SPECTRUMPLAN

Suruhanjaya Komunikasi dan Multimedia Malaysia
Malaysian Communications and Multimedia Commission

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INTRODUCTION

The Malaysian Government recognises the pervasive role of radiocommunications and information technology in the economic and social development of the country. Consequently, communications and multimedia have been positioned as strategic industries for overall development.

To drive this initiative, the Malaysian Communications and Multimedia Commission ('the Commission') was established in 1998 to regulate the communications and multimedia industries in Malaysia. The powers, which have been given to the Commission to enable it to carry out its tasks, are set out in both the Communications and Multimedia Act 1998 ('the Act') as well as in the Malaysian Communications and Multimedia Commission Act 1998, the legislations that provided for its formation.

The Commission has the overall responsibility for managing radio frequency spectrum under the Act. Among other responsibilities of the Commission include the task of developing a spectrum plan in respect of all or any part of the spectrum. The Act, as the main legislation which regulates the communications and multimedia industries, also sets out the national policy objectives for the development of the said industries.

In line with the powers accorded to it, the Commission is pleased to present herein the latest edition of the Spectrum Plan ('this Spectrum Plan'), developed in full compliance to the provisions of the Act.

This Spectrum Plan will provide a guide on how the spectrum is currently used in Malaysia and how the Commission plans to develop it further in the near future. The technological convergence of telecommunications, broadcasting and information technology has meant that management of the spectrum has become an even more complex issue. The challenges before the Commission are to manage this finite resource in the best manner possible and to ensure that it is utilised efficiently to fulfil the society's needs and the demands of the technology.

TERM AND REVOCATION

This Spectrum Plan is developed pursuant to section 172(1) of the Act and is issued on September 2011.

Term and Condition

This Spectrum Plan is effective from the date of its issuance and continues for such time until revised, varied or revoked by the Commission.

Reviews and Revisions of this Spectrum Plan

The Commission may revise, vary or revoke this Spectrum Plan or any part therein at any time.

The Commission will continuously monitor and review this Spectrum Plan in view of the rapid changes in the communications and multimedia industry. In any event, this Spectrum Plan will be reviewed in its entirety on a scheduled basis as provided in the Act.

The Commission takes note that, as far as reasonably possible, any changes to this Spectrum Plan should be made in a timely manner to avoid disrupting the activities of the industry participants and end-users.

All revision and variation shall be by way of notice in writing to be known as "Spectrum Plan Amendment Notice". All Spectrum Plan Amendment Notices shall comprise a sequential number and the year of issue as illustrated below:

Illustration:

"Spectrum Plan Amendment Notice No. 1 of 2011"

All Spectrum Plan Amendment Notices shall be published by the Commission. Upon publication or unless otherwise stated in the Spectrum Plan Amendment Notice, all Spectrum Plan Amendment Notices shall come into effect on the date of publication or at a specified date. Publication may be done electronically.

The Commission shall maintain a register of all Spectrum Plan Amendment Notices issued.

Where the Commission has revised, varies or amends any part of this Spectrum Plan, such revision, variation or amendment made shall supersede the existing provision thereof.

Revocation

The Spectrum Plan issued on 15 November 2006 is hereby revoked.

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CHAPTER 1

GENERAL INFORMATION

CHAPTER 1: GENERAL INFORMATION

PART A – GENERAL

1.1 Background

The International Telecommunications Union ('ITU'), a specialised agency under United Nations, is responsible for the harmonisation on the global use of the spectrum. The ITU Radio Regulations ('Radio Regulations') is an international treaty that contains the world's frequency allocation table ('ITU Allocation Table'). This table is important as it forms the framework for international, regional and national spectrum planning, allocations and assignments.

One of the key features of the ITU Allocation Table is that it sets out the frequency bands which have been allocated to services and divides the world into three (3) distinctive regions. Figure 1 illustrates the aforesaid division whilst the write-up beneath it lists out the countries that make up the relevant regions. Malaysia falls within the perimeter of Region 3 in the ITU Allocation Table.

Malaysia is a signatory to the Constitution and Convention of the ITU and the Radio Regulations which are revised at the ITU World Radiocommunications Conference ('WRC'), held every three or four years. The structure of Malaysia's Spectrum Plan is based on the ITU Allocation Table contained in the Radio Regulations. For easy reference, the ITU Allocation Table has been reproduced in this Spectrum Plan together with the relevant accompanying footnotes.

This Spectrum Plan divides the spectrum in Malaysia into a number of frequency bands and specifies the general purposes for which the bands may be used. This process is referred to as the allocation of frequency bands to the identified radiocommunication services.

The Malaysian allocations listed herein sets out the Malaysian Table of Frequency Allocations ('Malaysian Table'). Accompanying Malaysian footnotes (denoted as MLA) and international footnotes have been included, where necessary, to assist in the understanding of matters which are relevant to Region 3 and Malaysian specific conditions.

The Malaysian Table allocates the spectrum between 9 kHz and 420 THz. It should be noted that although the Malaysian Table is generally aligned with the Article 5 of the Radio Regulation for Region 3, some differences do exist. This is because, where necessary, variations have been incorporated to reflect Malaysian domestic requirements. However,

any variation undertaken is subject to the conditions contained in the Radio Regulations that the associated radio installations do not cause harmful interference to the radio services or communications in the jurisdiction of the rest of the ITU member states that operate in accordance with the provisions of the Radio Regulations.

The Malaysian variations are also subject to any constraints imposed by Malaysian footnotes in Part D, Chapter 2 of this Spectrum Plan.

Information contained in the Malaysian Table and in the accompanying information or footnotes may be revised from time to time. Such revisions, more often than not, would be due to changes in the ITU Allocation Table.

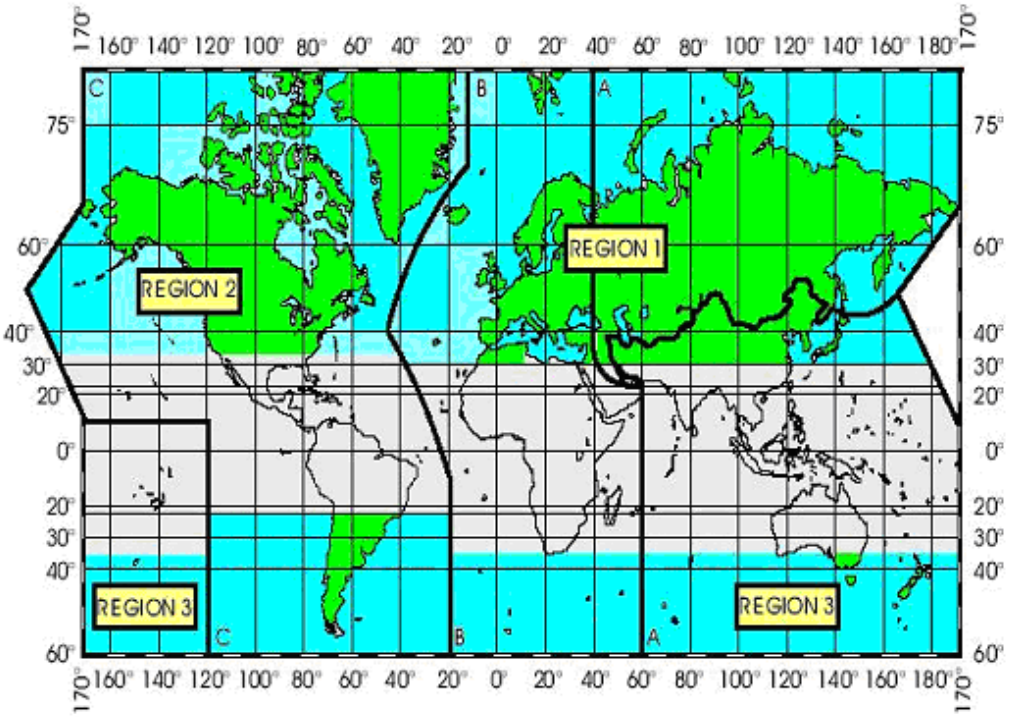
Annexes are provided in this Spectrum Plan to assist and enhance the overall clarity and understanding as well as additional information which the reader may find it as useful quick reference.

This Spectrum Plan is updated to incorporate the latest version of Radio Regulations (2008 edition).

PART B – GEOGRAPHIC REGIONS

1.2 Explanation of the Regional Chart

The chart below illustrates the division of the world into three (3) regions which is used in the provision of frequency worldwide allocation.



(source: Radio Regulations 2008)

Figure 1.1: Map identifying Region 1, Region 2, Region 3 and the Tropical Zone (shaded area), as defined in the Radio Regulations

Region 1 includes the area limited on the east by line A and on the west by line B, excluding any of the territory of the Islamic Republic of Iran, which lies between these limits. It also includes the whole of the territory of Armenia, Azerbaijan, Georgia, Kazakhstan, Mongolia, Uzbekistan, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russian Federation which lies between lines A and C.

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

Region 3 includes the area limited on the east by line C and on the west by line A, except any of the territory of Armenia, Azerbaijan, Georgia, Kazakhstan, Mongolia, Uzbekistan, Kyrgyzstan, the Russian Federation, 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.

A more complete description of where the abovementioned lines A, B and C would appear on a map can be obtained by referring to provisions No. 5.6 to 5.9 of the Radio Regulations (Edition 2008).

A sub-Region is an area consisting of two or more countries in the same Region.

The Tropical zone, as defined in provisions No. 5.16 to 5.21 of the Radio Regulations, is represented by the shaded part of the chart, and consists of:

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

(b) the whole of that area in Region 1 and 3 contained between the parallel 30^0 North and 35^0 South with the addition of:

i. the area contained between the meridians 40^0 East and 80^0 East of Greenwich and the parallels 30^0 North and 40^0 North; and

ii. that part of Libyan Arab Jamahiriya north of parallel 30^0 North.

In Region 2, the Tropical Zone may be extended to parallel 33^0 North, subject to special agreements between the countries concerned in that Region (refer to Article 6 of the Radio Regulation Edition 2008).

PART C – THE TABLE OF FREQUENCY ALLOCATIONS

1.3 Identification of Frequency Bands

In interpreting the Table, which is set out in Chapter 2 of this Spectrum Plan, the following should be noted:

(a) The Table covers the spectrum from 9 kHz to 420 THz, which has been divided into frequency bands within which certain designated radiocommunication services may operate;

(b) Frequency bands are shown in increasing order of frequency from 9 kHz to 420 THz;

(c) The Table on the left hand side of the page indicates a set of frequency bands that reflects the provisions of the Radio Regulations in respect to allocation of frequency bands to radiocommunication services worldwide; and

(d) The Table on the right hand side of the page sets out those same frequency bands describing the Malaysian allocation of frequency bands to the radiocommunication services.

1.4 Primary and Secondary Services

Where the Table indicates that a band is allocated to more than one service, either on a worldwide or regional basis, such services are listed in the following order:

(a) Services printed in upper case letters only (example: FIXED) are referred to as 'primary' services; and

(b) Services printed in normal characters or lower case letters (save and except for the first letter which will be capitalised) (example: Mobile) are referred as 'secondary' services.

Some bands may have more than one primary service, as well as one or more secondary services. The words 'primary' and 'secondary' used in Malaysian Table are for the purposes of clarity. Spectrum users are obliged to comply with the usage of the spectrum in line with the following principles:

(a) the operations of primary services are given priority as compared to the operations of secondary services;

(b) operations of secondary services shall ensure that no interference is caused to any of the primary services;

(c) operations of secondary services cannot claim protection from any of the primary services to which frequencies have been assigned or may be assigned to at a later date;

(d) operations of secondary services may, however, claim protection from interference caused by other secondary services; and

(e) where there are more than one primary service in the same frequency band, service providers shall abide to a coordination process as mentioned in the relevant administrative documents and guidelines issued by the Commission from time to time.

1.5 Additional Allocations

Where a band is shown in a footnote of the Table as ‘also allocated’ to one or more services in an area or country within a Region (e.g. Malaysia), this is in addition to the allocation within the said region as shown in the Table.

If the footnote does not include any restriction on the services concerned (for example, allocation only on a secondary service basis), apart from the restriction to operate only in a particular area or country, stations of those services have equal status with stations of other primary services to which the band is allocated in the Table, but only within that area or country.

1.6 Alternative Allocations

Where a band is shown in a footnote of the Table as ‘allocated’ to one or more services in an area or country within a Region (e.g. Malaysia), this is an alternative allocation that replaces, in that area or country, the allocation shown in the Table.

If the footnote does not include any restriction on the services concerned (for example, allocation only on a secondary service basis), apart from the restriction to operate only in a particular area or country, stations of those services have equal status with stations of other primary services to which the band is allocated in the Table, but only within that area or country.

1.7 Headings and Footnotes

The heading of the ITU Allocation Table includes three columns, each of which corresponds to one of the ITU Regions. Where an allocation occupies the entire width of the ITU Allocation Table or of only one or two of the three columns, this indicates a worldwide allocation or a regional allocation, respectively.

The frequency band referred to in each allocation is indicated in the left-hand top corner of the part of the Table concerned.

The footnote references, which appear in the Table below the allocated service or services, apply to the band, which may have multiple services.

The footnote references, which appear to the right of the name of a service, are applicable only to that particular service, which may operate in multiple bands.

PART D – SPECTRUM MANAGEMENT IN MALAYSIA

1.8 Spectrum Plan

The Act empowers the Commission to develop a spectrum plan and provides that use of spectrum shall comply with this plan which will define how spectrum will be used and the methodology for assignment and reassignment of the spectrum.

The spectrum plan sets out the allocation of frequency bands to the various types of services. It is therefore the first document that must be referred to in the planning and implementation of communications services in Malaysia. However, other documents, inter alia, the standard radio system plans, may be prepared by the Commission to supplement the conditions by which these services are deployed in order to promote efficient spectrum management in the Malaysian communications environment.

1.9 Standard Radio System Plans

Standard Radio System Plans ('SRSP') may be prepared by the Commission to provide information on the minimum technical and regulatory requirements for the efficient use of allocated frequency bands. The main use of SRSP is to provide guidance in the design and specification of radio systems and equipment and in the evaluation of technical applications for new radio facilities or modification to radio systems in a specific spectrum band.

It is intended that the SRSP will provide guidance on the equipment characteristics and minimum specifications, frequency channelling, requirement for usage of the spectrum, principles of assignment, implementation plan and coordination initiatives required in order to ensure efficient and interference-free deployment of radio systems for a particular fixed service in a specific frequency band as allocated in the Spectrum Plan.

The assignment of spectrum by the Commission will be based on the channelling plan in the SRSPs, if issued by the Commission. In the event the Commission issues the SRSP for a specific spectrum band, all spectrum users shall comply with the same.

Notwithstanding the above, in the event no SRSP available for certain spectrum band, the assignment of the spectrum or other technical requirements necessary for the assignment of the spectrum shall be based on the administrative notification issued by the Commission.

1.10 Government Usage

Any government agencies who intend to use the spectrum shall apply for an assignment from the Commission. The process as stated in the Spectrum Regulations shall apply.

1.11 Reservation of spectrum

The Commission, at its own discretion may allow certain spectrum to be reserved. The procedure for any reservation of spectrum shall be as follows:

a. The Commission shall issue a public notice on the Commission's website regarding the spectrum available for any application for reservation of spectrum;

b. After a public notice has been issued by the Commission, any licensees having the appropriate licence may apply for the reservation of spectrum;

c. The reservation of spectrum by the Commission shall be on first come first served basis and subject to such terms and conditions as may be imposed by the Commission;

d. If the application for reservation is approved by the Commission, the Commission shall publish the names of the licensees where the spectrum has been reserved in the Commission's website; and

e. The period of public notice and the basis of approving the reservation by the Commission shall be at the Commission's discretion.

1.12 Compulsory Acquisition

Compulsory acquisition is the final alternative of spectrum planning and management, which allows the Commission to recover spectrum from its existing users, for the purpose of reassignments.

Section 178 of the Act states that the Minister may direct the Commission to develop procedures for the compulsory acquisition by the Commission of assignments in a determined spectrum.

The Commission may recommend to the Minister that assignments in a determined spectrum be compulsorily acquired by the Commission in accordance with a reassignment of spectrum consistent with the spectrum plan. The Minister may, after taking into account the recommendation of the Commission, direct that assignments in a determined spectrum be compulsorily acquired by the Commission.

The Commission may pay a reasonable amount of compensation to the holder of an assignment whose assignment has been acquired prior to its expiry, by a direction made under this section but no compensation may be payable if an assignment is not renewed.

CHAPTER 2

MALAYSIAN TABLE OF FREQUENCY ALLOCATION

CHAPTER 2: MALAYSIAN TABLE OF FREQUENCY ALLOCATIONS

PART A – PRELIMINARY INFORMATION

2.1 Definitions

In this Spectrum Plan, the terms and phrases herein shall have the meanings set out in the following documents, unless the context requires otherwise:-

(a) the Act;

(b) the Communications and Multimedia (Spectrum) Regulations 2000 ('Spectrum Regulations'); and

(c) the Radio Regulation.

In the event of any discrepancy and inconsistency between the definitions given in the Act, the Spectrum Regulations and the Radio Regulation, such discrepancies and inconsistencies shall be resolved in the order of priorities set out in paragraph above.

The order of priorities set out above is meant to resolve any discrepancies and inconsistencies on the definitions of terms and phrases used in this Spectrum Plan only and it shall not in any way affects the definitions and the applications of such terms and phrases set out for the exact purposes of such documents.

2.2 Division of Spectrum Plan Into Frequency Bands

This Spectrum Plan is divided into frequency bands for both the ITU Allocation Table and the Malaysian Table.

2.3 How Reference is made in the Table to Services

Words in the Malaysian Table that are in upper case refer to primary service of the kind described by those words.

Words in the Malaysian Table that are in lower case refer to a secondary service of the kind described by those words.

2.4 Condition that Applies to Certain Services

If;

(a) a frequency band is used for the purposes of a service in accordance with this Spectrum Plan; and

(b) the Radio Regulations do not provide for the frequency band to be used by that service;

then the requirements for the coordination and notification of services by administrations apply to that use of the frequency band under this Spectrum Plan.

2.5 Use of Frequency Bands – General

Unless the contrary intention appears in clause 2.9, a frequency band or part of a frequency band specified in the Malaysian Table may be used for the purposes of one or more of the services that are specified in the Table in respect to the frequency band, if:

(a) the service is permitted by a frequency band plan that is applicable to the frequency band or part of a frequency band; or

(b) the frequency band or part of a frequency band is not covered by a frequency band plan.

If a reference to a service in the Malaysian Table is immediately followed by a reference in parentheses to a particular mode of operation of the service, the reference is taken to be a reference to the operation of the service only in that mode.

2.6 Use of Frequency Bands – Spectrum, Apparatus and Class Assignment

A frequency band may be used for a service that:

(a) is operating in accordance with spectrum, apparatus, class assignment and exemption order; and

(b) is specified in the Malaysian Table in respect of the frequency bands.

2.7 Interference – Primary and Secondary Services

This section applies to a secondary service which uses a frequency band.

The secondary service shall not cause interference to a primary service using the frequency band, including a primary service that starts to use the frequency band after the secondary service starts.

The secondary service shall not cause interference to any aircraft, satellites or vessels that are operating in accordance with the Radio Regulations.

The secondary service cannot claim protection from interference caused by a primary service using the frequency band, including a primary service that starts to use the frequency band after the secondary service starts.

The secondary service may claim protection from interference caused by another secondary service which:

(a) uses the frequency band; and

(b) was issued with an assignment after the first-mentioned secondary service.

2.8 Interference Resolution

Any station that causes harmful interference to any other stations, the first mentioned station shall cease transmission immediately;

If any station causes major interference, the Commission may direct the owner or user of the apparatus to take, at his own expenses such measures as necessary to eliminate or reduce the interference to the satisfaction of the Commission.

