WRC-2000)** [10]). 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) *[10] 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. (WRC-2000)
5.548	In designing systems for the inter-satellite service in the band 32.3-33 GHz, for the radionavigation service in the band 32-33 GHz, and for the space research service (deep space) in the band 31.8-32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation **707**). (WRC-03)
5.549	*Additional allocation:* in Saudi Arabia, **Bahrain**, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan, Sri Lanka, Togo, Tunisia and Yemen, the band 33.4-36 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
5.549A	In the band 35.5-36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed $-73.3\ \mathrm{dB(W/m^2)}$ in this band. (WRC-03)
5.550A	For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution **752 (WRC-07)** shall apply. (WRC-07)
5.550B	The frequency band 37-43.5 GHz, or portions thereof, is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Because of the potential deployment of FSS earth stations within the frequency range 37.5-42.5 GHz and high-density applications in the fixed-satellite service in the frequency bands 39.5-40 GHz in Region 1, 40-40.5 GHz in all Regions and 40.5-42 GHz in Region 2 (see No. **5.516B**), administrations should further take into account potential constraints to IMT in these frequency bands, as appropriate. Resolution **243 (WRC-19)** applies. (WRC-19)
5.550C	The use of the frequency bands 37.5-39.5 GHz (space-to-Earth), 39.5-42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space) by a non-geostationary-satellite systems in the fixed-satellite service is subject to the application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service but not with non-geostationary systems in other services. Resolution **770 (WRC-19)** shall also apply, and No. **22.2** shall continue to apply. (WRC-19)

5.550D	The allocation to the fixed service in the frequency band 38-39.5 GHz is identified for worldwide use by administrations wishing to implement high-altitude platform stations (HAPS). In the HAPS-to-ground direction, the HAPS ground station shall not claim protection from stations in the fixed, mobile and fixedsatellite services; and No. **5.43A** does not apply. This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a co-primary basis and does not establish priority in the Radio Regulations. Furthermore, the development of the fixed-satellite, fixed and mobile services shall not be unduly constrained by HAPS. Such use of the fixedservice allocation by HAPS shall be in accordance with the provisions of Resolution **168 (WRC-19)**. (WRC-19)
5.550E	The use of the frequency bands 39.5-40 GHz and 40-40.5 GHz by non-geostationary-satellite systems in the mobile-satellite service (space-to-Earth) and by non-geostationary-satellite systems in the fixed-satellite service (space-to-Earth) is subject to the application of the provisions of No. **9.12** for coordination with other non-geostationary satellite systems in the fixed-satellite and mobile-satellite services but not with non-geostationary satellite systems in other services. No. **22.2** shall continue to apply for nongeostationary-satellite systems. (WRC-19)
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 broadcastingsatellite 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/m^2) in 1 GHz and –246 dB(W/m^2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and • 209 dB(W/m^2) in any 500 kHz of the 42.5-43.5 GHz 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-15)
5.551I	The power flux-density in the band 42.5-43.5 GHz produced by any geostationary space station in the fixedsatellite service (space-to-Earth), or the broadcasting-satellite service operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station: • 137 dB(W/m^2) in 1 GHz and –153 dB(W/m^2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and • 116 dB(W/m^2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy • station registered as a very long baseline interferometry station. These values shall apply at the site of any radio astronomy station that either: • was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or • was notified before the date of receipt of the complete Appendix **4** information for coordination or notification, as appropriate, for the space station to which the limits apply. Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC-03)** shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-03)

5.552	The allocation of the spectrum for the fixed-satellite service in the bands 42.5-43.5 GHz and 47.2-50.2 GHz for Earth-to-space transmission is greater than that in the band 37.5-39.5 GHz for space-to-Earth transmission in order to accommodate feeder links to broadcasting satellites. Administrations are urged to take all practicable steps to reserve the band 47.2-49.2 GHz for feeder links for the broadcasting-satellite service operating in the band 40.5-42.5 GHz.
5.552A	The allocation to the fixed service in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz is identified for use by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz by HAPS shall be in accordance with the provisions of Resolution **122 (Rev.WRC-19)**. (WRC-19)
5.553	In the bands 43.5-47 GHz and 66-71 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. **5.43**). (WRC-2000)
5.553A	In Algeria, Angola, **Bahrain**, Belarus, Benin, Botswana, Brazil, Burkina Faso, Cabo Verde, Korea (Rep. of), Côte d'Ivoire, Croatia, United Arab Emirates, Estonia, Eswatini, Gabon, Gambia, Ghana, Greece, Guinea, Guinea-Bissau, Hungary, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Lesotho, Latvia, Liberia, Lithuania, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Qatar, Senegal, Seychelles, Sierra Leone, Slovenia, Sudan, South Africa, Sweden, Togo, Tunisia, Zambia and Zimbabwe, the frequency band 45.5-47 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT), taking into account No. **5.553**. With respect to the aeronautical mobile service and radionavigation service, the use of this frequency band for the implementation of IMT is subject to agreement obtained under No. **9.21** with concerned administrations and shall not cause harmful interference to, or claim protection from these services. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution **244 (WRC-19)** applies. (WRC-19)
5.553B	In Region 2 and Algeria, Angola, Saudi Arabia, Australia, **Bahrain**, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Rep., Comoros, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lesotho, Liberia, Libya, Lithuania, Madagascar, Malaysia, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Singapore, Slovenia, Somalia, Sudan, South Africa, Sweden, Tanzania, Chad, Togo, Tunisia, Zambia and Zimbabwe, the frequency band 47.2-48.2 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated, and does not establish any priority in the Radio Regulations. Resolution **243 (WRC-19)** applies. (WRC-19)
5.554	In the bands 43.5-47 GHz, 66-71 GHz, 95-100 GHz, 123-130 GHz, 191.8-200 GHz and 252-265 GHz, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service. (WRC-2000)
5.554A	The use of the bands 47.5-47.9 GHz, 48.2-48.54 GHz and 49.44-50.2 GHz by the fixed-satellite service (spaceto-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 fixedsatellite 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)
5.555C	The use of the frequency band 51.4-52.4 GHz by the fixed-satellite service (Earth-to-space) is limited to geostationary-satellite networks. The earth stations shall be limited to gateway earth stations with a minimum antenna diameter of 2.4 metres. (WRC-19)
5.556	In the bands 51.4-54.25 GHz, 58.2-59 GHz and 64-65 GHz, radio astronomy observations may be carried out under national arrangements. (WRC-2000)