2.9 Interpretation of the Table

For the purpose of this Spectrum Plan, a frequency band is identified by the range of numbers that:

(a) is specified in a cell in the Malaysian Table; and

(b) immediately precedes the first reference in the cell to a service.

The range of numbers that identifies a frequency band is taken:

(a) to be expressed in kilohertz ('kHz'), megahertz ('MHz'), gigahertz ('GHz') or terahertz ('THz'),as the case requires; and

(b) to include the higher, but not lower, number.

If reference to the service in a cell in the Malaysian Table is followed immediately by one or more than one alphanumeric symbol that relates to that service, the operation of that service is subject to the conditions or restrictions specified. A symbol preceded by 'MLA' refers to the applicable Malaysian condition is defined in the Malaysian footnotes.

PART B – TABLE OF FREQUENCY ALLOCATION

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
Below 9	(Not allocated) 5.53 5.54			(Not allocated) 5.53 5.54 MLA1 MLA2 MLA3 MLA93 MLA94
9–14	RADIONAVIGATION			RADIONAVIGATION MLA3 MLA93 MLA94
14-19.95	FIXED MARITIME MOBILE 5.57 5.55 5.56			FIXED MARITIME MOBILE 5.57 5.56 MLA3 MLA4 MLA93 MLA94
19.95-20.05	STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)			STANDARD FREQUENCY AND TIME SIGNAL (20kHz) MLA3 MLA93 MLA94
20.05-70	FIXED MARITIME MOBILE 5.57 5.56 5.58			FIXED MARITIME MOBILE 5.57 5.56 MLA3 MLA4 MLA14 MLA93 MLA94
70-72	RADIONAVIGATION 5.60	70-90 FIXED MARITIME MOBILE 5.57 MARITIME RADIONAVIGATION 5.60 Radiolocation 5.61	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 MLA3 MLA14 MLA93 MLA94
72-84	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56		FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 MLA3 MLA4 MLA14 MLA93 MLA94
84-86	RADIONAVIGATION 5.60		RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 MLA3 MLA14 MLA93 MLA94
86-90	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56		FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 MLA3 MLA4 MLA14 MLA93 MLA94

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
90-110	RADIONAVIGATION 5.62 Fixed 5.64			RADIONAVIGATION 5.62 Fixed 5.64 MLA3 MLA93 MLA94
110-112	FIXED MARITIME MOBILE RADIONAVIGATION 5.64	110-130 FIXED MARITIME MOBILE MARITIME RADIONAVIGATION 5.60 Radiolocation	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64 MLA3 MLA4 MLA14 MLA93 MLA94
112-115	RADIONAVIGATION 5.60		RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.65	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 MLA3 MLA14 MLA93 MLA94
115-117.6	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.66			
117.6-126	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64		FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64 MLA3 MLA4 MLA14 MLA93 MLA94
126-129	RADIONAVIGATION 5.60		RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.65	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 MLA3 MLA14 MLA93 MLA94
129-130	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	5.61 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64 MLA3 MLA4 MLA14 MLA93 MLA94
130-135.7	FIXED MARITIME MOBILE 5.64 5.67	FIXED MARITIME MOBILE 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.64 MLA3 MLA5 MLA14 MLA93 MLA94

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
135.7-137.8	FIXED MARITIME MOBILE Amateur 5.67A 5.64 5.67 5.67B	FIXED MARITIME MOBILE Amateur 5.67A 5.64	FIXED MARITIME MOBILE RADIONAVIGATION Amateur 5.67A 5.64 5.67B	FIXED MARITIME MOBILE RADIONAVIGATION Amateur 5.67A 5.64 5.67B MLA3 MLA5 MLA14 MLA93 MLA94
137.8-148.5	FIXED MARITIME MOBILE 5.64 5.67	FIXED MARITIME MOBILE 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.64 MLA3 MLA5 MLA14 MLA93 MLA94
148.5-160	148.5-255 BROADCASTING	FIXED MARITIME MOBILE 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.64	FIXED MARITIME MOBILE RADIONAVIGATION 5.64 MLA3 MLA5 MLA14 MLA93 MLA94
160-190		FIXED	FIXED Aeronautical radionavigation	FIXED Aeronautical radionavigation MLA3 MLA6 MLA93 MLA94
190-200		AERONAUTICAL RADIONAVIGATION		AERONAUTICAL RADIONAVIGATION MLA3 **MLA93 MLA94**
200-255	5.68 5.69 5.70	200-275 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	200-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	200-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile
255-275	255- 283.5 BROADCASTING AERONAUTICAL RADIONAVIGATION 5.70 5.71			
275-283.5		275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)		
283.5-285	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 5.72 5.74			MLA3 MLA6 MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
285-315	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 5.72 5.74	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73		AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 MLA3 MLA7 **MLA93**
315-325	AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73 5.72 5.75	MARITIME RADIONAVIGATION (radiobeacons) 5.73 Aeronautical radionavigation	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 MLA7 MLA93
325-335	AERONAUTICAL RADIONAVIGATION 5.72	AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)	AERONAUTICAL RADIONAVIGATION Aeronautical mobile	AERONAUTICAL RADIONAVIGATION Aeronautical mobile MLA8 MLA93
335-405	AERONAUTICAL RADIONAVIGATION 5.72	AERONAUTICAL RADIONAVIGATION Aeronautical mobile	AERONAUTICAL RADIONAVIGATION Aeronautical mobile	AERONAUTICAL RADIONAVIGATION Aeronautical mobile MLA8 MLA93
405-415	RADIONAVIGATION 5.76 5.72	RADIONAVIGATION 5.76 Aeronautical mobile		RADIONAVIGATION 5.76 Aeronautical mobile MLA8 MLA93
415-435	MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION 5.72	415-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.80		415-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation
435-495	MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.72 5.82	5.77 5.78 5.82		5.82 MLA8 **MLA93**
495-505	MOBILE 5.82A 5.82B			MOBILE 5.82A 5.82B MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
505-510	505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	MARITIME MOBILE 5.79	505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Land mobile	505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Land mobile
510-525		MOBILE 5.79A 5.84 AERONAUTICAL RADIONAVIGATION		
525-526.5	5.72	525-535 BROADCASTING 5.86 AERONAUTICAL RADIONAVIGATION		MLA10 MLA93
526.5-535	526.5-1 606.5 BROADCASTING		BROADCASTING Mobile 5.88	BROADCASTING Mobile MLA3 MLA11 MLA93
535-1 605		BROADCASTING	535-1 606.5 BROADCASTING	535-1 606.5 BROADCASTING
1 605-1 606.5	5.87 5.87A	BROADCASTING 5.89 5.90		MLA3 MLA11 MLA93
1 606.5-1 625	FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	BROADCASTING 5.89 5.90	1 606.5-1 800 FIXED MOBILE RADIOLOCATION RADIONAVIGATION	1 606.5-1 800 FIXED MOBILE RADIOLOCATION RADIONAVIGATION
1 625-1 635	RADIOLOCATION 5.93	1 625-1 705 FIXED MOBILE BROADCASTING 5.89 Radiolocation 5.90		
1 635-1 705	1 635-1 800 FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92 5.96			
1 705-1 800	FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92 5.96	FIXED MOBILE RADIOLOCATION AERONAUTICAL RADIONAVIGATION	5.91	MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
1 800- 1 810	RADIOLOCATION 5.93	1 800-1 850 AMATEUR	1 800-2 000 AMATEUR FIXED MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation	1 800-2 000 AMATEUR MLA88 FIXED MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation
1 810- 1 850	AMATEUR 5.98 5.99 5.100 5.101			
1 850- 2 000	FIXED MOBILE except aeronautical mobile 5.92 5.96 5.103	AMATEUR FIXED MOBILE except aeronautical mobile RADIOLOCATION RADIONAVIGATION 5.102	5.97	5.97 MLA14 MLA93
2 000- 2 025	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	FIXED MOBILE		FIXED MOBILE MLA14 MLA93
2 025- 2 045	FIXED MOBILE except aeronautical mobile (R) Meteorological aids 5.104 5.92 5.103	2 025-2 065 FIXED MOBILE		2 020-2 065 FIXED MOBILE
2 045- 2 065	2 045-2 160 FIXED MARITIME MOBILE LAND MOBILE 5.92			MLA14 MLA93
2 065- 2 107		MARITIME MOBILE 5.105 5.106		MARITIME MOBILE 5.106 MLA14 MLA93
2 107- 2 160		2 107-2 170 FIXED MOBILE		2 107-2 170 FIXED MOBILE MLA14 MLA93
2 160- 2 170	RADIOLOCATION 5.93 5.107			
2 170- 2 173.5	MARITIME MOBILE			MARITIME MOBILE MLA14 MLA93
2 173.5- 2 190.5	MOBILE (distress and calling) 5.108 5.109 5.110 5.111			MOBILE (distress and calling) 5.108 5.109 5.110 5.111 MLA14 MLA93
2 190.5- 2 194	MARITIME MOBILE			MARITIME MOBILE MLA4 MLA14 MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
2 194- 2 300	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.112	FIXED MOBILE 5.112		FIXED MOBILE MLA14 MLA93
2 300- 2 495	2300-2498 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113	FIXED MOBILE BROADCASTING 5.113		FIXED MOBILE BROADCASTING 5.113 MLA3 MLA13 MLA14 MLA93
2 495- 2 498	5.103	2 495-2 501 STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)		2 495-2 501 STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz) MLA14 MLA93
2 498- 2 501	STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)			
2 501- 2 502	STANDARD FREQUENCY AND TIME SIGNAL Space research			STANDARD FREQUENCY AND TIME SIGNAL Space research MLA14 **MLA93**
2 502- 2 505	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.114	STANDARD FREQUENCY AND TIME SIGNAL		STANDARD FREQUENCY AND TIME SIGNAL MLA14 **MLA93**
2 505- 2 625	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.114	2 505-2 850 FIXED MOBILE		2 505-2 850 FIXED MOBILE
2 625- 2 650	MARITIME MOBILE MARITIME RADIONAVIGATION 5.92			
2 650- 2 850	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103			MLA14 MLA93
2 850- 3 025	AERONAUTICAL MOBILE (R) 5.111 5.115			AERONAUTICAL MOBILE (R) 5.111 5.115 MLA14 MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
3 025- 3 155	AERONAUTICAL MOBILE (OR)			AERONAUTICAL MOBILE (OR) MLA14 MLA15 MLA83 MLA93
3 155- 3 200	FIXED MOBILE except aeronautical mobile (R) 5.116 5.117			FIXED MOBILE except aeronautical mobile(R) 5.116 MLA3 MLA93
3 200- 3 230	FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.116			FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.116 MLA3 MLA13 MLA93
3 230- 3 400	FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116 5.118			FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116 MLA3 MLA13 MLA83 MLA93
3 400- 3 500	AERONAUTICAL MOBILE (R)			AERONAUTICAL MOBILE (R) MLA93
3 500- 3 750	3 500-3 800 AMATEUR FIXED MOBILE except aeronautical mobile 5.92	AMATEUR 5.119 3 750-4 000 AMATEUR FIXED MOBILE except aeronautical mobile (R)	3 500-3 900 AMATEUR FIXED MOBILE	3 500-3 900 AMATEUR MLA88 FIXED MOBILE MLA83 MLA93
3 750- 3 800				
3 800- 3 900	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE			
3 900- 3 950	AERONAUTICAL MOBILE (OR) 5.123		AERONAUTICAL MOBILE BROADCASTING	AERONAUTICAL MOBILE BROADCASTING MLA3 MLA13 MLA83 MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
3 950- 4 000	FIXED BROADCASTING	5.122 5.125	FIXED BROADCASTING 5.126	FIXED BROADCASTING 5.126 MLA3 MLA13 MLA83 MLA93
4 000- 4 063	FIXED MARITIME MOBILE 5.127 5.126			FIXED MARITIME MOBILE 5.127 5.126 MLA4 MLA93
4 063- 4 438	MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128			MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128 MLA93
4 438- 4 650	FIXED MOBILE except aeronautical mobile (R)		FIXED MOBILE except aeronautical mobile	FIXED MOBILE except aeronautical mobile MLA93
4 650- 4 700	AERONAUTICAL MOBILE (R)			AERONAUTICAL MOBILE (R) MLA93
4 700- 4 750	AERONAUTICAL MOBILE (OR)			AERONAUTICAL MOBILE (OR) MLA14 MLA15 MLA93
4 750- 4 850	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113	FIXED BROADCASTING 5.113 Land mobile	FIXED BROADCASTING 5.113 Land mobile MLA3 MLA13 MLA93
4 850- 4 995	FIXED LAND MOBILE BROADCASTING 5.113			FIXED LAND MOBILE BROADCASTING 5.113 MLA3 MLA13 MLA93
4 995- 5 003	STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)			STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz) MLA93
5 003- 5 005	STANDARD FREQUENCY AND TIME SIGNAL Space research			STANDARD FREQUENCY AND TIME SIGNAL Space research MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
5 005- 5 060	FIXED BROADCASTING 5.113			FIXED BROADCASTING 5.113 MLA3 MLA13 MLA93
5 060- 5 250	FIXED Mobile except aeronautical mobile 5.133			FIXED Mobile except aeronautical mobile MLA93
5 250- 5 450	FIXED MOBILE except aeronautical mobile			FIXED MOBILE except aeronautical mobile MLA93
5 450- 5 480	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	AERONAUTICAL MOBILE (R)	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE MLA93
5 480- 5 680	AERONAUTICAL MOBILE (R) 5.111 5.115			AERONAUTICAL MOBILE (R) 5.111 5.115 MLA93
5 680- 5 730	AERONAUTICAL MOBILE (OR) 5.111 5.115			AERONAUTICAL MOBILE (OR) 5.111 5.115 MLA14 MLA15 MLA93
5 730- 5 900	FIXED LAND MOBILE	FIXED MOBILE except aeronautical mobile (R)	FIXED Mobile except aeronautical mobile (R)	FIXED Mobile except aeronautical mobile (R) MLA93
5 900- 5 950	BROADCASTING 5.134 5.136			BROADCASTING 5.134 5.136 MLA3 MLA17 MLA93
5 950- 6 200	BROADCASTING			BROADCASTING MLA3 MLA17 MLA93
6 200- 6 525	MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137			MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137 MLA83 MLA93
6 525- 6 685	AERONAUTICAL MOBILE (R)			AERONAUTICAL MOBILE (R) MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
6 685- 6 765	AERONAUTICAL MOBILE (OR)			AERONAUTICAL MOBILE (OR) MLA14 MLA15 MLA93
6 765- 7 000	FIXED MOBILE except aeronautical mobile (R) 5 .138 5.138A 5.139			FIXED MOBILE except aeronautical mobile (R) 5.138 5.138A MLA3 MLA83 MLA93 MLA94
7 000- 7 100	AMATEUR AMATEUR – SATELLITE 5.140 5.141 5.141A			AMATEUR AMATEUR – SATELLITE MLA88 MLA93
7 100- 7 200	AMATEUR 5.141A 5.141B 5.141C 5.142			AMATEUR 5.141C 5.142 MLA93
7 200- 7 300	BROADCASTING	AMATEUR 5.142	BROADCASTING	BROADCASTING MLA3 MLA17 MLA93
7 300- 7 400	BROADCASTING 5.134 5.143 5.143A 5.143B 5.143C 5.143D			BROADCASTING 5.134 5.143 5.143A MLA3 MLA17 MLA93
7 400- 7 450	BROADCASTING 5.143B 5.143C	FIXED MOBILE except aeronautical mobile (R)	BROADCASTING 5.143A 5.143C	BROADCASTING 5.143A MLA3 MLA17 MLA93
7 450- 8 100	FIXED MOBILE except aeronautical mobile (R) 5.143E 5.144			FIXED MOBILE except aeronautical mobile (R) 5.143E 5.144 MLA93
8 100- 8 195	FIXED MARITIME MOBILE			FIXED MARITIME MOBILE MLA93
8 195- 8 815	MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111			MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111 MLA93
8 815- 8 965	AERONAUTICAL MOBILE (R)			AERONAUTICAL MOBILE (R) MLA93
8 965- 9 040	AERONAUTICAL MOBILE (OR)			AERONAUTICAL MOBILE (OR) MLA14 MLA15 MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
9 040- 9 400	FIXED			FIXED MLA93
9 400- 9 500	BROADCASTING 5.134 5.146			BROADCASTING 5.134 5.146 MLA3 MLA17 MLA93
9 500- 9 900	BROADCASTING 5.147			BROADCASTING 5.147 MLA3 MLA17 MLA93
9 900- 9 995	FIXED			FIXED MLA93
9 995- 10 003	STANDARD FREQUENCY AND TIME SIGNAL (10000 kHz) 5.111			STANDARD FREQUENCY AND TIME SIGNAL (10000 kHz) 5.111 MLA93
10 003- 10 005	STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111			STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111 MLA93
10 005- 10 100	AERONAUTICAL MOBILE (R) 5.111			AERONAUTICAL MOBILE (R) 5.111 MLA93
10 100- 10 150	FIXED Amateur			FIXED Amateur MLA88 MLA93
10 150- 11 175	FIXED Mobile except aeronautical mobile (R)			FIXED Mobile except aeronautical mobile (R) MLA3 MLA93
11 175- 11 275	AERONAUTICAL MOBILE (OR)			AERONAUTICAL MOBILE (OR) MLA14 MLA15 MLA83 MLA93
11 275- 11 400	AERONAUTICAL MOBILE (R)			AERONAUTICAL MOBILE (R) MLA93
11 400- 11 600	FIXED			FIXED MLA93
11 600- 11 650	BROADCASTING 5.134 5.146			BROADCASTING 5.134 5.146 MLA3 MLA17 MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
11 650- 12 050	BROADCASTING 5.147			BROADCASTING 5.147 MLA3 MLA17 MLA93
12 050- 12 100	BROADCASTING 5.134 5.146			BROADCASTING 5.134 5.146 MLA3 MLA17 MLA93
12 100- 12 230	FIXED			FIXED MLA93
12 230- 13 200	MARITIME MOBILE 5.109 5.110 5.132 5.145			MARITIME MOBILE 5.109 5.110 5.132 5.145 MLA93
13 200- 13 260	AERONAUTICAL MOBILE (OR)			AERONAUTICAL MOBILE (OR) MLA14 MLA15 MLA93
13 260- 13 360	AERONAUTICAL MOBILE (R)			AERONAUTICAL MOBILE (R) MLA93
13 360- 13 410	FIXED RADIO ASTRONOMY 5.149			FIXED RADIO ASTRONOMY 5.149 MLA14 MLA93
13 410- 13 570	FIXED Mobile except aeronautical mobile (R) 5.150			FIXED Mobile except aeronautical mobile (R) 5.150 MLA3 MLA93 MLA94
13 570- 13 600	BROADCASTING 5.134 5.151			BROADCASTING 5.134 5.151 MLA3 MLA17 MLA93
13 600- 13 800	BROADCASTING			BROADCASTING MLA3 MLA17 MLA93
13 800- 13 870	BROADCASTING 5.134 5.151			BROADCASTING 5.134 5.151 MLA3 MLA17 MLA93
13 870- 14 000	FIXED Mobile except aeronautical mobile (R)			FIXED Mobile except aeronautical mobile (R) MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
14 000- 14 250	AMATEUR AMATEUR-SATELLITE			AMATEUR AMATEUR-SATELLITE MLA88 MLA93
14 250- 14 350	AMATEUR 5.152			AMATEUR MLA83 MLA88 MLA93
14 350- 14 990	FIXED Mobile except aeronautical mobile (R)			FIXED Mobile except aeronautical mobile (R) MLA14 MLA93
14 990- 15 005	STANDARD FREQUENCY AND TIME SIGNAL (15000 kHz) 5.111			STANDARD FREQUENCY AND TIME SIGNAL (15000 kHz) 5.111 MLA93
15 005- 15 010	STANDARD FREQUENCY AND TIME SIGNAL Space research			STANDARD FREQUENCY AND TIME SIGNAL Space research MLA93
15 010- 15 100	AERONAUTICAL MOBILE (OR)			AERONAUTICAL MOBILE (OR) MLA14 MLA15 MLA93
15 100- 15 600	BROADCASTING			BROADCASTING MLA3 MLA17 MLA93
15 600- 15 800	BROADCASTING 5.134 5.146			BROADCASTING 5.134 5.146 MLA3 MLA17 MLA93
15 800- 16 360	FIXED 5.153			FIXED 5.153 MLA93
16 360- 17 410	MARITIME MOBILE 5.109 5.110 5.132 5.145			MARITIME MOBILE 5.109 5.110 5.132 5.145 MLA93
17 410- 17 480	FIXED			FIXED MLA93
17 480- 17 550	BROADCASTING 5.134 5.146			BROADCASTING 5.134 5.146 MLA3 MLA17 MLA93
17 550- 17 900	BROADCASTING			BROADCASTING MLA3 MLA17 MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
17 900- 17 970	AERONAUTICAL MOBILE (R)			AERONAUTICAL MOBILE (R) MLA93
17 970- 18 030	AERONAUTICAL MOBILE (OR)			AERONAUTICAL MOBILE (OR) MLA14 MLA15 MLA93
18 030- 18 052	FIXED			FIXED MLA93
18 052- 18 068	FIXED Space research			FIXED Space research MLA93
18 068- 18 168	AMATEUR AMATEUR-SATELLITE 5.154			AMATEUR AMATEUR-SATELLITE MLA88 MLA93
18 168- 18 780	FIXED Mobile except aeronautical mobile			FIXED Mobile except aeronautical mobile MLA93
18 780- 18 900	MARITIME MOBILE			MARITIME MOBILE MLA93
18 900- 19 020	BROADCASTING 5.134 5.146			BROADCASTING 5.134 5.146 MLA3 MLA17 MLA93
19 020- 19 680	FIXED			FIXED MLA93
19 680- 19 800	MARITIME MOBILE 5.132			MARITIME MOBILE 5.132 MLA93
19 800- 19 990	FIXED			FIXED MLA93
19 990- 19 995	STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111			STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111 MLA93
19 995- 20 010	STANDARD FREQUENCY AND TIME SIGNAL (20000 kHz) 5.111			STANDARD FREQUENCY AND TIME SIGNAL (20000 kHz) 5.111 MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
20 010- 21 000	FIXED Mobile			FIXED Mobile MLA93
21 000- 21 450	AMATEUR AMATEUR-SATELLITE			AMATEUR AMATEUR-SATELLITE MLA88 MLA93
21 450- 21 850	BROADCASTING			BROADCASTING MLA3 MLA17 MLA93
21 850- 21 870	FIXED 5.155A 5.155			FIXED MLA93
21 870- 21 924	FIXED 5.155B			FIXED 5.155B MLA93
21 924- 22 000	AERONAUTICAL MOBILE (R)			AERONAUTICAL MOBILE (R) MLA93
22 000- 22 855	MARITIME MOBILE 5.132 5.156			MARITIME MOBILE 5.132 MLA93
22 855- 23 000	FIXED 5.156			FIXED MLA93
23 000- 23 200	FIXED Mobile except aeronautical mobile (R) 5.156			FIXED Mobile except aeronautical mobile (R) MLA93
23 200- 23 350	FIXED 5.156A AERONAUTICAL MOBILE (OR)			FIXED 5.156A AERONAUTICAL MOBILE (OR) MLA14 MLA93
23 350- 24 000	FIXED MOBILE except aeronautical mobile 5.157			FIXED MOBILE except aeronautical mobile 5.157 MLA93
24 000- 24 890	FIXED LAND MOBILE			FIXED LAND MOBILE MLA93