5.556A	Use of the bands 54.25-56.9 GHz, 57-58.2 GHz and 59-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m^2 . 100 MHz)) for all angles of arrival. (WRC-97)
5.557A	In the band 55.78-56.26 GHz, in order to protect stations in the Earth exploration-satellite service (passive), the maximum power density delivered by a transmitter to the antenna of a fixed service station is limited to –26 dB(W/MHz). (WRC-2000)
5.558	In the bands 55.78-58.2 GHz, 59-64 GHz, 66-71 GHz, 122.25-123 GHz, 130-134 GHz, 167-174.8 GHz and 191.8-200 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **5.43**). (WRC-2000)
5.558A	Use of the band 56.9-57 GHz by inter-satellite systems is limited to links between satellites in geostationarysatellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m^2 . 100 MHz)) for all angles of arrival. (WRC-97)
5.559	In the band 59-64 GHz, airborne radars in the radiolocation service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **5.43**). (WRC-2000)
5.559AA	The frequency band 66-71 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which this frequency band is allocated and does not establish priority in the Radio Regulations. Resolution **241 (WRC-19)** applies. (WRC-19)
5.559B	The use of the frequency band 77.5-78 GHz by the radiolocation service shall be limited to short-range radar for ground-based applications, including automotive radars. The technical characteristics of these radars are provided in the most recent version of Recommendation ITU-R M.2057. The provisions of No. **4.10** do not apply. (WRC-15)
5.560	In the band 78-79 GHz radars located on space stations may be operated on a primary basis in the Earth exploration-satellite service and in the space research service.
5.561	In the band 74-76 GHz, stations in the fixed, mobile and broadcasting services shall not cause harmful interference to stations of the fixed-satellite service or stations of the broadcasting- satellite service operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service. (WRC-2000)
5.561A	The 81-81.5 GHz band is also allocated to the amateur and amateur-satellite services on a secondary basis. (WRC-2000)
5.562	The use of the band 94-94.1 GHz by the Earth exploration-satellite (active) and space research (active) services is limited to spaceborne cloud radars. (WRC-97)
5.562A	In the bands 94-94.1 GHz and 130-134 GHz, transmissions from space stations of the Earth explorationsatellite 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 and 217-226 GHz, the use of this allocation is limited to space-based radio astronomy only. (WRC-19)
5.562C	Use of the band 116-122.25 GHz by the inter-satellite service is limited to satellites in the geostationarysatellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 km to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed –148 dB(W/(m^2 . MHz)) for all angles of arrival. (WRC-2000)
5.562E	The allocation to the Earth exploration-satellite service (active) is limited to the band 133.5-134 GHz. (WRC-2000)

5.562H	Use of the bands 174.8-182 GHz and 185-190 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed -144 dB(W/(m^2 . MHz)) for all angles of arrival. (WRC-2000)
5.563A	In the bands 200-209 GHz, 235-238 GHz, 250-252 GHz and 265-275 GHz, ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents. (WRC-2000)
5.563B	The band 237.9-238 GHz is also allocated to the Earth exploration-satellite service (active) and the space research service (active) for spaceborne cloud radars only. (WRC-2000)
5.564A	For the operation of fixed and land mobile service applications in frequency bands in the range 275-450 GHz: The frequency bands 275-296 GHz, 306-313 GHz, 318-333 GHz and 356-450 GHz are identified for use by administrations for the implementation of land mobile and fixed service applications, where no specific conditions are necessary to protect Earth exploration-satellite service (passive) applications. The frequency bands 296-306 GHz, 313-318 GHz and 333-356 GHz may only be used by fixed and land mobile service applications when specific conditions to ensure the protection of Earth exploration-satellite service (passive) applications are determined in accordance with Resolution **731 (Rev.WRC-19)**. In those portions of the frequency range 275-450 GHz where radio astronomy applications are used, specific conditions (e.g. minimum separation distances and/or avoidance angles) may be necessary to ensure protection of radio astronomy sites from land mobile and/or fixed service applications, on a case-by-case basis in accordance with Resolution **731 (Rev.WRC-19)**. The use of the above-mentioned frequency bands by land mobile and fixed service applications does not preclude use by, and does not establish priority over, any other applications of radio services in the range of 275-450 GHz. (WRC-19)
5.565	The following frequency bands in the range 275-1 000 GHz are identified for use by administrations for passive service applications: • radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz; • Earth exploration-satellite service (passive) and space research service (passive): 275-286 GHz, 296-306 GHz, 313-356 GHz, 361-365 GHz, 369-392 GHz, 397-399 GHz, 409-411 GHz, 416-434 GHz, 439-467 GHz, 477-502 GHz, 523-527 GHz, 538-581 GHz, 611-630 GHz, 634-654 GHz, 657-692 GHz, 713-718 GHz, 729-733 GHz, 750-754 GHz, 771-776 GHz, 823-846 GHz, 850-854 GHz, 857-862 GHz, 866-882 GHz, 905-928 GHz, 951-956 GHz, 968-973 GHz and 985-990 GHz. The use of the range 275-1 000 GHz by the passive services does not preclude use of this range by active services. Administrations wishing to make frequencies in the 275-1 000 GHz range available for active service applications are urged to take all practicable steps to protect these passive services from harmful interference until the date when the Table of Frequency Allocations is established in the above-mentioned 275-1 000 GHz frequency range All frequencies in the range 1 000-3 000 GHz may be used by both active and passive services. (WRC-12)