Frequency Band (kHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
24 890- 24 990	AMATEUR AMATEUR-SATELLITE			AMATEUR AMATEUR-SATELLITE MLA88 MLA93
24 990- 25 005	STANDARD FREQUENCY AND TIME SIGNAL (25000 kHz)			STANDARD FREQUENCY AND TIME SIGNAL (25000 kHz) MLA93
25 005- 25 010	STANDARD FREQUENCY AND TIME SIGNAL Space research			STANDARD FREQUENCY AND TIME SIGNAL Space research MLA93
25 010- 25 070	FIXED MOBILE except aeronautical mobile			FIXED MOBILE except aeronautical mobile MLA93
25 070- 25 210	MARITIME MOBILE			MARITIME MOBILE MLA93
25 210- 25 550	FIXED MOBILE except aeronautical mobile			FIXED MOBILE except aeronautical mobile MLA93
25 550- 25 670	RADIO ASTRONOMY 5.149			RADIO ASTRONOMY 5.149 MLA14 MLA93
25 670- 26 100	BROADCASTING			BROADCASTING MLA3 MLA17 MLA93
26 100- 26 175	MARITIME MOBILE 5.132			MARITIME MOBILE 5.132 MLA93
26 175- 27 500	FIXED MOBILE except aeronautical mobile 5.150			FIXED MOBILE except aeronautical mobile 5.150 MLA3 MLA93 MLA94

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
27.5-28	METEOROLOGICAL AIDS FIXED MOBILE			METEOROLOGICAL AIDS FIXED MOBILE
28-29.7	AMATEUR AMATEUR-SATELLITE			AMATEUR AMATEUR- SATELLITE MLA88
29.7-30.005	FIXED MOBILE			FIXED MOBILE
30.005-30.01	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH			SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH
30.01-37.5	FIXED MOBILE			FIXED MOBILE MLA14
37.5-38.25	FIXED MOBILE Radio astronomy 5.149			FIXED MOBILE Radio astronomy 5.149
38.25-39.986	FIXED MOBILE			FIXED MOBILE
39.986-40.02	FIXED MOBILE Space research			FIXED MOBILE Space research MLA3 MLA94
40.02-40.98	FIXED MOBILE 5.150			FIXED MOBILE 5.150 MLA3 MLA94
40.98-41.015	FIXED MOBILE Space research 5.160 5.161			FIXED MOBILE Space research

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
41.015-44	FIXED MOBILE 5.160 5.161			FIXED MOBILE MLA14
44-47	FIXED MOBILE 5.162 5.162A			FIXED MOBILE MLA3 MLA14 MLA90
47-50	47 - 68 BROADCASTING	FIXED MOBILE	FIXED MOBILE BROADCASTING 5.162A	FIXED MOBILE BROADCASTING MLA3 MLA14 MLA90 MLA94
50-54		AMATEUR 5.162A 5.166 5.167 5.167A 5.168 5.170		AMATEUR MLA88
54-68	5.162A 5.163 5.164 5.165 5.169 5.171	BROADCASTING Fixed Mobile 5.172	FIXED MOBILE BROADCASTING 5.162A	FIXED MOBILE BROADCASTING MLA3 MLA14
68-72	68-74.8 FIXED MOBILE except aeronautical mobile	BROADCASTING Fixed Mobile 5.173	68-74.8 FIXED MOBILE	FIXED MOBILE
72-73		FIXED MOBILE		
73-74.6		RADIO ASTRONOMY 5.178		
74.6-74.8	5.149 5.175 5.177 5.179	FIXED MOBILE	5.149 5.176 5.179	5.149 MLA14
74.8-75.2	AERONAUTICAL RADIONAVIGATION 5.180 5.181			AERONAUTICAL RADIONAVIGATION 5.180 5.181
75.2-75.4	75.2-76 FIXED MOBILE except	FIXED MOBILE 5.179		FIXED MOBILE MLA14 MLA24

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
75.4-76	aeronautical mobile 5.175 5.179 5.187	FIXED MOBILE	FIXED MOBILE 5.182 5.183 5.188	FIXED MOBILE MLA14 MLA24
76-87	75.2-76 FIXED MOBILE except aeronautical mobile 5.175 5.179 5.187	76-88 BROADCASTING Fixed Mobile 5.185	FIXED MOBILE 5.182 5.183 5.188	FIXED MOBILE MLA14 MLA24
87-87.5			87-100 FIXED MOBILE BROADCASTING	FIXED MOBILE BROADCASTING MLA3 MLA94
87.5-88	87.5-100 BROADCASTING 5.190			
88-100		BROADCASTING		
100-108	BROADCASTING 5.192 5.194			BROADCASTING MLA3 MLA94
108-117.975	AERONAUTICAL RADIONAVIGATION 5.197 5.197A			AERONAUTICAL RADIONAVIGATION 5.197A
117.975-137	AERONAUTICAL MOBILE (R) 5.111 5.200 5.201 5.202			AERONAUTICAL MOBILE (R) 5.111 5.200
137-137.025	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.208 MLA93

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
137.025-137.175	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.208 MLA93
137.175-137.825	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.208 MLA93
137.825-138	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.208 MLA93

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
138-143.6	AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	FIXED MOBILE Space research (space-to-Earth) 5.207 5.213	FIXED MOBILE Space research (space-to-Earth) MLA3 MLA93
143.6-143.65	AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) 5.211 5.212 5.214	FIXED MOBILE RADIOLOCATION SPACE RESEARCH (space-to-Earth)	FIXED MOBILE SPACE RESEARCH (space-to-Earth) 5.207 5.213	FIXED MOBILE SPACE RESEARCH (space-to-Earth) MLA3 MLA93
143.65-144	AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	FIXED MOBILE Space research (space-to-Earth) 5.207 5.213	FIXED MOBILE Space research (space-to-Earth) MLA3 MLA93
144-146	AMATEUR AMATEUR-SATELLITE 5.216			AMATEUR MLA28 AMATEUR-SATELLITE MLA88
146-148	FIXED MOBILE except aeronautical mobile (R)	AMATEUR 5.217	AMATEUR FIXED MOBILE 5.217	AMATEUR MLA28 FIXED MOBILE MLA88
148-149.9	FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221		FIXED MOBILE MOBILE-SATELLITE (Earth-to- space) 5.209 5.218 5.219 5.221
149.9-150.05	MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223			MOBILE-SATELLITE (Earth-to- space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
150.05-153	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	FIXED MOBILE 5.225 5.226		FIXED MOBILE MLA30 5.226 MLA3
153-154	FIXED MOBILE except aeronautical mobile (R) Meteorological aids	153-156.4875 FIXED MOBILE		FIXED MOBILE MLA30
154-156.4875	FIXED MOBILE except aeronautical mobile (R) 5.226	5.225 5.226		5.226 MLA3 MLA93
156.4875-156.5625	MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227			MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227 MLA93
156.5625-156.7625	FIXED MOBILE except aeronautical mobile (R) 5.226	FIXED MOBILE 5.225 5.226		FIXED MOBILE 5.225 5.226 MLA93
156.7625-156.8375	MARITIME MOBILE (distress and calling) 5.111 5.226			MARITIME MOBILE (distress and calling) 5.111 5.226 MLA93
156.8375-174	FIXED MOBILE except aeronautical mobile 5.226 5.227A 5.229	FIXED MOBILE 5.226 5.227A 5.230 5.231 5.232		FIXED MOBILE MLA 30 5.226 5.227A MLA3 MLA93
174-216	174-223 BROADCASTING	BROADCASTING Fixed Mobile 5.234	174-223 FIXED MOBILE BROADCASTING	FIXED MOBILE BROADCASTING MLA29 MLA95
216-220		FIXED MARITIME MOBILE Radiolocation 5.241 5.242		MLA3 MLA31 MLA86 MLA94

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
220-223	5.235 5.237 5.243	AMATEUR FIXED MOBILE Radiolocation 5.241	5.233 5.238 5.240 5.245	FIXED MOBILE BROADCASTING MLA17 MLA29 MLA95 MLA3 MLA31 MLA86
223-225	223-230 BROADCASTING Fixed Mobile	AMATEUR FIXED MOBILE Radiolocation 5.241	223-230 FIXED MOBILE BROADCASTING	FIXED MOBILE BROADCASTING MLA17 MLA29 MLA95
225-230	5.243 5.246 5.247	225-235 FIXED MOBILE	AERONAUTICAL RADIONAVIGATION Radiolocation 5.250	AERONAUTICAL RADIONAVIGATION Radiolocation MLA3 MLA32 MLA86 MLA 88 MLA94
230-235	FIXED MOBILE 5.247 5.251 5.252		FIXED MOBILE AERONAUTICAL RADIONAVIGATION 5.250	FIXED MOBILE AERONAUTICAL RADIONAVIGATION MLA14 MLA32
235-267	FIXED MOBILE 5.111 5.199 5.252 5.254 5.256 5.256A			FIXED MOBILE 5.111 5.199 5.254 5.256 MLA14
267-272	FIXED MOBILE Space operation (space-to-Earth) 5.254 5.257			FIXED MOBILE Space operation (space-to-Earth) 5.254 5.257 MLA14
272-273	SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254			SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254 MLA14
273-312	FIXED MOBILE 5.254			FIXED MOBILE 5.254 MLA3 MLA14 MLA94

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
312-315	FIXED MOBILE Mobile-satellite (Earth-to-space) 5.254 5.255			FIXED MOBILE Mobile-satellite (Earth-to-space) 5.254 5.255 MLA3 MLA14 MLA94
315-322	FIXED MOBILE 5.254			FIXED MOBILE 5.254 MLA3 MLA14 MLA94
322-328.6	FIXED MOBILE RADIO ASTRONOMY 5.149			FIXED MOBILE RADIO ASTRONOMY 5.149 MLA14
328.6-335.4	AERONAUTICAL RADIONAVIGATION 5.258 5.259			AERONAUTICAL RADIONAVIGATION 5.258
335.4-387	FIXED MOBILE 5.254			FIXED MOBILE MLA34 5.254 MLA3 MLA14 MLA84 MLA93
387-390	FIXED MOBILE Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255			FIXED MOBILE MLA34 Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255 MLA3 MLA14 MLA84 MLA93
390-399.9	FIXED MOBILE 5.254			FIXED MOBILE MLA34 5.254 MLA3 MLA14 MLA84 MLA93
399.9-400.05	MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260 5.220			MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION SATELLITE 5.222 5.224B 5.260 5.220 MLA34 MLA84 MLA93

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
400.05-400.15	STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261 5.262			STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) FIXED MOBILE 5.261 5.262 MLA3 MLA94
400.15-401	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.262 5.264			METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) 5.263 FIXED MOBILE Space operation (space-to-Earth) 5.262 5.264 MLA3 MLA35 MLA94
401-402	METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile			METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile MLA3 MLA35 MLA94

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
402-403	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile			METEOROLOGICAL AIDS EARTH EXPLORATION -SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile MLA3 MLA35
403-406	METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile			METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile MLA3MLA35 MLA36
406-406.1	MOBILE-SATELLITE (Earth-to-space) 5.266 5.267			MOBILE-SATELLITE (Earth-to-space) 5.266 5.267
406.1-410	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149			FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149
410-420	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268			FIXED MOBILE except aeronautical mobile MLA37 SPACE RESEARCH (space-to-space) 5.268 MLA3 MLA93
420-430	FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271			FIXED MOBILE except Aeronauticalmobile MLA37 Radiolocation MLA3 MLA93

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
430-432	AMATEUR RADIOLOCATION 5.271 5.272 5.273 5.274 5.275 5.276 5.277	RADIOLOCATION Amateur 5.271 5.276 5.277 5.278 5.279		RADIOLOCATION FIXED MOBILE except aeronautical mobile Amateur MLA88 5.276
432-435	AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A 5.138 5.271 5.272 5.276 5.277 5.280 5.281 5.282	RADIOLOCATION Amateur Earth exploration-satellite (active) 5.279A 5.271 5.276 5.277 5.278 5.279 5.281 5.282		RADIOLOCATION FIXED MOBILE except aeronautical mobile Amateur MLA88 Earth exploration-satellite (active) 5.279A 5.276 MLA3 MLA94
435-438	AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A 5.138 5.271 5.272 5.276 5.277 5.280 5.281 5.282	RADIOLOCATION Amateur Earth exploration-satellite (active) 5.279A 5.271 5.276 5.277 5.278 5.279 5.281 5.282		RADIOLOCATION FIXED Amateur MLA88 Earth exploration-satellite (active) 5.279A 5.276 5.282
438-440	AMATEUR RADIOLOCATION 5.271 5.273 5.274 5.275 5.276 5.277 5.283	RADIOLOCATION Amateur 5.271 5.276 5.277 5.278 5.279		RADIOLOCATION FIXED MOBILE except aeronautical mobile Amateur MLA88 5.276
440-450	FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271 5.284 5.285 5.286			FIXED MOBILE except aeronautical mobile Radiolocation 5.286 MLA3 MLA14 MLA93
450-455	FIXED MOBILE 5.286AA 5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E			FIXED MOBILE 5.286AA MLA39 5.209 5.286 5.286A MLA3 MLA93

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
455-456	FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	FIXED MOBILE 5.286AA MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209	FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	FIXED MOBILE 5.286AA MLA39 5.209 5.286A MLA3 MLA93
456-459	FIXED MOBILE 5.286AA 5.271 5.287 5.288			FIXED MOBILE 5.286AA MLA39 5.287 MLA3 MLA14 MLA41 MLA93
459-460	FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	FIXED MOBILE 5.286AA MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209	FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	FIXED MOBILE 5.286AA 5.209 5.286A MLA93
460-470	FIXED MOBILE 5.286AA Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 5.290			FIXED MOBILE 5.286AA MLA39 Meteorological-satellite (space-to-Earth) 5.287 5.289 MLA3 MLA14 MLA41 MLA93
470 - 512	470 -790 BROADCASTING	BROADCASTING Fixed Mobile 5.292 5.293	470-585 FIXED MOBILE BROADCASTING	FIXED MOBILE BROADCASTING MLA29 MLA95
512 - 585		512-608 BROADCASTING 5.297	5.291 5.298	MLA3 MLA85 MLA86 MLA93 MLA94
585 – 608			585-610 FIXED MOBILE BROADCASTING RADIONAVIGATION 5.149 5.305 5.306 5.307	FIXED MOBILE BROADCASTING MLA29 MLA95 RADIONAVIGATION 5.149 5.306 MLA3 MLA86 MLA87 MLA94
608 – 610		608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)		
610 – 614			610-698	FIXED

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
614 – 698	5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311A 5.312	BROADCASTING Fixed Mobile 5.293 5.309 5.311A	FIXED MOBILE 5.313A 5.317A BROADCASTING 5.149 5.305 5.306 5.307 5.311A 5.320	MOBILE 5.317A BROADCASTING MLA29 MLA95 5.149 5.306 5.311A 5.320 MLA3 MLA14 MLA86 MLA87 MLA94
698 – 790	BROADCASTING 5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311A 5.312	BROADCASTING MOBILE 5.313B 5.317A Fixed 5.293 5.309 5.311A	698-862 FIXED MOBILE 5.313A 5.317A BROADCASTING	FIXED MOBILE 5.317A MLA89 BROADCASTING MLA29 MLA95
790 – 806	790 – 862 FIXED BROADCASTING MOBILE except aeronautical mobile 5.316B 5.317A	BROADCASTING MOBILE 5.313B 5.317A Fixed 5.293 5.309 5.311A		
806 – 862	5.312 5.314 5.315 5.316 5.316A 5.319	806-890 FIXED MOBILE 5.317A BROADCASTING 5.317 5.318	5.149 5.305 5.306 5.307 5.311A 5.320	5.149 5.306 5.311A 5.320 MLA3 MLA14 MLA44 MLA79 MLA80 MLA86 MLA87 MLA94
862 - 890	FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.319 5.323	FIXED MOBILE 5.317A BROADCASTING 5.317 5.318	FIXED MOBILE 5.313A 5.317A BROADCASTING 5.149 5.305 5.306 5.307 5.311A 5.320	FIXED MOBILE MLA79 MLA80 MLA89 MLA91 BROADCASTING MLA3 MLA 44 MLA84 MLA93
890-902	890-928 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322	FIXED MOBILE except aeronautical mobile 5.317A Radiolocation 5.318 5.325	890-928 FIXED MOBILE 5.317A BROADCASTING Radiolocation	FIXED MOBILE MLA91 BROADCASTING 5.317A Radiolocation

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
902-928	Radiolocation 5.323	FIXED Amateur Mobile except aeronautical mobile 5.325A Radiolocation 5.150 5.325 5.326	 5.327	 MLA3 MLA44 MLA94
928-942	FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation 5.323	FIXED MOBILE except aeronautical mobile 5.317A Radiolocation 5.325	FIXED MOBILE 5.317A BROADCASTING Radiolocation 5.327	FIXED MOBILE MLA91 BROADCASTING 5.317A Radiolocation MLA3 MLA44
942-960	FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.323	FIXED MOBILE 5.317A	FIXED MOBILE 5.317A BROADCASTING 5.320	FIXED MOBILE 5.317A MLA91 BROADCASTING 5.320 MLA3 MLA44
960-1 164	AERONAUTICAL RADIONAVIGATION 5.328 AERONAUTICAL MOBILE (R) 5.327A			AERONAUTICAL RADIONAVIGATION 5.328 AERONAUTICAL MOBILE (R) 5.327A MLA14
1 164-1 215	AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.328A			AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-earth) (space-to-space) 5.328B 5.328A MLA3 MLA14
1 215-1 240	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332			EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.332 MLA3

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
1 240-1 300	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.282 5.330 5.331 5.332 5.335 5.335A			EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur MLA88 5.282 5.332 5.335A MLA3
1 300-1 350	AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.149 5.337A			AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION SATELLITE (Earth-to-space) 5.149 5.337A MLA3
1 350-1 400	FIXED MOBILE RADIOLOCATION 5.149 5.338 5.338A 5.339	RADIOLOCATION 5.338A 5.149 5.334 5.339		RADIOLOCATION 5.338A 5.149 5.339 MLA3
1 400-1 427	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 MLA14
1 427-1 429	SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.338A 5.341			SPACE OPERATION (Earth-to-space) MLA46 FIXED MOBILE except aeronautical mobile 5.338A 5.341 MLA14
1 429-1 452	FIXED MOBILE except aeronautical mobile 5.338A 5.341 5.342	FIXED MOBILE 5.343 5.338A 5.341		FIXED MOBILE 5.338A 5.341 MLA14

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
1 452- 1 492	FIXED MOBILE except aeronautical mobile BROADCASTING 5.345 BROADCASTING-SATELLITE 5.208B 5.345 5.341 5.342	FIXED MOBILE 5.343 BROADCASTING 5.345 BROADCASTING-SATELLITE 5.208B 5.345 5.341 5.344		FIXED MOBILE BROADCASTING 5.345 BROADCASTING SATELLITE 5.208B 5.345 5.341 MLA48
1 492- 1 518	FIXED MOBILE except aeronautical mobile 5.341 5.342	FIXED MOBILE 5.343 5.341 5.344	FIXED MOBILE 5.341	FIXED MOBILE 5.341 MLA14
1 518- 1 525	FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341 5.342	FIXED MOBILE 5.343 MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341 5.344	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.348 5.351A 5.341 MLA3
1 525- 1 530	SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A Earth exploration- satellite Mobile except aeronautical mobile 5.349 5.341 5.342 5.350 5.351 5.352A 5.354	SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A Earth exploration-satellite Fixed Mobile 5.343 5.341 5.351 5.354	SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A Earth exploration-satellite Mobile 5.349 5.341 5.351 5.352A 5.354	SPACE OPERATION (space-to-Earth) MLA49 FIXED MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A Earth exploration-satellite Mobile 5.341 5.351 5.354 MLA3
1 530- 1 535	SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile 5.341 5.342 5.351 5.354	SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.353A Earth exploration-satellite Fixed Mobile 5.343 5.341 5.351 5.354		SPACE OPERATION (space-to-Earth) MLA49 MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.353A Earth exploration-satellite Fixed Mobile 5.341 5.351 5.354 MLA3

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
1 535- 1 559	MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.341 5.351 5.353A 5.354 5.355 5.356 5.357 5.357A 5.359 5.362A			MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.341 5.351 5.353A 5.354 5.356 5.357 5.357A MLA3
1 559- 1 610	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION – SATELLITE (space-to-Earth) (space-to-space) 5.208B 5.328B 5.329A 5.341 5.362B 5.362C			AERONAUTICAL RADIONAVIGATION RADIONAVIGATION – SATELLITE (space-to- earth) (space-to-space) 5.208B 5.328B 5.329A 5.341 MLA3
1 610- 1 610.6	MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372	MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) 5.341 5.364 5.366 5.367 5.368 5.370 5.372	MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372	MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.341 5.364 5.366 5.367 5.368 5.372 MLA3
1 610.6- 1 613.8	MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION 5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372	MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) 5.149 5.341 5.364 5.366 5.367 5.368 5.370 5.372	MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to- space) 5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372	MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.149 5.341 5.364 5.366 5.367 5.368 5.372 MLA3
1 613.8- 1 626.5	MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372	MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) 5.208B 5.341 5.364 5.365 5.366 5.367 5.368 5.370 5.372	MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B Radiodetermination-satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.372	MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B Radiodetermination-satellite (Earth-to-space) 5.341 5.364 5.365 5.366 5.367 5.368 5.372 MLA3

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
1 626.5- 1 660	MOBILE-SATELLITE (Earth-to-space) 5.351A 5.341 5.351 5.353A 5.354 5.355 5.357A 5.359 5.362A 5.374 5.375 5.376			MOBILE-SATELLITE (Earth-to-space) 5.351A 5.341 5.351 5.353A 5.354 5.357A 5.374 5.375 5.376 MLA3
1 660- 1 660.5	MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY 5.149 5.341 5.351 5.354 5.362A 5.376A			MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY 5.149 5.341 5.351 5.354 5.376A
1 660.5- 1 668	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A			RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379A
1 668- 1 668.4	MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A			MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379A MLA3
1 668.4- 1 670	METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C RADIO ASTRONOMY 5.149 5.341 5.379D 5.379E			METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) 5.351 5.379B 5.379C RADIO ASTRONOMY 5.149 5.341 5.379D

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
1 670- 1 675	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			METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.341 5.379D 5.380A
1 675- 1 690	METEOROLOGICAL AIDS FIXED METEOROLOGICAL- SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341			METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341
1 690- 1 700	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile 5.289 5.341 5.382	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341 5.381		METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341
1 700- 1 710	FIXED METEOROLOGICAL- SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341		FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341 5.384	FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341
1 710 – 1 930	FIXED MOBILE 5.384A 5.388A 5.388B 5.149 5.341 5.385 5.386 5.387 5.388			FIXED MOBILE 5.384A 5.388A MLA53 MLA89 MLA91 MLA92 5.149 5.341 5.385 5.388 MLA3 MLA44 MLA81 MLA90

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
1 930- 1 970	FIXED MOBILE 5.388A 5.388B 5.388	FIXED MOBILE 5.388A 5.388B Mobile-satellite (Earth-to-space) 5.388	FIXED MOBILE 5.388A 5.388B 5.388	FIXED MOBILE 5.388A MLA53 MLA92 5.388
1 970- 1 980	FIXED MOBILE 5.388A 5.388B 5.388			FIXED MOBILE 5.388A MLA53 MLA92 5.388
1 980- 2 010	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389B 5.389F			FIXED MOBILE MLA53 MLA92 MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A MLA3
2 010- 2 025	FIXED MOBILE 5.388A 5.388B 5.388	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.388 5.389C 5.389E	FIXED MOBILE 5.388A 5.388B 5.388	FIXED MOBILE 5.388A MLA53 MLA92 5.388 MLA3
2 025- 2 110	SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392			SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION- SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392 MLA3 MLA14
2 110- 2 120	FIXED MOBILE 5.388A 5.388B SPACE RESEARCH (deep space) (Earth-to-space) 5.388			FIXED MOBILE 5.388A MLA53 MLA92 SPACE RESEARCH (deep space) (Earth-to-space) 5.388

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
2 120- 2 160	FIXED MOBILE 5.388A 5.388B 5.388	FIXED MOBILE 5.388A 5.388B Mobile-satellite (space-to-Earth) 5.388	FIXED MOBILE 5.388A 5.388B 5.388	FIXED MOBILE 5.388A MLA53 MLA92 5.388
2 160- 2 170	FIXED MOBILE 5.388A 5.388B 5.388	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.388 5.389C 5.389E	FIXED MOBILE 5.388A 5.388B 5.388	FIXED MOBILE 5.388A MLA53 MLA92 5.388
2 170- 2 200	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A 5.388 5.389A 5.389F			FIXED MOBILE MLA53 MLA92 MOBILE-SATELLITE (space-to-Earth) 5.351A 5.388 5.389A MLA3
2 200- 2 290	SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) 5.392			SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) 5.392 MLA14
2 290- 2 300	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)			FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)
2 300- 2 450	FIXED MOBILE 5.384A Amateur Radiolocation 5.150 5.282 5.395	FIXED MOBILE 5.384A RADIOLOCATION Amateur 5.150 5.282 5.393 5.394 5.396		FIXED MOBILE 5.384A MLA54 MLA89 RADIOLOCATION Amateur MLA88 5.150 5.282 5.396 MLA3 MLA94

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
2 450- 2 483.5	FIXED MOBILE Radiolocation 5.150 5.397	FIXED MOBILE RADIOLOCATION 5.150		FIXED MOBILE RADIOLOCATION 5.150 MLA3 MLA94
2 483.5- 2 500	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A Radiolocation 5.150 5.371 5.397 5.398 5.399 5.400 5.402	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.402	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION Radiodetermination-satellite (space-to-Earth) 5.398 5.150 5.400 5.402	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION Radiodetermination-satellite (space-to-Earth) 5.398 5.150 5.402 MLA3 MLA94
2 500- 2 520	FIXED 5.410 MOBILE except aeronautical mobile 5.384A 5.405 5.412	FIXED 5.410 FIXED SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A 5.404	FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A 5.404 5.415A	FIXED 5.410 MLA55 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.414 MLA3 MLA44 MLA89
2 520- 2 535	2520-2655 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416	2520-2655 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416	FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.403 5.414A 5.415A	FIXED 5.410 MLA55 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.403 MLA3 MLA44 MLA55A MLA89
2 535- 2 655	5.339 5.405 5.412 5.417C 5.417D 5.418B 5.418C	5.339 5.417C 5.417D 5.418B 5.418C	FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.417A 5.417B 5.417C 5.417D 5.418 5.418A 5.418B 5.418C	FIXED 5.410 MLA55 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.417C 5.417D 5.418A 5.418B 5.418C MLA3 MLA44 MLA55A MLA89

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
2 655- 2 670	FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.208B 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.412	FIXED 5.410 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.208B	FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.208B 5.420	FIXED 5.410 MLA55 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.208B 5.420 MLA3 MLA44 MLA89
2 670- 2 690	FIXED 5.410 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.412	FIXED 5.410 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.208B 5.415 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149	FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A 5.419 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149	FIXED 5.410 MLA55 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A 5.419 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 MLA3 MLA44
2 690- 2 700	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.422			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
2 700- 2 900	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423 5.424			AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423 MLA14
2 900- 3 100	RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427			RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427 MLA14

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
3 100- 3 300	RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149 5.428			RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149 MLA14
3 300- 3 400	RADIOLOCATION 5.149 5.429 5.430	RADIOLOCATION Amateur Fixed Mobile 5.149	RADIOLOCATION Amateur 5.149 5.429	RADIOLOCATION FIXED MOBILE Amateur 5.149 5.429 MLA14
3 400- 3 500	3 400-3 600 FIXED FIXED-SATELLITE (space-to-Earth) Mobile 5.430A Radiolocation	FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile 5.431A Radiolocation 5.433 5.282	FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile 5.432B Radiolocation 5.433 5.282 5.432 5.432A	FIXED MLA57 MLA57A FIXED-SATELLITE (space-to-Earth) Amateur MLA88 Mobile Radiolocation 5.433 5.282 MLA58 MLA3 MLA89
3 500-3 600	5.431	3 500-3 700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.433A Radiolocation 5.433	FIXED MLA57 MLA57A FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433 MLA3 MLA58 MLA89
3 600- 3 700	3 600-4 200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile		FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.435	FIXED MLA57 FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation MLA3 MLA58 MLA89
3 700- 4 200		FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile		FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MLA3

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
4 200-4 400	AERONAUTICAL RADIONAVIGATION 5.438 5.439 5.440			AERONAUTICAL RADIONAVIGATION 5.438 5.440
4 400-4 500	FIXED MOBILE 5.440A			FIXED MOBILE
4 500-4 800	FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE 5.440A			FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE
4 800-4 990	FIXED MOBILE 5.440A 5.442 Radio astronomy 5.149 5.339 5.443			FIXED MOBILE 5.442 Radio astronomy 5.149 5.339 MLA14 MLA84
4 990-5 000	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149			FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149
5 000-5 010	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367			AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367 MLA3
5 010-5 030	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-space) 5.328B 5.443B 5.367			AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B 5.367 MLA3
5 030-5 091	AERONAUTICAL RADIONAVIGATION 5.367 5.444			AERONAUTICAL RADIONAVIGATION 5.367 5.444
5 091-5 150	AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE 5.444B 5.367 5.444 5.444A			AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE 5.444B 5.367 5.444 5.444A

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
5 150-5 250	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B 5.446 5.446C 5.447 5.447B 5.447C			AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B 5.446 5.447B 5.447C MLA3 MLA60 MLA94
5 250-5 255	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448 5.448A			EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F FIXED 5.447E 5.448A MLA3 MLA60 MLA94
5 255-5 350	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448 5.448A			EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION MOBILE except aeronautical mobile 5.446A 5.447F FIXED 5.447E 5.448A MLA3 MLA60 MLA94
5 350- 5 460	EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D			EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D
5 460-5 470	RADIONAVIGATION 5.449 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.448D 5.448B			RADIONAVIGATION 5.449 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.448D 5.448B MLA14

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
5 470-5 570	MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.448B 5.450 5.451			MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.448B MLA3 MLA14
5 570-5 650	MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.450 5.451 5.452			MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.452 MLA3 MLA14
5 650-5 725	RADIOLOCATION MOBILE except aeronautical mobile 5.446A 5.450A Amateur Space research (deep space) 5.282 5.451 5.453 5.454 5.455			RADIOLOCATION FIXED MLA82 MOBILE 5.446A 5.450A Amateur MLA88 Space research (deep space) 5.282 5.453 MLA3
5 725-5 830	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur 5.150 5.451 5.453 5.455 5.456	RADIOLOCATION Amateur 5.150 5.453 5.455		RADIOLOCATION FIXED MOBILE Amateur 5.453 MLA3 MLA94
5 830-5 850	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.451 5.453 5.455 5.456	RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.453 5.455		RADIOLOCATION FIXED MOBILE Amateur Amateur-satellite (space-to-Earth) 5.453 5.150 MLA3 MLA94

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
5 850-5 925	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.150	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Amateur Radiolocation 5.150	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Radiolocation 5.150	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Radiolocation 5.150 MLA3 MLA94
5 925-6 700	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B MOBILE 5.457C 5.149 5.440 5.458			FIXED MLA61 MLA62 FIXED-SATELLITE (Earth-to-space) 5.457A MOBILE 5.149 5.440 5.458 MLA3
6 700-7 075	FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C			FIXED MLA62 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C MLA3
7 075-7 145	FIXED MOBILE 5.458 5.459			FIXED MLA62 MLA64 MOBILE 5.458
7 145-7 235	FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458 5.459			FIXED MLA64 MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458
7 235-7 250	FIXED MOBILE 5.458			FIXED MLA64 MOBILE 5.458
7 250-7 300	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 5.461			FIXED MLA64 FIXED-SATELLITE (space-to-Earth) MOBILE 5.461

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
7 300-7 450	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461			FIXED MLA64 MLA65 FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461
7 450-7 550	FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461A			FIXED MLA65 FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461A
7 550-7 750	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile			FIXED MLA65 MLA66 FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile
7 750-7 850	FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile			FIXED MLA66 METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile
7 850-7 900	FIXED MOBILE except aeronautical mobile			FIXED MLA66 MOBILE except aeronautical mobile
7 900-8 025	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.461			FIXED MLA66 FIXED-SATELLITE (Earth-to-space) MOBILE 5.461
8 025-8 175	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A			EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED MLA66 FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A MLA14

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
8 175-8 215	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A			EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED MLA66 FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A MLA14
8 215-8 400	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A			EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED MLA66 MLA67 FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A MLA14
8 400-8 500	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.465 5.466			FIXED MLA67 MOBILE except aeronautical mobile Space research (space-to-Earth) 5.465
8 500-8 550	RADIOLOCATION 5.468 5.469			RADIOLOCATION FIXED MOBILE 5.468
8 550-8 650	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.468 5.469 5.469A			EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) FIXED MOBILE 5.468 5.469A
8 650-8 750	RADIOLOCATION 5.468 5.469			RADIOLOCATION FIXED MOBILE 5.468

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
8 750-8 850	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470 5.471			RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470
8 850-9 000	RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473			RADIOLOCATION MARITIME RADIONAVIGATION 5.472
9 000-9 200	AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION 5.471 5.473A			AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION 5.473A
9 200-9 300	RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473 5.474			RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.474
9 300-9 500	RADIONAVIGATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.427 5.474 5.475 5.475A 5.475B 5.476A			RADIONAVIGATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.427 5.474 5.475 5.475A 5.475B 5.476A
9 500-9 800	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A			EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION MLA14 RADIONAVIGATION SPACE RESEARCH (active) 5.476A MLA14
9 800-9 900	RADIOLOCATION Earth exploration-satellite (active) Space research (active) Fixed 5.477 5.478 5.478A 5.478B			RADIOLOCATION FIXED Earth exploration-satellite (active) Space research (active) 5.477 5.478A 5.478B MLA14

Frequency Band (MHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
9 900- 10 000	RADIOLOCATION Fixed 5.477 5.478 5.479			RADIOLOCATION FIXED 5.477 5.479 MLA14

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
10-10.45	FIXED MOBILE RADIOLOCATION Amateur 5.479	RADIOLOCATION Amateur 5.479 5.480	FIXED MOBILE RADIOLOCATION Amateur 5.479	FIXED MLA68 MLA89 MOBILE RADIOLOCATION Amateur 5.479 MLA3
10.45-10.5	RADIOLOCATION Amateur Amateur-satellite 5.481			RADIOLOCATION Amateur Amateur-satellite MLA3 MLA68 MLA88
10.5-10.55	FIXED MOBILE Radiolocation	FIXED MOBILE RADIOLOCATION		FIXED MLA68 MLA89 MOBILE RADIOLOCATION MLA3
10.55-10.6	FIXED MOBILE except aeronautical mobile Radiolocation			FIXED MLA68 MLA89 MOBILE except aeronautical mobile Radiolocation MLA3
10.6-10.68	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482 5.482A			EARTH EXPLORATION-SATELLITE (passive) FIXED MLA68 MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482A MLA3
10.68-10.7	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.483			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
10.7-11.7	FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484 MOBILE except aeronautical mobile	FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile		FIXED MLA69 FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile MLA3 MLA58
11.7-12.1	11.7-12.5 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	FIXED 5.486 FIXED-SATELLITE (space-to-Earth) 5.484A 5.488 Mobile except aeronautical mobile 5.485	11.7-12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492
12.1-12.2		FIXED-SATELLITE (space-to-Earth) 5.484A 5.488 5.485 5.489	5.487 5.487A	5.487 5.487A
12.2-12.5	5.487 5.487A	12.2-12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING 5.484A 5.487	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING 5.484A 5.487 MLA3
12.5-12.7	12.5-12.75 FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.494 5.495 5.496	5.487A 5.488 5.490	12.5-12.75 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.493	FIXED FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.493
12.7-12.75		FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile		
12.75-13.25	FIXED FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth)			FIXED MLA70 FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth) MLA58