Annex 2 General Technical Information

Glossary of Acronyms	
AIS	Automatic Identification System
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)
ESIM	Earth stations in motion
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
GSM	Global System for Mobile
HAPS	High-Altitude Platform System
HIBS	High-altitude IMT base stations
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
LTE	Long Term Evolution
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
SFTS	Standard frequency and time signal service
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

Terms and Definitions
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.
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.
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 broadcastingsatellite 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 broadcastingsatellite 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)

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.
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.
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.

IEEE STANDARD LETTER DESIGNATIONS FOR RADAR BANDS USED BY THE "EESS" COMMUNITY AND THEIR COMPARISON TO THE ITU ALLOCATIONS

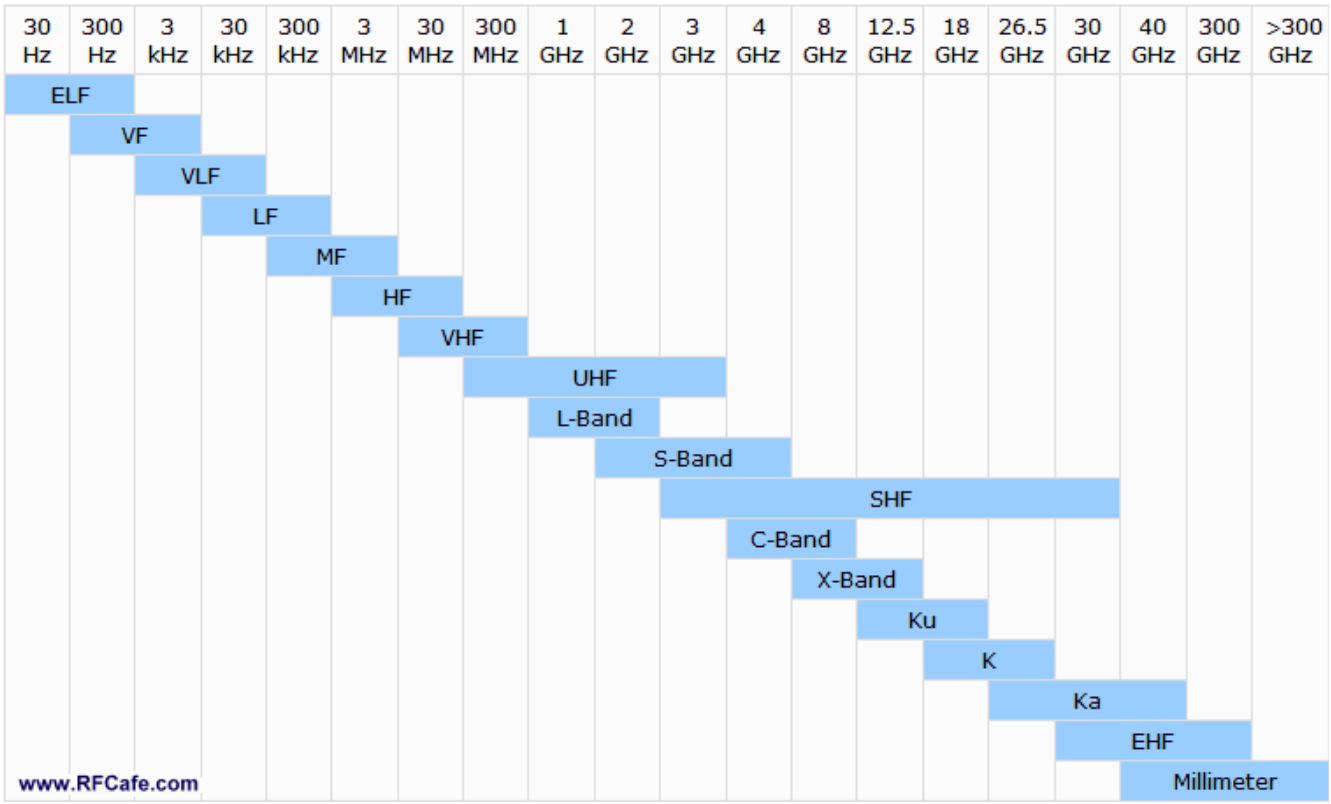
International Table

Band Designation	Nominal Frequency Range	Specific Frequency Ranges for Radar Based on ITU Assignments (see *Notes 1, 2*)		
		Region 1	Region 2	Region 3
HF	3-30 MHz	*(Note 3)*		
VHF	30-300 MHz	None	138-144 MHz 216-225 MHz *(See Note 4)*	223-230 MHz
UHF	300-1000 MHz *(Note 5)*	420-450 MHz *(Note 4)* 890-942 MHz *(Note 6)*		
L	1-2 GHz	1215-1400 MHz		
S	2-4 GHz	2300-2500 MHz		
		2700-3600 MHz	2700-3700 MHz	
C	4-8 GHz	4200-4400 MHz *(Note 7)*		
		5250-5850 MHz	5250-5925 MHz	
X	8-12 GHz		8.5-10.68 GHz	
Ku	12-18 GHz	13.4-14 GHz 15.7-17.7 GHz		
K	18-27 GHz	24.05-24.25 GHz	24.05-24.25 GHz 24.65-24.75 GHz *(Note 8)*	24.05-24.25 GHz
Ka	27-40 GHz		33.4-36 GHz	
V	40-75 GHz		59-64 GHz	
W	75-110 GHz		76-81 GHz 92-100 GHz	