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
13.25-13.4	EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A 5.499			EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A
13.4-13.75	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.500 5.501 5.501B			EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A FIXED MOBILE Standard frequency and time signal-satellite (Earth-to-space) 5.500 5.501B
13.75-14	FIXED-SATELLITE (Earth-to-space) 5.484A RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research 5.499 5.500 5.501 5.502 5.503			FIXED-SATELLITE (Earth-to-space) 5.484A RADIOLOCATION FIXED MOBILE Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research 5.500 5.502 5.503 MLA3
14-14.25	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research 5.504A 5.505			FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 RADIONAVIGATION 5.504 FIXED Mobile-satellite (Earth- to-space) 5.506A Space research 5.504A 5.505 MLA3 MLA58 MLA71

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
14.25-14.3	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508			FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 RADIONAVIGATION 5.504 FIXED Mobile-satellite (Earth-to-space) 5.506A Space research 5.504A 5.505 MLA3 MLA58
14.3-14.4	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 Radionavigation-satellite 5.504A	FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth- to-space) 5.506A Radionavigation-satellite 5.504A MLA3 MLA58
14.4-14.47	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 Space research (space-to-Earth) 5.504A			FIXED MLA72 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A Space research (space-to-Earth) 5.504A MLA3 MLA58

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
14.47-14.5	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy 5.149 5.504A			FIXED MLA72 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A Radio astronomy 5.149 5.504A MLA3 MLA58
14.5-14.8	FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research			FIXED MLA72 FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research
14.8-15.35	FIXED MOBILE Space research 5.339			FIXED MLA72 MOBILE Space research 5.339
15.35-15.4	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.511			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
15.4-15.43	AERONAUTICAL RADIONAVIGATION 5.511D			AERONAUTICAL RADIONAVIGATION 5.511D
15.43-15.63	FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION 5.511C			FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION 5.511C
15.63-15.7	AERONAUTICAL RADIONAVIGATION 5.511D			AERONAUTICAL RADIONAVIGATION 5.511D
15.7-16.6	RADIOLOCATION 5.512 5.513			RADIOLOCATION FIXED MOBILE 5.512

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
16.6-17.1	RADIOLOCATION Space research (deep space) (Earth-to-space) 5.512 5.513			RADIOLOCATION FIXED MOBILE Space research (deep space) (Earth-to-space) 5.512
17.1-17.2	RADIOLOCATION 5.512 5.513			RADIOLOCATION FIXED MOBILE 5.512
17.2-17.3	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513 5.513A			EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) FIXED MOBILE 5.512 5.513A
17.3-17.7	FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) 5.516A 5.516B Radiolocation 5.514	FIXED-SATELLITE (Earth-to-space) 5.516 BROADCASTING-SATELLITE Radiolocation 5.514 5.515	FIXED-SATELLITE (Earth-to-space) 5.516 Radiolocation 5.514	FIXED-SATELLITE (Earth-to-space) 5.516 Radiolocation
17.7-17.8	17.7-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	FIXED FIXED-SATELLITE (space-to-Earth) 5.517 (Earth-to-space) 5.516 BROADCASTING-SATELLITE Mobile 5.515	17.7-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	FIXED MLA73 FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE
17.8-18.1		FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE 5.519		

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
18.1-18.4	FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B (Earth-to-space) 5.520 MOBILE 5.519 5.521			FIXED MLA73 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B (Earth-to-space) 5.520 MOBILE 5.519
18.4-18.6	FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE			FIXED MLA73 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE
18.6-18.8	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A 5.522C	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.522B MOBILE except aeronautical mobile SPACE RESEARCH (passive) 5.522A	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A	EARTH EXPLORATION-SATELLITE (passive) FIXED MLA73 FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A
18.8-19.3	FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.523A MOBILE			FIXED MLA73 FIXED-SATELLITE (space-to-Earth) 5.516B 5.523A MOBILE
19.3-19.7	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B 5.523C. 5.523D 5.523E MOBILE			FIXED MLA73 FIXED-SATELLITE (space-to-Earth) (Earth-to space) 5.523B 5.523C 5.523D 5.523E MOBILE

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
19.7-20.1	FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth) 5.524	FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 5.529	FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth) 5.524	FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B FIXED MOBILE Mobile-satellite (space-to-Earth) 5.524
20.1-20.2	FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528			FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528
20.2-21.2	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) 5.524			FIXED-SATELLITE (space-to-Earth) FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) 5.524
21.2-21.4	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)			EARTH EXPLORATION-SATELLITE (passive) FIXED MLA74 MOBILE SPACE RESEARCH (passive)
21.4-22	FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530	FIXED MOBILE	FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530 5.531	FIXED MLA74 MOBILE BROADCASTING-SATELLITE 5.208B 5.530

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
22-22.21	FIXED MOBILE except aeronautical mobile 5.149			FIXED MLA74 MOBILE except aeronautical mobile 5.149
22.21-22.5	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532			EARTH EXPLORATION-SATELLITE (passive) FIXED MLA74 MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532
22.5-22.55	FIXED MOBILE			FIXED MLA74 MOBILE
22.55-23.55	FIXED INTER-SATELLITE 5.338A MOBILE 5.149			FIXED MLA74 INTER-SATELLITE 5.338A MOBILE 5.149
23.55-23.6	FIXED MOBILE			FIXED MLA74 MOBILE
23.6-24	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
24-24.05	AMATEUR AMATEUR-SATELLITE 5.150			AMATEUR AMATEUR-SATELLITE 5.150 MLA3 MLA88 MLA94
24.05-24.25	RADIOLOCATION Amateur Earth exploration-satellite (active) 5.150			RADIOLOCATION Amateur MLA88 Earth exploration-satellite (active) 5.150 MLA3 MLA94

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
24.25-24.45	FIXED	RADIONAVIGATION	RADIONAVIGATION FIXED MOBILE	RADIONAVIGATION FIXED MLA75 MLA89 MOBILE MLA3
24.45-24.65	FIXED INTER-SATELLITE	INTER-SATELLITE RADIONAVIGATION 5.533	FIXED INTER-SATELLITE MOBILE RADIONAVIGATION 5.533	FIXED MLA75 MLA89 INTER-SATELLITE MOBILE RADIONAVIGATION 5.533 MLA3
24.65-24.75	FIXED INTER-SATELLITE	INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)	FIXED INTER-SATELLITE MOBILE 5.533	FIXED MLA75 MLA89 INTER-SATELLITE MOBIILE 5.533 MLA3
24.75-25.25	FIXED	FIXED-SATELLITE (Earth-to-space) 5.535	FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE	FIXED MLA75 MLA89 FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE MLA3
25.25-25.5	FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)			FIXED MLA75 MLA89 INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space) MLA3
25.5-27	EARTH EXPLORATION-SATELLITE (space-to Earth) 5.536B FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536A			EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED MLA75 MLA89 INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536 MLA3

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
27-27.5	FIXED INTER-SATELLITE 5.536 MOBILE	FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE		FIXED MLA75 MLA89 FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE MLA3
27.5-28.5	FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540			FIXED 5.537A MLA75 MLA89 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540 MLA3
28.5-29.1	FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540			FIXED MLA75 MLA89 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539 MOBILE Earth Exploration-Satellite (Earth- to-space) 5.541 5.540 MLA3
29.1-29.5	FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540			FIXED MLA75 MLA89 FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540 MLA3
29.5-29.9	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.525 5.526 5.527 5.529 5.540 5.542	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) Fixed Mobile 5.540 5.542

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
29.9-30	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542			FIXED-SATELLITE (Earth-to-space) 5.484A 5.539 5.516B MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 Fixed Mobile 5.525 5.526 5.527 5.538 5.540 5.542
30-31	FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) 5.542			FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) Fixed Mobile 5.542
31-31.3	FIXED 5.338A 5.543A MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.545 5.149			FIXED 5.338A 5.543A MLA75 MLA89 MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.149 MLA3
31.3-31.5	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
31.5-31.8	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.546	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149
31.8-32	FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547B 5.548			FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.548
32-32.3	FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547C 5.548			FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.548 5.547
32.3-33	FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.547C 5.548			FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.548
33-33.4	FIXED 5.547A RADIONAVIGATION 5.547 5.547E			FIXED 5.547A RADIONAVIGATION 5.547
33.4-34.2	RADIOLOCATION 5.549			RADIOLOCATION FIXED MOBILE 5.549
34.2-34.7	RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) 5.549			RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) FIXED MOBILE 5.549

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
34.7-35.2	RADIOLOCATION Space research 5.550 5.549			RADIOLOCATION FIXED MOBILE Space research 5.549
35.2-35.5	METEOROLOGICAL AIDS RADIOLOCATION 5.549			METEOROLOGICAL AIDS RADIOLOCATION FIXED MOBILE 5.549
35.5-36	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A			EARTH EXPLORATION-SATELLITE (active) METEOROLOGICAL AIDS RADIOLOCATION SPACE RESEARCH (active) FIXED MOBILE 5.549 5.549A
36-37	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A			EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A
37-37.5	FIXED MOBILE SPACE RESEARCH (space-to-Earth) 5.547			FIXED MOBILE SPACE RESEARCH (space-to-Earth) 5.547

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
37.5-38	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547			FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547
38-39.5	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth) 5.547			FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth) 5.547
39.5-40	FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547			FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547
40-40.5	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)			EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
40.5-41	FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547	FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile Mobile-satellite (space-to-Earth) 5.547	FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547	FIXED FIXED -SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547
41-42.5	FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551F 5.551H 5.551I			FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551H 5.551I
42.5-43.5	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.547			FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.547
43.5-47	MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554			MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554
47-47.2	AMATEUR AMATEUR-SATELLITE			AMATEUR AMATEUR-SATELLITE MLA88
47.2-47.5	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A			FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A MLA3

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
47.5-47.9	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A MOBILE	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE		FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE
47.9-48.2	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A			FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A MLA3
48.2-48.54	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.338A 5.552 MOBILE		FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.338A 5.552 MOBILE
48.54-49.44	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.149 5.340 5.555			
49.44-50.2	FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	5.149 5.340 5.555		5.149 5.340 5.555
50.2-50.4	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340			EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340
50.4-51.4	FIXED FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE Mobile-satellite (Earth-to-space)			FIXED FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE Mobile-satellite (Earth-to-space)

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
51.4-52.6	FIXED 5.338A MOBILE 5.547 5.556			FIXED 5.338A MOBILE 5.547 5.556
52.6-54.25	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556			EARTH EXPLORATION SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556
54.25-55.78	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive) 5.556B			EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive)
55.78-56.9	EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547
56.9-57	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547
57-58.2	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 MLA3

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
58.2-59	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556			EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556 MLA3
59-59.3	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)			EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive) MLA3
59.3-64	FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138			FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138 MLA3 MLA94
64-65	FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556			FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556
65-66	EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH 5.547			EARTH EXPLORATION-SATELLITE SPACE RESEARCH INTER-SATELLITE FIXED MOBILE except aeronautical mobile 5.547

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
66-71	INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554			INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554
71-74	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)			FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)
74-76	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) 5.561			FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) 5.561
76-77.5	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149			RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149 MLA3 MLA88 MLA94
77.5-78	AMATEUR AMATEUR-SATELLITE Radio astronomy Space research (space-to-Earth) 5.149			AMATEUR AMATEUR-SATELLITE Radio astronomy Space research (space-to-Earth) 5.149 MLA88

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
78-79	RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth) 5.149 5.560			RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth) 5.149 5.560 MLA88
79-81	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149			RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149 MLA77 MLA88
81-84	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) 5.149 5.561A			FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) 5.149 5.561A
84-86	FIXED FIXED-SATELLITE (Earth-to-space) 5.561B MOBILE RADIO ASTRONOMY 5.149			FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149
86-92	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
92-94	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149			FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149
94-94.1	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A			EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A
94.1-95	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149			FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149
95-100	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554			FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554
100-102	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341
102-105	FIXED MOBILE RADIO ASTRONOMY 5.149 5.341			FIXED MOBILE RADIO ASTRONOMY 5.149 5.341

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
105-109.5	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341			FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341
109.5-111.8	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341
111.8-114.25	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341			FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341
114.25-116	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341
116-119.98	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341			EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341
119.98-122.25	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341			EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341 MLA3 MLA94

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
122.25-123	FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138			FIXED INTER–SATELLITE MOBILE 5.558 Amateur MLA88 5.138 MLA3 MLA94
123-130	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.562D 5.149 5.554			FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.149 5.554
130-134	EARTH EXPLORATION-SATELLITE (active) 5.562E FIXED INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A			EARTH EXPLORATION-SATELLITE (active) 5.562E FIXED INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A
134-136	AMATEUR AMATEUR-SATELLITE Radio astronomy			AMATEUR AMATEUR-SATELLITE Radio astronomy MLA88
136-141	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149			RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149 MLA88
141-148.5	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149			FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
148.5-151.5	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
151.5-155.5	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149			FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149
155.5-158.5	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.562F 5.562G			EARTH EXPLORATION-SATELLITE (passive) 5.562F FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.562G
158.5-164	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)			FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)
164-167	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
167-174.5	FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558 5.149 5.562D			FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558 5.149

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
174.5-174.8	FIXED INTER-SATELLITE MOBILE 5.558			FIXED INTER-SATELLITE MOBILE 5.558
174.8-182	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)			EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)
182-185	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
185-190	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)			EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)
190-191.8	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340			EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340
191.8-200	FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554			FIXED INTER-SATELLITE MOBILE-SATELLITE MOBILE 5.558 RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554
200-202	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
202-209	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A
209-217	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.341			FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.341
217-226	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341			FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341
226-231.5	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
231.5-232	FIXED MOBILE Radiolocation			FIXED MOBILE Radiolocation
232-235	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation			FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
235-238	EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B			EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B
238-240	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE			FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE
240-241	FIXED MOBILE RADIOLOCATION			FIXED MOBILE RADIOLOCATION
241-248	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149			RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149 MLA3 MLA88 MLA94
248-250	AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149			AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149 MLA88
250-252	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A			EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) RADIO ASTRONOMY 5.340 5.563A

Frequency Band (GHz)	ITU Allocations			Malaysian Allocations
	Region 1	Region 2	Region 3	
252-265	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554			FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554
265-275	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.563A			FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.563A
275-1000	(Not allocated) 5.565			(Not allocated) 5.565
1000 – 420 000	Not allocated			FIXED MOBILE MLA3

PART C – INTERNATIONAL FOOTNOTES

The listing of the footnotes contained in the International Table of Frequency Allocations is as revised by WRC-2007. It should be noted that some of the International footnotes not applicable to Malaysia have been suppressed. Malaysian footnotes, which have been developed to respond to specific Malaysian spectral requirements, are entered in the relevant Malaysian Allocation Table. To facilitate referencing of the revised footnotes by WRC-2000/WRC-2003/WRC-2007 to the footnotes previously in force, the latter footnotes are entered (in parenthesis) under the corresponding revised footnotes as shown in the following example:

5.53 - revised footnote

(444) - footnote previously in force

(Mod) WRC 2007 and Mod WRC2007 indicate editorial and substantial changes respectively made by WRC 2007. Add WRC 2007 indicates additions introduced by WRC-2007 and (similarly (Mod) WRC-95/97, Mod WRC-95/97 and Add WRC-95/97 are modifications made previously by WRC-95/97). The symbol Mob-87 indicates an addition, modification or deletion of a Provision, Appendix, Resolution or Recommendation by the World Administrative Radio Conference for the Mobile Services, Geneva, 1987. In the case of a deletion the symbol SUP is used.

5.53 Administrations authorizing the use of frequencies below 9 kHz shall ensure that no harmful interference is caused thereby to the services to which the bands above 9 kHz are allocated.

5.54 Administrations conducting scientific research using frequencies below 9 kHz are urged to advise other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference.

5.55 *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the band 14-17 kHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.56 The stations of services to which the bands 14-19.95 kHz and 20.05-70 kHz and in Region 1 also the bands 72-84 kHz and 86-90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC-07)

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.

5.58 *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, the band 67-70 kHz is also allocated to the radionavigation service on a primary basis. (WRC-2000)

5.59 *Different category of service:* in Bangladesh and Pakistan, the allocation of the bands 70-72 kHz and 84-86 kHz to the fixed and maritime mobile services is on a primary basis (see No. **5.33**). (WRC-2000)

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.

5.61 In Region 2, the establishment and operation of stations in the maritime radionavigation service in the bands 70-90 kHz and 110-130 kHz shall be subject to agreement obtained under No. **9.21** with administrations whose services, operating in accordance with the Table, may be affected. However, stations of the fixed, maritime mobile and radiolocation services shall not cause harmful interference to stations in the maritime radionavigation service established under such agreements.

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.

5.63 (SUP - WRC-97)

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.

5.65 *Different category of service:* in Bangladesh, the allocation of the bands 112-117.6 kHz and 126-129 kHz to the fixed and maritime mobile services is on a primary basis (see No. **5.33**). (WRC-2000)

5.66 *Different category of service:* in Germany, the allocation of the band 115-117.6 kHz to the fixed and maritime mobile services is on a primary basis (see No. **5.33**) and to the radionavigation service on a secondary basis (see No. **5.32**).

5.67 *Additional allocation:* in Mongolia, Kyrgyzstan and Turkmenistan, the band 130-148.5 kHz is also allocated to the radionavigation service on a secondary basis. Within and between these countries this service shall have an equal right to operate. (WRC-07)

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

5.67B The use of the band 135.7-137.8 kHz in Algeria, Egypt, Iran (Islamic Republic of), Iraq, Libyan Arab Jamahiriya, Lebanon, Syrian Arab Republic, Sudan and Tunisia is limited to the fixed and maritime mobile services. The amateur service shall not be used in the above-mentioned countries in the band 135.7-137.8 kHz, and this should be taken into account by the countries authorizing such use. (WRC-07)

5.68 *Alternative allocation:* in Angola, Burundi, Congo (Rep. of the), Malawi, the Dem. Rep. of the Congo, Rwanda and South Africa, the band 160-200 kHz is allocated to the fixed service on a primary basis. (WRC-03)

5.69 *Additional allocation:* in Somalia, the band 200-255 kHz is also allocated to the aeronautical radionavigation service on a primary basis.

5.70 *Alternative allocation:* in Angola, Botswana, Burundi, the Central African Rep., Congo (Rep. of the), Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, the Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Tanzania, Chad, Zambia and Zimbabwe, the band 200-283.5 kHz is allocated to the aeronautical radionavigation service on a primary basis. (WRC-07)

5.71 *Alternative allocation:* in Tunisia, the band 255-283.5 kHz is allocated to the broadcasting service on a primary basis.

5.72 Norwegian stations of the fixed service situated in northern areas (north of 60° N) subject to auroral disturbances are allowed to continue operation on four frequencies in the bands 283.5-490 kHz and 510-526.5 kHz.

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.

5.75 *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Moldova, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and the Black Sea areas of Romania, the allocation of the band 315-325 kHz to the maritime radionavigation service is on a primary basis under the condition that in the Baltic Sea area, the assignment of frequencies in this band to new stations in the maritime or aeronautical radionavigation services shall be subject to prior consultation between the administrations concerned. (WRC-07)

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.

5.77 *Different category of service:* in Australia, China, the French overseas communities of Region 3, India, Iran (Islamic Republic of), Japan, Pakistan, Papua New Guinea and Sri Lanka, the allocation of the band 415-495 kHz to the aeronautical radionavigation service is on a primary basis. Administrations in these countries shall take all practical steps necessary to ensure that aeronautical radionavigation stations in the band 435-495 kHz do not cause interference to reception by coast stations of ship stations transmitting on frequencies designated for ship stations on a worldwide basis (see No. **52.39**). (WRC-07)

5.78 *Different category of service:* in Cuba, the United States of America and Mexico, the allocation of the band 415-435 kHz to the aeronautical radionavigation service is on a primary basis.

5.79 The use of the bands 415-495 kHz and 505-526.5 kHz (505-510 kHz in Region 2) by the maritime mobile service is limited to radiotelegraphy.

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

5.80 In Region 2, the use of the band 435-495 kHz by the aeronautical radionavigation service is limited to non-directional beacons not employing voice transmission.

5.81 (SUP - WRC-2000)

5.82 In the maritime mobile service, the frequency 490 kHz is to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles **31** and **52**. In using the band 415-495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz. (WRC-07)

5.82A The use of the band 495-505 kHz is limited to radiotelegraphy. (WRC-07)

5.82B Administrations authorizing the use of frequencies in the band 495-505 kHz by services other than the maritime mobile service shall ensure that no harmful interference is caused to the maritime mobile service in this band or to the services having allocations in the adjacent bands, noting in particular the conditions of use of the frequencies 490 kHz and 518 kHz, as prescribed in Articles **31** and **52**. (WRC-07)

5.83 (SUP - WRC-07)

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

5.85 Not used.

5.86 In Region 2, in the band 525-535 kHz the carrier power of broadcasting stations shall not exceed 1 kW during the day and 250 W at night.

5.87 *Additional allocation:* in Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland and Zimbabwe, the band 526.5-535 kHz is also allocated to the mobile service on a secondary basis. (WRC-03)

5.87A *Additional allocation:* in Uzbekistan, the band 526.5-1 606.5 kHz is also allocated to the radionavigation service on a primary basis. Such use is subject to agreement obtained under No. **9.21** with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-97)

5.88 *Additional allocation:* in China, the band 526.5-535 kHz is also allocated to the aeronautical radionavigation service on a secondary basis.

5.89 In Region 2, the use of the band 1 605-1 705 kHz by stations of the broadcasting service is subject to the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).

The examination of frequency assignments to stations of the fixed and mobile services in the band 1 625-1 705 kHz shall take account of the allotments appearing in the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).

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

5.91 *Additional allocation:* in the Philippines and Sri Lanka, the band 1 606.5-1 705 kHz is also allocated to the broadcasting service on a secondary basis. (WRC-97)

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.

5.93 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Tajikistan, Chad, Turkmenistan and Ukraine, the bands 1 625-1 635 kHz, 1 800-1 810 kHz and 2 160-2 170 kHz are also allocated to the fixed and land mobile services on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-07)

5.94 and **5.95** Not used.

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

5.97 In Region 3, the Loran system operates either on 1 850 kHz or 1 950 kHz, the bands occupied being 1 825-1 875 kHz and 1 925-1 975 kHz respectively. Other services to which the band 1 800-2 000 kHz is allocated may use any frequency therein on condition that no harmful interference is caused to the Loran system operating on 1 850 kHz or 1 950 kHz.

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

5.99 *Additional allocation:* in Saudi Arabia, Austria, Iraq, the Libyan Arab Jamahiriya, Uzbekistan, Slovakia, Romania, Serbia, 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-07)

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

5.101 *Alternative allocation:* in Burundi and Lesotho, the band 1 810-1 850 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.102 *Alternative allocation:* in Bolivia, Chile, Mexico, Paraguay, Peru and Uruguay, the band 1 850-2 000 kHz is allocated to the fixed, mobile except aeronautical mobile, radiolocation and radionavigation services on a primary basis. (WRC-07)

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.

5.105 In Region 2, except in Greenland, coast stations and ship stations using radiotelephony in the band 2 065-2 107 kHz shall be limited to class J3E emissions and to a peak envelope power not exceeding 1 kW. Preferably, the following carrier frequencies should be used: 2 065.0 kHz, 2 079.0 kHz, 2 082.5 kHz, 2 086.0 kHz, 2 093.0 kHz, 2 096.5 kHz, 2 100.0 kHz and 2 103.5 kHz. In Argentina and Uruguay, the carrier frequencies 2 068.5 kHz and 2 075.5 kHz are also used for this purpose, while the frequencies within the band 2 072-2 075.5 kHz are used as provided in No. **52.165**.

5.106 In Regions 2 and 3, provided no harmful interference is caused to the maritime mobile service, the frequencies between 2 065 kHz and 2 107 kHz may be used by stations of the fixed service communicating only within national borders and whose mean power does not exceed 50 W. In notifying the frequencies, the attention of the Bureau should be drawn to these provisions.

5.107 *Additional allocation:* in Saudi Arabia, Eritrea, Ethiopia, Iraq, the Libyan Arab Jamahiriya, Lesotho, Somalia and Swaziland, the band 2 160-2 170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of stations in these services shall not exceed 50 W. (WRC-03)

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)

5.112 *Alternative allocation:* in Denmark, Malta, Serbia and Sri Lanka, the band 2 194-2 300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (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**.

5.114 *Alternative allocation:* in Denmark, Iraq, Malta and Serbia, the band 2 502-2 625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

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

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

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

5.117 *Alternative allocation:* in Côte d'Ivoire, Denmark, Egypt, Liberia, Malta, Serbia, Sri Lanka and Togo, the band 3 155-3 200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.118 *Additional allocation:* in the United States, Mexico, Peru and Uruguay, the band 3 230-3 400 kHz is also allocated to the radiolocation service on a secondary basis. (WRC-03)

5.119 *Additional allocation:* in Honduras, Mexico and Peru, the band 3 500-3 750 kHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)

5.120 (SUP - WRC-2000)

5.121 Not used.

5.122 *Alternative allocation:* in Bolivia, Chile, Ecuador, Paraguay, Peru and Uruguay, the band 3 750-4 000 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.123 *Additional allocation:* in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the band 3 900-3 950 kHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **9.21**.

5.124 (SUP - WRC-2000)

5.125 *Additional allocation:* in Greenland, the band 3 950-4 000 kHz is also allocated to the broadcasting service on a primary basis. The power of the broadcasting stations operating in this band shall not exceed that necessary for a national service and shall in no case exceed 5 kW.

5.126 In Region 3, the stations of those services to which the band 3 995-4 005 kHz is allocated may transmit standard frequency and time signals.

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

5.128 Frequencies in the bands 4 063-4 123 kHz and 4 130-4 438 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W, on condition that harmful interference is not caused to the maritime mobile service. In addition, in Afghanistan, Argentina, Armenia, Azerbaijan, Belarus, Botswana, Burkina Faso, the Central African Rep., China, the Russian Federation, Georgia, India, Kazakhstan, Mali, Niger, Kyrgyzstan, Tajikistan, Chad, Turkmenistan and Ukraine, in the bands 4 063-4 123 kHz, 4 130-4 133 kHz and 4 408-4 438 kHz, stations in the fixed service, with a mean power not exceeding 1 kW, can be operated on condition that they are situated at least 600 km from the coast and that harmful interference is not caused to the maritime mobile service. (WRC-07)

5.129 (SUP - WRC-07)

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**).

5.133 *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 5 130-5 250 kHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-07)

5.134 The use of the bands 5 900-5 950 kHz, 7 300-7 350 kHz, 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 13 570-13 600 kHz, 13 800-13 870 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz by the broadcasting service is subject to the application of the procedure of Article **12**. Administrations are encouraged to use these bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution **517 (Rev.WRC-07)**. (WRC-07)

5.135 (SUP - WRC-97)

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.

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

5.139 *Different category of service:* until 29 March 2009, in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 6 765-7 000 kHz to the land mobile service is on a primary basis (see No. **5.33**). (WRC-07)

5.140 *Additional allocation:* in Angola, Iraq, Kenya, Rwanda, Somalia and Togo, the band 7 000-7 050 kHz is also allocated to the fixed service on a primary basis. (WRC-03)

5.141 *Alternative allocation:* in Egypt, Eritrea, Ethiopia, Guinea, the Libyan Arab Jamahiriya and Madagascar, the band 7 000-7 050 kHz is allocated to the fixed service on a primary basis. (WRC-97)

5.141A *Additional allocation:* in Uzbekistan and Kyrgyzstan, the bands 7 000-7 100 kHz and 7 100-7 200 kHz are also allocated to the fixed and land mobile services on a secondary basis. (WRC-03)

5.141B *Additional allocation:* after 29 March 2009, in Algeria, Saudi Arabia, Australia, Bahrain, Botswana, Brunei Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United Arab Emirates, Eritrea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, the Libyan Arab Jamahiriya, Morocco, Mauritania, New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, Singapore, Sudan, Tunisia, Viet Nam and Yemen, the 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-03)

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

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

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

frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.143A In Region 3, the band 7 350-7 450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on 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-03)

5.143B In Region 1, the band 7 350-7 450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, on condition that harmful interference is not caused to the broadcasting service, frequencies in the band 7 350-7 450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located, each station using a total radiated power that shall not exceed 24 dBW. (WRC-03)

5.143C Additional allocation: after 29 March 2009 in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), the Libyan Arab Jamahiriya, Jordan, Kuwait, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, 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-03)

5.143D In Region 2, the band 7 350-7 400 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on 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-03)

5.143E Until 29 March 2009, the band 7 450-8 100 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. (WRC-03)

5.144 In Region 3, the stations of those services to which the band 7 995-8 005 kHz is allocated may transmit standard frequency and time signals.

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)

5.146 *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.

5.148 (SUP - WRC-97)

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

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

5.152 *Additional allocation:* in Armenia, Azerbaijan, China, Côte d'Ivoire, the Russian Federation, Georgia, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 14 250-14 350 kHz is also allocated to the fixed service on a primary basis. Stations of the fixed service shall not use a radiated power exceeding 24 dBW. (WRC-03)

5.153 In Region 3, the stations of those services to which the band 15 995-16 005 kHz is allocated may transmit standard frequency and time signals.

5.154 *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 18 068-18 168 kHz is also allocated to the fixed service on a primary basis for use within their boundaries, with a peak envelope power not exceeding 1 kW. (WRC-03)

5.155 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the band 21 850-21 870 kHz is also allocated to the aeronautical mobile (R) service on a primary basis. (WRC-07)

5.155A In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the use of the band 21 850-21 870 kHz by the fixed service is limited to provision of services related to aircraft flight safety. (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.

5.156 *Additional allocation:* in Nigeria, the band 22 720-23 200 kHz is also allocated to the meteorological aids service (radiosondes) on a primary basis.

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.

5.158 and **5.159** Not used.

5.160 *Additional allocation:* in Botswana, Burundi, Lesotho, Malawi, Dem. Rep. of the Congo, Rwanda and Swaziland, the band 41-44 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-2000)

5.161 *Additional allocation:* in Iran (Islamic Republic of) and Japan, the band 41-44 MHz is also allocated to the radiolocation service on a secondary basis.

5.162 *Additional allocation:* in Australia and New Zealand, the band 44-47 MHz is also allocated to the broadcasting service on a primary basis.

5.162A *Additional allocation:* in Germany, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Denmark, Spain, Estonia, the Russian Federation, Finland, France, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Luxembourg, Monaco, Montenegro, Norway, the Netherlands, Poland, Portugal, Slovakia, the Czech Rep., the United Kingdom, Serbia, Slovenia, Sweden and Switzerland the band 46-68 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (WRC-97)**. (WRC-07)

5.163 *Additional allocation:* in Armenia, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Rep., Tajikistan, Turkmenistan and Ukraine, the bands 47-48.5 MHz and 56.5-58 MHz are also allocated to the fixed and land mobile services on a secondary basis. (WRC-07)

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

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

5.166 *Alternative allocation:* in New Zealand, the band 50-51 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis; the band 53-54 MHz is allocated to the fixed and mobile services on a primary basis.

5.167 *Alternative allocation:* in Bangladesh, Brunei Darussalam, India, Iran (Islamic Republic of), Pakistan, Singapore and Thailand, the band 50-54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-07)

5.167A *Additional allocation:* in Indonesia, the band 50-54 MHz is also allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-07)

5.168 *Additional allocation:* in Australia, China and the Dem. People's Rep. of Korea, the band 50-54 MHz is also allocated to the broadcasting service on a primary basis.

5.169 *Alternative allocation:* in Botswana, Burundi, Lesotho, Malawi, Namibia, the Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Zambia and Zimbabwe, the band 50-54 MHz is allocated to the amateur service on a primary basis.

5.170 *Additional allocation:* in New Zealand, the band 51-53 MHz is also allocated to the fixed and mobile services on a primary basis.

5.171 *Additional allocation:* in Botswana, Burundi, Lesotho, Malawi, Mali, Namibia, Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland and Zimbabwe, the band 54-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.172 *Different category of service:* in the French overseas departments and communities in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 54-68 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**).

5.173 *Different category of service:* in the French overseas departments and communities in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 68-72 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**).

5.174 (SUP - WRC-07)

5.175 *Alternative allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the bands 68-73 MHz and 76-87.5 MHz are allocated to the broadcasting service on a primary basis. In Latvia and Lithuania, the bands 68-73 MHz and 76-87.5 MHz are allocated to the broadcasting and mobile, except aeronautical mobile, services on a primary basis. The services to which these bands are allocated in other countries and the broadcasting service in the countries listed above are subject to agreements with the neighbouring countries concerned. (WRC-07)

5.176 *Additional allocation:* in Australia, China, Korea (Rep. of), the Philippines, the Dem. People's Rep. of Korea and Samoa, the band 68-74 MHz is also allocated to the broadcasting service on a primary basis. (WRC-07)

5.177 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 73-74 MHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-07)

5.178 *Additional allocation:* in Colombia, Costa Rica, Cuba, El Salvador, Guatemala, Guyana, Honduras and Nicaragua, the band 73-74.6 MHz is also allocated to the fixed and mobile services on a secondary basis.

5.179 *Additional allocation:* in Armenia, Azerbaijan, Belarus, China, the Russian Federation, Georgia, Kazakhstan, Lithuania, Mongolia, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the bands 74.6-74.8 MHz and 75.2-75.4 MHz are also allocated to the aeronautical radionavigation service, on a primary basis, for ground-based transmitters only. (WRC-07)

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

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

5.181 *Additional allocation:* in Egypt, Israel and the Syrian Arab Republic, the band 74.8-75.2 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. **9.21**. (WRC-03)

5.182 *Additional allocation:* in Western Samoa, the band 75.4-87 MHz is also allocated to the broadcasting service on a primary basis.

5.183 *Additional allocation:* in China, Korea (Rep. of), Japan, the Philippines and the Dem. People's Rep. of Korea, the band 76-87 MHz is also allocated to the broadcasting service on a primary basis.

5.184 (SUP - WRC-07)

5.185 *Different category of service:* in the United States, the French overseas departments and communities in Region 2, Guyana, Jamaica, Mexico and Paraguay, the allocation of the band 76-88 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**).

5.186 (SUP - WRC-97)

5.187 *Alternative allocation:* in Albania, the band 81-87.5 MHz is allocated to the broadcasting service on a primary basis and used in accordance with the decisions contained in the Final Acts of the Special Regional Conference (Geneva, 1960).

5.188 *Additional allocation:* in Australia, the band 85-87 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service in Australia is subject to special agreements between the administrations concerned.

5.189 Not used.

5.190 *Additional allocation:* in Monaco, the band 87.5-88 MHz is also allocated to the land mobile service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-97)

5.191 Not used.

5.192 *Additional allocation:* in China and Korea (Rep. of), the band 100-108 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-97)

5.193 Not used.

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

5.195 and **5.196** Not used.

5.197 *Additional allocation:* in Pakistan and the Syrian Arab Republic, the band 108-111.975 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedures invoked under No. **9.21**. (WRC-07)

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

based transmitters and associated receivers that provide navigational information in support of air navigation functions in accordance with recognized international aeronautical standards. (WRC-07)

5.198 (SUP - WRC-07)

5.199 (SUP - WRC-07)

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

5.201 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Latvia, Moldova, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 132-136 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-97)

5.202 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Latvia, Moldova, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the 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-2000)

5.203 (SUP - WRC-07)

5.203A (SUP - WRC-07)

5.203B (SUP - WRC-07)

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

5.205 *Different category of service:* in Israel and Jordan, the allocation of the band 137-138 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**).

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

5.207 *Additional allocation:* in Australia, the band 137-144 MHz is also allocated to the broadcasting service on a primary basis until that service can be accommodated within regional broadcasting allocations.

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

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

5.208B[*] In the bands:

137-138 MHz,
387-390 MHz,
400.15-401 MHz,
1 452-1 492 MHz,
1 525-1 610 MHz,
1 613.8-1 626.5 MHz,
2 655-2 690 MHz,
21.4-22 GHz,

Resolution **739 (Rev.WRC-07)** applies. (WRC-07)

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

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

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

5.212 *Alternative allocation:* in Angola, Botswana, Burundi, Cameroon, the Central African Rep., Congo (Rep. of the), Gabon, Gambia, Ghana, Guinea, Iraq, Libyan Arab Jamahiriya, Jordan, Lesotho, Liberia, Malawi, Mozambique, Namibia, Oman, Uganda, Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sierra Leone, South Africa, Swaziland, Chad, Togo, Zambia and Zimbabwe, the band 138-144 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-07)

5.213 *Additional allocation:* in China, the band 138-144 MHz is also allocated to the radiolocation service on a primary basis.

5.214 *Additional allocation:* in Eritrea, Ethiopia, Kenya, The Former Yugoslav Republic of Macedonia, Malta, Montenegro, Serbia, Somalia, Sudan and Tanzania, the band 138-144 MHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.215 Not used.

5.216 *Additional allocation:* in China, the band 144-146 MHz is also allocated to the aeronautical mobile (OR) service on a secondary basis.

5.217 *Alternative allocation:* in Afghanistan, Bangladesh, Cuba, Guyana and India, the band 146-148 MHz is allocated to the fixed and mobile services on a primary basis.

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

5.219 The use of the band 148-149.9 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the band 148-149.9 MHz.

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

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

5.221 Stations of the mobile-satellite service in the band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, the Libyan Arab Jamahiriya, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-07)

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

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

5.224 (SUP - WRC-97)

5.224A The use of the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the mobile-satellite service (Earth-to-space) is limited to the land mobile-satellite service (Earth-to-space) until 1 January 2015. (WRC-97)

5.224B The allocation of the bands 149.9-150.05 MHz and 399.9-400.05 MHz to the radionavigation-satellite service shall be effective until 1 January 2015. (WRC-97)

5.225 *Additional allocation:* in Australia and India, the band 150.05-153 MHz is also allocated to the radio astronomy service on a primary basis.

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)

5.227A *Additional allocation:* the bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz are also allocated to the mobile-satellite service (Earth-to-space) on a secondary basis for the reception of automatic

identification system (AIS) emissions from stations operating in the maritime-mobile service (see Appendix **18**). (WRC-07)

5.228 Not used.

5.229 *Alternative allocation:* in Morocco, the band 162-174 MHz is allocated to the broadcasting service on a primary basis. The use of this band shall be subject to agreement with administrations having services, operating or planned, in accordance with the Table which are likely to be affected. Stations in existence on 1 January 1981, with their technical characteristics as of that date, are not affected by such agreement.