mm *(Note 9)*	110-300 GHz		126-142 GHz 144-149 GHz 231-235 GHz 238-248 GHz *(Note 10)*	

Source:
www.nap.edu

NOTES:
1. These International Telecommunication Union (ITU) frequency allocations are from the table contained in Article S5 of the ITU Radio Regulations, 2002 edition, reaffirmed in 2009 (see *https://standards.ieee.org/findstds/standard/521-2002.html*). The ITU defines no specific service for radar, and the frequency assignments listed are derived from those radio services that use radiolocation. The frequency allocations listed include those for both primary and secondary service. The listings of frequency assignments are included for reference only and are subject to change.
2. The specific frequency ranges for radiolocation are listed in the National Telecommunications and Information Administration (NTIA) Manual of Regulations & Procedures for Federal Radio Frequency Management, Chapter 4. The NTIA manual (known as the Redbook) can be downloaded from *http://www.ntia.doc.gov/osmhome/redbook/redbook.html*.
3. There are no official ITU radiolocation bands at HF. So-called HF radars might operate anywhere from just above the broadcast band (1.605 MHz) to 40 MHz or higher.
4. Frequencies from 216-450 MHz were sometimes called P-band.
5. The official ITU designation for the ultra high frequency band extends to 3000 MHz. In radar practice, however, the upper limit is usually taken as 1000 MHz, L- and S-bands being used to describe the higher UHF region.
6. Sometimes included in L-band.
7. Designated for aeronautical navigation, this band is reserved (with few exceptions) exclusively for airborne radar altimeters.
8. The frequency range of 24.65-24.75 GHz includes satellite radiolocation (Earth to space only).
9. The designation mm is derived from millimeter wave radar and is also used to refer to V- and W-bands, and part of Ka-band, when general information relating to the region above 30 GHz is to be conveyed.
10. No ITU allocations are listed for frequencies above 275 GHz.

Radio Electromagnetic Spectrum Frequency Bands



ELF = Extremely Low Frequency
VF = Voice Frequency
VLF = Very Low Frequency
LF = Low Frequency
MF = Medium Frequency
HF = High Frequency
VHF = Very High Frequency
UHF = Ultra High Frequency
SHF = Super High Frequency
EHF = Extremely High Frequency

Class of Station Designators	
Terrestrial Stations	
Symbol	**Description**
AL	Aeronautical radionavigation land station (transmitting station in the aeronautical radionavigation service)
AM	Aeronautical radionavigation mobile station (receiving station in the aeronautical radionavigation service)
AT	Amateur station
BC	Broadcasting station, sound
BT	Broadcasting station, television
FA	Aeronautical station (transmitting station in the aeronautical mobile service)
FB	Base station (transmitting station in the land mobile service)
FC	Coast station (transmitting station in the maritime mobile service)
FD	Aeronautical station in the aeronautical mobile (R) service
FG	Aeronautical station in the aeronautical mobile (OR) service
FL	Land station (transmitting station in the mobile service)
FP	Port station (transmitting station in the maritime mobile service, for port operation)
FX	Fixed station (transmitting station in the fixed service)
LR	Radiolocation land station (transmitting station in the radiolocation service)
MA	Aircraft station (receiving station in the aeronautical mobile, aeronautical mobile (R) or aeronautical mobile (OR service)
ML	Land mobile station (receiving station in the land mobile service)
MO	Mobile station (receiving station in the mobile service)
MR	Radiolocation mobile station (receiving station in the radiolocation service)
MS	Ship station (receiving station in the maritime mobile service)
NL	Maritime radionavigation land station (transmitting station in the maritime radionavigation service)
NR	Radionavigation mobile station (receiving station in the radionavigation service)
OD	Oceanographic data station (receiving station in the maritime mobile service for oceanographic purposes)
OE	Oceanographic data interrogation station (transmitting station in the maritime mobile service for oceanographic purposes)
PL	Combination of two or more classes of station (limited to collective entries made under the terms of RR20.5)
RM	Maritime radionavigation mobile station (receiving station in the maritime radionavigation service)
RN	Radionavigation land station (transmitting station in the radionavigation service)
SA	Meteorological aids mobile station (mobile station in the meteorological aids service)
SM	Meteorological aids base station (land station in the meteorological aids service)
SS	Standard frequency and time signal station (transmitting station in the standard frequency and time signal service)
Space Stations	
E1	Space research (active sensor) space station
E2	Space research (passive sensor) space station
E3	Space station in the Earth exploration-satellite service (active sensor)
E4	Space station in the Earth exploration-satellite (passive sensor)

E5	Space station in the aeronautical mobile-satellite (R) service
E6	Space station in the aeronautical mobile-satellite (OR) service
EA	Space station in the amateur-satellite service
EB	Space station in the broadcasting-satellite service (sound broadcasting)
EC	Space station in the fixed-satellite service
ED	Space telecommand space station
EE	Space station in the standard frequency-satellite service
EF	Space station in the radiodetermination-satellite service
EG	Space station in the maritime mobile-satellite service
EH	Space research space station
EI	Space station in the mobile-satellite service
EJ	Space station in the aeronautical mobile-satellite service
EK	Space tracking space station
EM	Space station in the meteorological-satellite service
EN	Space station in the radionavigation-satellite service
EO	Space station in the aeronautical radionavigation-satellite service
EQ	Space station in the maritime radionavigation-satellite service
ER	Space telemetering space station
ES	Station in the inter-satellite service
ET	Space station in the space operation service
EU	Space station in the land mobile-satellite service
EV	Space station in the broadcasting-satellite service (television)
EW	Space station in the earth exploration-satellite service
Earth Stations	
RA	Radio astronomy station
T5	Aircraft earth station in the aeronautical mobile-satellite (R) service
T6	Aircraft earth station in the aeronautical mobile-satellite (OR) service
TA	Earth station in the amateur-satellite service
TB	Aeronautical earth station
TC	Earth station in the fixed-satellite service
TD	Space telecommand earth station
TE	Satellite EPIRB in the mobile-satellite service
TF	Fixed earth station in the radiodetermination-satellite service
TG	Ship earth station
TH	Earth station in the space research service
TI	Coast earth station
TJ	Aircraft earth station
TK	Space tracking earth station
TL	Mobile earth station in the radiodetermination-satellite service
TM	Earth station in the meteorological-satellite service
TN	Fixed earth station in the radionavigation-satellite service