5.230 *Additional allocation:* in China, the band 163-167 MHz is also allocated to the space operation service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **9.21**.

5.231 *Additional allocation:* in Afghanistan, China and Pakistan, the band 167-174 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service into this band shall be subject to agreement with the neighbouring countries in Region 3 whose services are likely to be affected.

5.232 *Additional allocation:* in Japan, the band 170-174 MHz is also allocated to the broadcasting service on a primary basis.

5.233 *Additional allocation:* in China, the band 174-184 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis, subject to agreement obtained under No. **9.21**. These services shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations.

5.234 *Different category of service:* in Mexico, the allocation of the band 174-216 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**).

5.235 *Additional allocation:* in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein, Malta, Monaco, Norway, the Netherlands, the United Kingdom, Sweden and Switzerland, the band 174-223 MHz is also allocated to the land mobile service on a primary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.

5.236 Not used.

5.237 *Additional allocation:* in Congo (Rep. of the), Eritrea, Ethiopia, Gambia, Guinea, the Libyan Arab Jamahiriya, Malawi, Mali, Sierra Leone, Somalia and Chad, the band 174-223 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-07)

5.238 *Additional allocation:* in Bangladesh, India, Pakistan and the Philippines, the band 200-216 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

5.239 Not used.

5.240 *Additional allocation:* in China and India, the band 216-223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.

5.241 In Region 2, no new stations in the radiolocation service may be authorized in the band 216-225 MHz. Stations authorized prior to 1 January 1990 may continue to operate on a secondary basis.

5.242 *Additional allocation:* in Canada, the band 216-220 MHz is also allocated to the land mobile service on a primary basis.

5.243 *Additional allocation:* in Somalia, the band 216-225 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to not causing harmful interference to existing or planned broadcasting services in other countries.

5.244 (SUP - WRC-97)

5.245 *Additional allocation:* in Japan, the band 222-223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.

5.246 *Alternative allocation:* in Spain, France, Israel and Monaco, the band 223-230 MHz is allocated to the broadcasting and land mobile services on a primary basis (see No. **5.33**) on the basis that, in the preparation of frequency plans, the broadcasting service shall have prior choice of frequencies; and allocated to the fixed and mobile, except land mobile, services on a secondary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations in Morocco and Algeria.

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.

5.248 and **5.249** Not used.

5.250 *Additional allocation*: in China, the band 225-235 MHz is also allocated to the radio astronomy service on a secondary basis.

5.251 *Additional allocation:* in Nigeria, the band 230-235 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to agreement obtained under No. **9.21**.

5.252 *Alternative allocation:* in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the bands 230-238 MHz and 246-254 MHz are allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **9.21**.

5.253 Not used.

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)

5.256A *Additional allocation:* in China, the Russian Federation, Kazakhstan and Ukraine, the band 258-261 MHz is also allocated to the space research service (Earth-to-space) and space operation service (Earth-to-space) on a primary basis. Stations in the space research service (Earth-to-space) and space operation service (Earth-to-space) shall not cause harmful interference to, nor claim protection from, nor constrain the use and development of the mobile service systems and mobile-satellite service systems operating in the band. Stations in space research service (Earth-to-space) and space operation service (Earth-to-space) shall not constrain the future development of fixed service systems of other countries. (WRC-03)

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

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

5.259 *Additional allocation:* in Egypt, Israel and the Syrian Arab Republic, the band 328.6-335.4 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. **9.21**. (WRC-07)

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

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

5.262 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Botswana, Colombia, Costa Rica, Cuba, Egypt, the United Arab Emirates, Ecuador, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Liberia, Malaysia, Moldova, Uzbekistan, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Kyrgyzstan, Romania, Singapore, Somalia, Tajikistan, Turkmenistan and Ukraine, the band 400.05-401 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)

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

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

5.265 Not used.

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 communications within 5 km of an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from extra-vehicular activities shall not exceed -153 dB(W/m^2) for $0° \le \delta \le 5°$, $-153 + 0.077\ (\delta - 5)$ dB(W/m^2) for $5° \le \delta \le 70°$ and -148 dB(W/m^2) for $70° \le \delta \le 90°$, where δ is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. No. **4.10** does not apply to extra-vehicular activities. In this frequency band the space research (space-to-space) service shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. (WRC-97)

5.269 *Different category of service:* in Australia, the United States, India, Japan and the United Kingdom, the allocation of the bands 420-430 MHz and 440-450 MHz to the radiolocation service is on a primary basis (see No. **5.33**).

5.270 *Additional allocation:* in Australia, the United States, Jamaica and the Philippines, the bands 420-430 MHz and 440-450 MHz are also allocated to the amateur service on a secondary basis.

5.271 *Additional allocation:* in Belarus, China, India, Kyrgyzstan and Turkmenistan, the band 420-460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis. (WRC-07)

5.272 *Different category of service:* in France, the allocation of the band 430-434 MHz to the amateur service is on a secondary basis (see No. **5.32**).

5.273 *Different category of service:* in the Libyan Arab Jamahiriya, the allocation of the bands 430-432 MHz and 438-440 MHz to the radiolocation service is on a secondary basis (see No. **5.32**). (WRC-03)

5.274 *Alternative allocation:* in Denmark, Norway and Sweden, the bands 430-432 MHz and 438-440 MHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.275 *Additional allocation:* in Croatia, Estonia, Finland, Libyan Arab Jamahiriya, The Former Yugoslav Republic of Macedonia, Montenegro, Serbia and Slovenia, the bands 430-432 MHz and 438-440 MHz are also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

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

5.277 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo (Rep. of the), Djibouti, the Russian Federation, Georgia, Hungary, Israel, Kazakhstan, Mali, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Romania, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the band 430-440 MHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.278 *Different category of service:* in Argentina, Colombia, Costa Rica, Cuba, Guyana, Honduras, Panama and Venezuela, the allocation of the band 430-440 MHz to the amateur service is on a primary basis (see No. **5.33**).

5.279 *Additional allocation:* in Mexico, the bands 430-435 MHz and 438-440 MHz are also allocated on a primary basis to the land mobile service, subject to agreement obtained under No. **9.21**.

5.279A The use of this band by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU-R RS.1260-1. Additionally, the Earth exploration-satellite service (active) in the 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-03)

5.280 In Germany, Austria, Bosnia and Herzegovina, Croatia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Montenegro, Portugal, Serbia, Slovenia and Switzerland, the band 433.05-434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services of these countries operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. **15.13**. (WRC-07)

5.281 *Additional allocation:* in the French overseas departments and communities in Region 2 and India, the band 433.75-434.25 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis. In France and in Brazil, the band is allocated to the same service on a secondary basis.

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

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

5.284 *Additional allocation:* in Canada, the band 440-450 MHz is also allocated to the amateur service on a secondary basis.

5.285 *Different category of service:* in Canada, the allocation of the band 440-450 MHz to the radiolocation service is on a primary basis (see No. **5.33**).

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

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

5.286AA The band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolution **224 (Rev.WRC-07)**. This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-07)

5.286B The use of the band 454-455 MHz in the countries listed in No. **5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **5.286E**, by stations in the mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)

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

the mobile-satellite service, shall not constrain the development and use of the fixed and mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)

5.286D *Additional allocation:* in Canada, the United States and Panama, the band 454-455 MHz is also allocated to the mobile-satellite service (Earth-to-space) on a primary basis. (WRC-07)

5.286E *Additional allocation:* in Cape Verde, Nepal and Nigeria, the bands 454-456 MHz and 459-460 MHz are also allocated to the mobile-satellite (Earth-to-space) service on a primary basis. (WRC-07)

5.287 In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. Where needed, equipment designed for 12.5 kHz channel spacing using also the additional frequencies 457.5375 MHz, 457.5625 MHz, 467.5375 MHz and 467.5625 MHz may be introduced for on-board communications. The use of these frequencies in territorial waters may be subject to the national regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-2. (WRC-07)

5.288 In the territorial waters of the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-2. (WRC-03)

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.

5.290 *Different category of service:* in Afghanistan, Azerbaijan, Belarus, China, the Russian Federation, Japan, Mongolia, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 460-470 MHz to the meteorological-satellite service (space-to-Earth) is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-07)

5.291 *Additional allocation:* in China, the band 470-485 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis subject to agreement obtained under No. **9.21** and subject to not causing harmful interference to existing and planned broadcasting stations.

5.291A *Additional allocation:* in Germany, Austria, Denmark, Estonia, Finland, Liechtenstein, Norway, Netherlands, the Czech Rep. and Switzerland, the band 470-494 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (WRC-97)**. (WRC-97)

5.292 *Different category of service:* in Mexico, the allocation of the band 470-512 MHz to the fixed and mobile services, and in Argentina, Uruguay and Venezuela to the mobile service, is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-07)

5.293 *Different category of service:* in Canada, Chile, Colombia, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-806 MHz to the fixed service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. In Canada, Chile, Colombia, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-698 MHz to the mobile service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. In Argentina and Ecuador, the allocation of the band 470-512 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-07)

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

5.295 Not used.

5.296 *Additional allocation:* in Germany, Saudi Arabia, Austria, Belgium, Côte d'Ivoire, Denmark, Egypt, Spain, Finland, France, Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Jordan, Lithuania, Malta, Morocco, Monaco, Norway, Oman, the Netherlands, Portugal, the Syrian Arab Republic, the United Kingdom, Sweden, Switzerland, Swaziland and Tunisia, the band 470-790 MHz is also allocated on a secondary basis to

the land mobile service, intended for applications ancillary to broadcasting. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote. (WRC-07)

5.297 *Additional allocation:* in Canada, Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana, Honduras, Jamaica and Mexico, the band 512-608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-07)

5.298 *Additional allocation:* in India, the band 549.75-550.25 MHz is also allocated to the space operation service (space-to-Earth) on a secondary basis.

5.299 Not used.

5.300 *Additional allocation:* in Saudi Arabia, Egypt, Israel, the Libyan Arab Jamahiriya, Jordan, Oman, 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-07)

5.301 Not used.

5.302 *Additional allocation:* in the United Kingdom, the band 590-598 MHz is also allocated to the aeronautical radionavigation service on a primary basis. All new assignments to stations in the aeronautical radionavigation service, including those transferred from the adjacent bands, shall be subject to coordination with the Administrations of the following countries: Germany, Belgium, Denmark, Spain, France, Ireland, Luxembourg, Morocco, Norway and the Netherlands.

5.303 Not used.

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

5.305 *Additional allocation:* in China, the band 606-614 MHz is also allocated to the radio astronomy service on a primary basis.

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

5.307 *Additional allocation:* in India, the band 608-614 MHz is also allocated to the radio astronomy service on a primary basis.

5.308 Not used.

5.309 *Different category of service*: in Costa Rica, El Salvador and Honduras, the allocation of the band 614-806 MHz to the fixed service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**.

5.310 (SUP - WRC-97)

5.311 (SUP - WRC-07)

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

5.312 *Additional allocation*: in Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 645-862 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-03)

5.313 (SUP - WRC-97)

5.313A The band, or portions of the band 698-790 MHz, in Bangladesh, China, Korea (Rep. of), India, Japan, New Zealand, Papua New Guinea, Philippines and Singapore are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. In China, the use of IMT in this band will not start until 2015. (WRC-07)

5.313B *Different category of service:* in Brazil, the allocation of the band 698-806 MHz to the mobile service is on a secondary basis (see No. **5.32**). (WRC-07)

5.314 *Additional allocation*: in Austria, Italy, Moldova, Uzbekistan, Kyrgyzstan, the United Kingdom and Swaziland, the band 790-862 MHz is also allocated to the land mobile service on a secondary basis. (WRC-07)

5.315 *Alternative allocation*: in Greece, Italy and Tunisia, the band 790-838 MHz is allocated to the broadcasting service on a primary basis. (WRC-2000)

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

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

5.316B In Region 1, the allocation to the mobile, except aeronautical mobile, service on a primary basis in the frequency band 790-862 MHz shall come into effect from 17 June 2015 and shall be subject to agreement obtained under No. **9.21** with respect to the aeronautical radionavigation service in countries mentioned in No. **5.312**. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolutions **224 (Rev.WRC-07)** and **749 (WRC-07)** shall apply. (WRC-07)

5.317 *Additional allocation*: in Region 2 (except Brazil and the United States), the band 806-890 MHz is also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. **9.21**. The use of this service is intended for operation within national boundaries.

5.317A Those parts of the band 698-960 MHz in Region 2 and the band 790-960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolutions **224 (Rev.WRC-07)** and **749 (WRC-07)**. This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-07)

5.318 *Additional allocation*: in Canada, the United States and Mexico, the bands 849-851 MHz and 894-896 MHz are also allocated to the aeronautical mobile service on a primary basis, for public correspondence with aircraft. The use of the band 849-851 MHz is limited to transmissions from aeronautical stations and the use of the band 894-896 MHz is limited to transmissions from aircraft stations.

5.319 *Additional allocation*: in Belarus, the Russian Federation and Ukraine, the bands 806-840 MHz (Earth-to-space) and 856-890 MHz (space-to-Earth) are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service. The use of these bands by this service shall not cause harmful interference to, or claim protection from, services in other countries operating in accordance with the Table of Frequency Allocations and is subject to special agreements between the administrations concerned.

5.320 *Additional allocation*: in Region 3, the bands 806-890 MHz and 942-960 MHz are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service on a primary basis, subject to agreement obtained under No. **9.21**. The use of this service is limited to operation within national boundaries. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table, to ensure that no harmful interference is caused to such services.

5.321 (SUP - WRC-07)

5.322 In Region 1, in the band 862-960 MHz, stations of the broadcasting service shall be operated only in the African Broadcasting Area (see Nos. **5.10** to **5.13**) excluding Algeria, Egypt, Spain, the Libyan Arab Jamahiriya, Morocco, Namibia, Nigeria, South Africa, Tanzania, Zimbabwe and Zambia, subject to agreement obtained under No. **9.21**. (WRC-2000)

5.323 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Hungary, Kazakhstan, Moldova, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the band 862-960 MHz is also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. **9.21** with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-07)

5.324 Not used.

5.325 *Different category of service*: in the United States, the allocation of the band 890-942 MHz to the radiolocation service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**.

5.325A *Different category of service:* in Cuba, the allocation of the band 902-915 MHz to the land mobile service is on a primary basis. (WRC-2000)

5.326 *Different category of service*: in Chile, the band 903-905 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. **9.21**.

5.327 *Different category of service*: in Australia, the allocation of the band 915-928 MHz to the radiolocation service is on a primary basis (see No. **5.33**).

5.327A The use of the band 960-1 164 MHz by the aeronautical mobile (R) service is limited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **417 (WRC-07)**. (WRC-07)

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)

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

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

5.329A Use of systems in the radionavigation-satellite service (space-to-space) operating in the bands 1 215-1 300 MHz and 1 559-1 610 MHz is not intended to provide safety service applications, and shall not impose

any additional constraints on radionavigation-satellite service (space-to-Earth) systems or on other services operating in accordance with the Table of Frequency Allocations. (WRC-07)

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

5.331 *Additional allocation:* in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the band 1 215-1 300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the band 1 240-1 300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service. (WRC-07)

5.332 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)

5.333 (SUP - WRC-97)

5.334 *Additional allocation:* in Canada and the United States, the band 1 350-1 370 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-03)

5.335 In Canada and the United States in the band 1 240-1 300 MHz, active spaceborne sensors in the earth exploration-satellite and space research services shall not cause interference to, claim protection from, or otherwise impose constraints on operation or development of the aeronautical radionavigation service. (WRC-97)

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)

5.336 Not used.

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)

5.338 In Mongolia, Kyrgyzstan, Slovakia, the Czech Rep. and Turkmenistan, existing installations of the radionavigation service may continue to operate in the band 1 350-1 400 MHz. (WRC-07)

5.338A In the bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz and 51.4-52.6 GHz, Resolution **750 (WRC-07)** applies. (WRC-07)

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.

5.339A (SUP - WRC-07)

5.340 All emissions are prohibited in the following bands:

1 400-1 427 MHz,

2 690-2 700 MHz, except those provided for by No. **5.422**,

10.68-10.7 GHz, except those provided for by No. **5.483**,

15.35-15.4 GHz, except those provided for by No. **5.511**,

23.6-24 GHz,

31.3-31.5 GHz,

31.5-31.8 GHz, in Region 2,

48.94-49.04 GHz, from airborne stations

50.2-50.4 GHz[2],

52.6-54.25 GHz,

86-92 GHz,

100-102 GHz,

109.5-111.8 GHz,

114.25-116 GHz,

148.5-151.5 GHz,

164-167 GHz,

182-185 GHz,

190-191.8 GHz,

200-209 GHz,

226-231.5 GHz,

250-252 GHz. (WRC-03)

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

5.342 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Uzbekistan, Kyrgystan and Ukraine, the band 1 429-1 535 MHz is also allocated to the aeronautical mobile service on a primary basis exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the band 1 452-1 492 MHz is subject to agreement between the administrations concerned. (WRC-2000)

5.343 In Region 2, the use of the band 1 435-1 535 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.

5.344 *Alternative allocation:* in the United States, the band 1 452-1 525 MHz is allocated to the fixed and mobile services on a primary basis (see also No. **5.343**).

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

5.346 Not used.

5.347 (SUP - WRC-07)

5.347A** (SUP - WRC-07)

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[2] **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)

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

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. **5.43A** does not apply. (WRC-03)

5.348C (SUP - WRC-07)

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

5.350 *Additional allocation:* in Azerbaijan, Kyrgyzstan and Turkmenistan, the band 1 525-1 530 MHz is also allocated to the aeronautical mobile service on a primary basis. (WRC-2000)

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

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

5.352 (SUP - WRC-97)

5.352A In the band 1 525-1 530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in France and French overseas communities of Region 3, Algeria, Saudi Arabia, Egypt, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Malta, Morocco, Mauritania, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Tanzania, Viet Nam and Yemen notified prior to 1 April 1998. (WRC-97)

5.353 (SUP - WRC-97)

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

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

[**] *Note by the Secretariat:* This provision has been modified by WRC-07, and subsequently renumbered No. **5.208B** in order to preserve the sequential order.

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

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

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

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

5.357A In applying the procedures of Section II of Article **9** to the mobile-satellite service in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **44**. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44** shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution **222 (WRC-2000)*** shall apply.) (WRC-2000)

5.358 (SUP - WRC-97)

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

5.360 to **5.362** (SUP - WRC-97)

5.362A In the United States, in the bands 1 555-1 559 MHz and 1 656.5-1 660.5 MHz, the aeronautical mobile-satellite (R) service 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. (WRC-97)

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

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

5.363 (SUP - WRC-07)

5.364 The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under 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 bands 1 610-1 626.5 MHz and 5 000-5 150 MHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. **9.21**.

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

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

5.370 *Different category of service:* in Venezuela, the allocation to the radiodetermination-satellite service in the band 1 610-1 626.5 MHz (Earth-to-space) is on a secondary basis.

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

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

5.373 Not used.

5.373A (SUP - WRC-97)

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)

5.377 (SUP - WRC-03)

5.378 Not used.

5.379 *Additional allocation:* in Bangladesh, India, Indonesia, Nigeria and Pakistan, the band 1 660.5-1 668.4 MHz is also allocated to the meteorological aids service on a secondary basis.