TO	Mobile earth station in the aeronautical radionavigation-satellite service
TQ	Mobile earth station in the maritime radionavigation-satellite service
TR	Space telemetering earth station
TT	Earth station in the space operation service
TU	Land mobile earth station
TW	Earth station in the earth exploration-satellite service
TX	Fixed earth station in the maritime radionavigation-satellite service
TY	Base earth station
TZ	Fixed earth station in the aeronautical radionavigation-satellite service
UA	Mobile earth station
UB	Earth station in the broadcasting-satellite service (sound broadcasting)
UD	Space telecommand mobile earth station
UE	Earth station in the standard frequency-satellite service
UF	Earth station in motion communicating with a geostationary satellite orbit station in the fixed-satellite service in the frequency bands referred to under No. **5.527A**
UG	Earth station on board unmanned aircraft communicating with a space station of a geostationary-satellite network in the fixed-satellite service for UAS CNPC links in accordance with resolves 1 of RES-155
UH	Mobile earth station in the space research service
UK	Space tracking mobile earth station
UM	Mobile earth station in the meteorological-satellite service
UN	Mobile earth station in the radionavigation-satellite service
UR	Space telemetering mobile earth station
UT	Mobile earth station in the space operation service
UV	Earth station in the broadcasting-satellite service (television)
UW	Mobile earth station in the earth exploration-satellite service
UY	Earth station in the time signal-satellite service
VA	Land earth station

Sources:

www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10636.html
https://www.itu.int/en/ITU-R/space/Preface/preface_e.pdf
https://www.itu.int/en/ITU-R/terrestrial/brific/BRIFIC/Preface/PREFACE_EN.pdf

Nature of Service Designators

Symbol	Description
AS[1]	Stations using adaptive system
AX	Fixed station used for provision of services related to aircraft flight safety
CO	Station open to official correspondence exclusively
CP[2]	Station open to public correspondence
CR	Station open to limited correspondence
CV	Station open exclusively to correspondence of a private agency
FS	Land station established solely for the safety of life
HP[3]	Fixed station using high altitude platform
IM	IMT station in the mobile service
MX	Fixed station used for transmission of meteorological information
OT	Station open exclusively to operational traffic of the service concerned
PX	Fixed station used for press transmission
RC	Non-directional radiobeacon
RD	Directional radiobeacon
RG	Radio direction-finding station
RT	Revolving radiobeacon
SP	Station for passive use in the meteorological aids service
ST[4]	Fixed station using tropospheric scatter

1 Adaptive System: A radiocommunication system which varies its radio characteristics according to channel quality. (ref. the ITU's Radio Regulations No. 1.109A)

2 Public correspondence: Any telecommunication which the offices and stations must, by reason of their being at the disposal of the public, accept for transmission (CS). (ref. the ITU's Radio Regulations No. 1.116)

3 High altitude platform station: A station located on an object at an altitude of 20-50 km and at a specified, nominal, fixed point relative to the Earth. (ref. the ITU's Radio Regulations No. 1.66A)

4 Tropospheric scatter: The propagation of radio waves by scattering as a result of irregularities or discontinuities in the physical properties of the troposphere. (ref. the ITU's Radio Regulations No. 1.164)

Sources:
www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10636.html
https://www.itu.int/en/ITU-R/terrestrial/brific/BRIFIC/Preface/PREFACE_EN.pdf

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