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

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

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

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

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

5.380 (SUP - WRC-07)

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

5.381 *Additional allocation:* in Afghanistan, Costa Rica, Cuba, India, Iran (Islamic Republic of) and Pakistan, the band 1 690-1 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-03)

5.382 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Iraq, Israel, Jordan, Kazakhstan, Kuwait, the Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Serbia, Somalia, Tajikistan, Tanzania, Turkmenistan, Ukraine and Yemen, the allocation of the band 1 690-1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**), and in the Dem. People's Rep. of Korea, the allocation of the band 1 690-1 700 MHz to the fixed service is on a primary basis (see No. **5.33**) and to the mobile, except aeronautical mobile, service on a secondary basis. (WRC-07)

5.383 Not used.

5.384 *Additional allocation:* in India, Indonesia and Japan, the band 1 700-1 710 MHz is also allocated to the space research service (space-to-Earth) on a primary basis. (WRC-97)

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

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

5.386 *Additional allocation:* the band 1 750-1 850 MHz is also allocated to the space operation (Earth-to-space) and space research (Earth-to-space) services in Region 2, in Australia, Guam, India, Indonesia and Japan on a primary basis, subject to agreement obtained under No. **9.21**, having particular regard to troposcatter systems. (WRC-03)

5.387 *Additional allocation:* in Belarus, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, Romania, Tajikistan and Turkmenistan, the band 1 770-1 790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-07)

5.388 The bands 1 885-2 025 MHz and 2 110-2 200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000). Such use does not preclude the use of these bands by other services to which they are allocated. The bands should be made available for IMT-2000 in accordance with Resolution **212 (Rev.WRC-97)**[*]. (See also Resolution **223 (WRC-2000)**[*].) (WRC-2000)

5.388A In Regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz and, in Region 2, the bands 1 885-1 980 MHz and 2 110-2 160 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications-2000 (IMT-2000), in accordance with Resolution **221 (Rev.WRC-03)**[*]. Their use by IMT-2000 applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-03)

5.388B 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, the Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT-2000 mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT-2000 base station in neighbouring countries, in the bands referred to in No. **5.388A**, shall not exceed a co-channel power flux-density of -127 dB(W/($m^2 \cdot$ 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-03)

5.389 Not used.

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

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

5.389C The use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz in Region 2 by the mobile-satellite service is subject to coordination under No. **9.11A** and to the provisions of Resolution **716 (Rev.WRC-2000)**. (WRC-07)

5.389D (SUP - WRC-03)

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

5.389F In Algeria, Benin, Cape Verde, Egypt, Iran (Islamic Republic of), Mali, Syrian Arab Republic and Tunisia, the use of the bands 1 980-2 010 MHz and 2 170-2 200 MHz by the mobile-satellite service shall neither cause harmful interference to the fixed and mobile services, nor hamper the development of those services prior to 1 January 2005, nor shall the former service request protection from the latter services. (WRC-2000)

5.390 (SUP - WRC-07)

5.391 In making assignments to the mobile service in the bands 2 025-2 110 MHz and 2 200-2 290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154, and shall take that Recommendation into account for the introduction of any other type of mobile system. (WRC-97)

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

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

5.392A (SUP - WRC-07)

5.393 *Additional allocation:* in Canada, the United States, India and Mexico, the band 2 310-2 360 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial sound 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-03)**, with the exception of *resolves* 3 in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz. (WRC-07)

5.394 In the United States, the use of the band 2 300-2 390 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. In Canada, the use of the band 2 360-2 400 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. (WRC-07)

5.395 In France and Turkey, the use of the band 2 310-2 360 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service. (WRC-03)

5.396 Space stations of the broadcasting-satellite service in the band 2 310-2 360 MHz operating in accordance with No. **5.393** that may affect the services to which this band is allocated in other countries shall be coordinated and notified in accordance with Resolution **33 (Rev.WRC-97)**[*]. Complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use.

5.397 *Different category of service:* in France, the band 2 450-2 500 MHz is allocated on a primary basis to the radiolocation service (see No. **5.33**). Such use is subject to agreement with administrations having services operating or planned to operate in accordance with the Table of Frequency Allocations which may be affected.

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

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

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

5.401 Not used.

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

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

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

5.404 *Additional allocation:* in India and Iran (Islamic Republic of), the band 2 500-2 516.5 MHz may also be used for the radiodetermination-satellite service (space-to-Earth) for operation limited to within national boundaries, subject to agreement obtained under No. **9.21**.

5.405 *Additional allocation:* in France, the band 2 500-2 550 MHz is also allocated to the radiolocation service on a primary basis. Such use is subject to agreement with the administrations having services operating or planned to operate in accordance with the Table which may be affected.

5.406 Not used.

5.407 In the band 2 500-2 520 MHz, the power flux-density at the surface of the Earth from space stations operating in the mobile-satellite (space-to-Earth) service shall not exceed –152 dB(W/(m^2 · 4 kHz)) in Argentina, unless otherwise agreed by the administrations concerned.

5.408 (SUP - WRC-2000)

5.409 (SUP - WRC-07)

5.410 The band 2 500-2 690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. **9.21**. Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in this band. When planning new tropospheric scatter radio-relay links in this band, all possible measures shall be taken to avoid directing the antennas of these links towards the geostationary-satellite orbit. (WRC-07)

5.411 (SUP - WRC-07)

5.412 *Alternative allocation:* in Azerbaijan, Kyrgyzstan and Turkmenistan, the band 2 500-2 690 MHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

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

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

5.414A In Japan and India, the use of the bands 2 500-2 520 MHz and 2 520-2 535 MHz, under No. **5.403**, by a satellite network in the mobile-satellite service (space-to-Earth) is limited to operation within national boundaries and subject to the application of No. **9.11A**. The following pfd values shall be used as a threshold for coordination under No. **9.11A**, for all conditions and for all methods of modulation, in an area of 1 000 km around the territory of the administration notifying the mobile-satellite service network:

-136 dB(W/(m^2 · MHz)) for $0° \le \theta \le 5°$

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

-125 dB(W/(m^2 · MHz)) for $25° < \theta \le 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. Outside this area Table **21-4** of Article **21** shall apply. Furthermore, the coordination thresholds in Table 5-2 of Annex 1 to Appendix **5** of the Radio Regulations (Edition of 2004), in conjunction with the applicable provisions of Articles **9** and **11** associated with No. **9.11A**, shall apply to systems for which complete notification information has been received by the Radicommunication Bureau by 14 November 2007 and that have been brought into use by that date. (WRC-07)

5.415 The use of the bands 2 500-2 690 MHz in Region 2 and 2 500-2 535 MHz and 2 655-2 690 MHz in Region 3 by the fixed-satellite service is limited to national and regional systems, subject to agreement obtained under No. **9.21**, giving particular attention to the broadcasting-satellite service in Region 1. (WRC-07)

5.415A *Additional allocation*: in India and Japan, subject to agreement obtained under No. **9.21**, the band 2 515-2 535 MHz may also be used for the aeronautical mobile-satellite service (space-to-Earth) for operation limited to within their national boundaries. (WRC-2000)

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)

5.417 (SUP - WRC-2000)

5.417A In applying provision No. **5.418**, in Korea (Rep. of) and Japan, *resolves* 3 of Resolution **528 (Rev.WRC-03)** is relaxed to allow the broadcasting-satellite service (sound) and the complementary terrestrial broadcasting service to additionally operate on a primary basis in the band 2 605-2 630 MHz. This use is limited to systems intended for national coverage. 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**. The provisions of No. **5.416** and Table **21-4** of Article **21** do not apply. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) in the band 2 605-2 630 MHz is subject to the provisions of Resolution **539 (Rev.WRC-03)**. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the band 2 605-2 630 MHz for which complete Appendix **4** coordination information, or notification information, has been received after 4 July 2003, for all conditions and for all methods of modulation, shall not exceed the following limits:

$$-130 \quad \text{dB}(\text{W}/(\text{m}^2 \cdot \text{MHz})) \qquad \text{for} \quad 0° \le \theta \le 5°$$

$$-130 + 0.4\,(\theta - 5) \quad \text{dB}(\text{W}/(\text{m}^2 \cdot \text{MHz})) \qquad \text{for} \quad 5° < \theta \le 25°$$

$$-122 \quad \text{dB}(\text{W}/(\text{m}^2 \cdot \text{MHz})) \qquad \text{for} \quad 25° < \theta \le 90°$$

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. In the case of the broadcasting-satellite service (sound) networks of Korea (Rep. of), as an exception to the limits above, the power flux-density value of -122 dB(W/(m^2 · MHz)) shall be used as a threshold for coordination under No. **9.11** in an area of 1 000 km around the territory of the administration notifying the broadcasting-satellite service (sound) system, for angles of arrival greater than 35°. (WRC-03)

5.417B In Korea (Rep. of) and Japan, use of the band 2 605-2 630 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. **5.417A**, for which complete Appendix **4** coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No. **9.12A**, in respect of geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, is considered to have been received after 4 July 2003, and No. **22.2** does not apply. No. **22.2** shall continue to apply with respect to geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, is considered to have been received before 5 July 2003. (WRC-03)

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

5.417D Use of the band 2 605-2 630 MHz by geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, has been received after 4 July 2003 is subject to the application of the provisions of No. **9.13** with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. **5.417A**, and No. **22.2** does not apply. (WRC-03)

5.418 *Additional allocation:* in Korea (Rep. of), India, Japan, Pakistan and Thailand, the band 2 535-2 655 MHz is also allocated to the broadcasting-satellite 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-03)**. The provisions of No. **5.416** and Table **21-4** of Article **21**, do not apply to this additional allocation. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) is subject to Resolution **539 (Rev.WRC-03)**. 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 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/(m^2 · MHz)) for $0° \le \theta \le 5°$

$-130 + 0.4\,(\theta - 5)$ dB(W/(m^2 · MHz)) for $5° < \theta \le 25°$

-122 dB(W/(m^2 · MHz)) for $25° < \theta \le 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. 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/(m^2 · 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-07)

5.418A In certain Region 3 countries listed in No. **5.418**, use of the band 2 630-2 655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound) 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. **9.12A**, in respect of geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, is considered to have been received after 2 June 2000, and No. **22.2** does not apply. No. **22.2** shall continue to apply with respect to geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, is considered to have been received before 3 June 2000. (WRC-03)

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

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

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

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

5.420A (SUP - WRC-07)

5.421 (SUP - WRC-03)

5.422 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Brunei Darussalam, Congo (Rep. of the), Côte d'Ivoire, Cuba, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Mauritania, Moldova, Mongolia, Montenegro, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, the Dem. Rep. of the Congo, Romania, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine and Yemen, the band 2 690-2 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-07)

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

5.424 *Additional allocation:* in Canada, the band 2 850-2 900 MHz is also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars.

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**.

5.428 *Additional allocation:* in Azerbaijan, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3 100-3 300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

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

5.430 *Additional allocation:* in Azerbaijan, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3 300-3 400 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.430A *Different category of service:* in Albania, Algeria, Germany, Andorra, Saudi Arabia, Austria, Azerbaijan, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cameroon, Cyprus, Vatican, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Egypt, Spain, Estonia, Finland, France and French overseas departments and communities in Region 1, Gabon, Georgia, Greece, Guinea, Hungary, Ireland, Iceland, Israel, Italy, Jordan, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Malawi, Mali, Malta, Morocco, Mauritania, Moldova, Monaco, Mongolia, Montenegro, Mozambique, Namibia, Niger, Norway, Oman, Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Senegal, Serbia, Sierra Leone, Slovenia, South Africa, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe, the band 3 400-3 600 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis subject to agreement obtained under No. **9.21** with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed -154.5 dB(W/($m^2 \cdot 4$ kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). This allocation is effective from 17 November 2010. (WRC-07)

5.431 *Additional allocation:* in Germany, Israel and the United Kingdom, the band 3 400-3 475 MHz is also allocated to the amateur service on a secondary basis. (WRC-03)

5.431A *Different category of service:* in Argentina, Brazil, Chile, Costa Rica, Cuba, Dominican Republic, El Salvador, Guatemala, Mexico, Paraguay, Suriname, Uruguay, Venezuela and French overseas departments and communities in Region 2, the band 3 400-3 500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. **9.21**. Stations of the mobile service in the band 3 400-3 500 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-07)

5.432 *Different category of service:* in Korea (Rep. of), Japan and Pakistan, the allocation of the band 3 400-3 500 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-2000)

5.432A In Korea (Rep. of), Japan and Pakistan, the band 3 400-3 500 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m^2 · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3 400-3 500 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-07)

5.432B *Different category of service:* in Bangladesh, China, India, Iran (Islamic Republic of), New Zealand, Singapore and French overseas communities in Region 3, the band 3 400-3 500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. **9.21** with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m^2 · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3 400-3 500 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). This allocation is effective from 17 November 2010. (WRC-07)

5.433 In Regions 2 and 3, in the band 3 400-3 600 MHz the radiolocation service is allocated on a primary basis. However, all administrations operating radiolocation systems in this band are urged to cease operations by 1985. Thereafter, administrations shall take all practicable steps to protect the fixed-satellite service and coordination requirements shall not be imposed on the fixed-satellite service.

5.433A In Bangladesh, China, Korea (Rep. of), India, Iran (Islamic Republic of), Japan, New Zealand, Pakistan and French overseas communities in Region 3, the band 3 500-3 600 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m^2 · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3 500-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-07)

5.434 (SUP - WRC-97)

5.435 In Japan, in the band 3 620-3 700 MHz, the radiolocation service is excluded.

5.436 Not used.

5.437 (SUP - WRC-2000)

5.438 Use of the band 4 200-4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. However, passive sensing in the Earth exploration-satellite and space research services may be authorized in this band on a secondary basis (no protection is provided by the radio altimeters).

5.439 *Additional allocation:* in Iran (Islamic Republic of) and Libyan Arab Jamahiriya, the band 4 200-4 400 MHz is also allocated to the fixed service on a secondary basis. (WRC-2000)

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**.

5.440A In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Paraguay, Uruguay and Venezuela), and in Australia, the band 4 400-4 940 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. **1.83**). Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to, nor claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of these bands by other mobile service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-07)

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

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

5.443 *Different category of service:* in Argentina, Australia and Canada, the allocation of the bands 4 825-4 835 MHz and 4 950-4 990 MHz to the radio astronomy service is on a primary basis (see No. **5.33**).

5.443A (SUP - WRC-03)

5.443B In order not to cause harmful interference to the microwave landing system operating above 5 030 MHz, the aggregate power flux-density produced at the Earth's surface in the band 5 030-5 150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5 010-5 030 MHz shall not exceed –124.5 dB(W/m^2) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4 990-5 000 MHz, radionavigation-satellite service systems operating in the band 5 010-5 030 MHz shall comply with the limits in the band 4 990-5 000 MHz defined in Resolution **741 (WRC-03)**. (WRC-03)

5.444 The band 5 030-5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. In the band 5 030-5 091 MHz, the requirements of this system shall take precedence over other uses of this band. For the use of the band 5 091-5 150 MHz, No. **5.444A** and Resolution **114 (Rev.WRC-03)** apply. (WRC-07)

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

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

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

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

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

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

– systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution **748 (WRC-07)**;

– aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **418 (WRC-07)**;

– aeronautical security transmissions. Such use shall be in accordance with Resolution **419 (WRC-07)**. (WRC-07)

5.445 Not used.

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

5.446A The use of the bands 5 150-5 350 MHz and 5 470-5 725 MHz by the stations in the mobile, except aeronautical mobile, service shall be in accordance with Resolution **229 (WRC-03)**. (WRC-07)

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

5.446C *Additional allocation:* in Region 1 (except in Algeria, Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan and Tunisia) and in Brazil, the band 5 150-5 250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations (see No. **1.83**), in accordance with Resolution **418 (WRC-07)**. These stations shall not claim protection from other stations operating in accordance with Article **5**. No. **5.43A** does not apply. (WRC-07)

5.447 *Additional allocation:* in Côte d'Ivoire, Israel, Lebanon, Pakistan, the Syrian Arab Republic and Tunisia, the band 5 150-5 250 MHz is also allocated to the mobile service, on a primary basis, subject to agreement obtained under No. **9.21**. In this case, the provisions of Resolution **229 (WRC-03)** do not apply. (WRC-07)

5.447A The allocation to the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to coordination under 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)

5.447E *Additional allocation:* The band 5 250-5 350 MHz is also allocated to the fixed service on a primary basis in the following countries in Region 3: Australia, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Papua New Guinea, the Philippines, Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam. The use of this band by the fixed service is intended for the implementation of fixed wireless access systems and shall comply with Recommendation ITU-R F.1613. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. **5.43A** do not apply to the fixed service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of fixed wireless access systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radiodetermination implementations. (WRC-07)

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

5.448 *Additional allocation:* in Azerbaijan, Libyan Arab Jamahiriya, Mongolia, Kyrgyzstan, Slovakia, Romania and Turkmenistan, the band 5 250-5 350 MHz is also allocated to the radionavigation service on a primary basis. (WRC-03)

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

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

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

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

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

5.450 *Additional allocation:* in Austria, Azerbaijan, Iran (Islamic Republic of), Mongolia, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 5 470-5 650 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-03)

5.450A In the band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU-R M.1638. (WRC-03)

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

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

5.452 Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are 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, Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Japan, Jordan, Kenya, Kuwait, Lebanon, Madagascar, Malaysia, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Swaziland, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the band 5 650-5 850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution **229 (WRC-03)** do not apply. (WRC-03)

5.454 *Different category of service:* in Azerbaijan, the Russian Federation, Georgia, Mongolia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 5 670-5 725 MHz to the space research service is on a primary basis (see No. **5.33**). (WRC-07)

5.455 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 5 670-5 850 MHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.456 *Additional allocation:* in Cameroon, the band 5 755-5 850 MHz is also allocated to the fixed service on a primary basis. (WRC-03)

5.457 Not used.

5.457A In the bands 5 925-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution **902 (WRC-03)**. (WRC-03)

5.457B In the 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, the Libyan Arab Jamahiriya, Jordan, Kuwait, 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-03)

5.457C In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Paraguay, Uruguay and Venezuela), the band 5 925-6 700 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. **1.83**). Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to, nor claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of these bands by other mobile service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-07)

5.458 In the band 6 425-7 075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7 075-7 250 MHz, passive microwave sensor measurements are carried out. Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6 425-7 025 MHz and 7 075-7 250 MHz.

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

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

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

5.459 *Additional allocation:* in the Russian Federation, the frequency bands 7 100-7 155 MHz and 7 190-7 235 MHz are also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-97)

5.460 The use of the band 7 145-7 190 MHz by the space research service (Earth-to-space) is restricted to deep space; no emissions to deep space shall be effected in the band 7 190-7 235 MHz. Geostationary satellites in the space research service operating in the band 7 190-7 235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. **5.43A** does not apply. (WRC-03)

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

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

5.461B The use of the band 7 750-7 850 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems. (WRC-97)

5.462 (SUP - WRC-97)

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

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

These values are subject to study under Resolution **124 (WRC-97)**[*]. (WRC-97)

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

5.464 (SUP - WRC-97)

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

5.466 *Different category of service:* in Israel, Singapore and Sri Lanka, the allocation of the band 8 400-8 500 MHz to the space research service is on a secondary basis (see No. **5.32**). (WRC-03)

5.467 (SUP - WRC-03)

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

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[*] *Note by the Secretariat:* This Resolution was revised by WRC-2000.

5.469 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 8 500-8 750 MHz is also allocated to the land mobile and radionavigation services on a primary basis. (WRC-03)

5.469A In the band 8 550-8 650 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radiolocation service. (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), the Libyan Arab Jamahiriya, the Netherlands, Qatar and Sudan, the 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-07)

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

5.473 *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the bands 8 850-9 000 MHz and 9 200-9 300 MHz are also allocated to the radionavigation service on a primary basis. (WRC-07)

5.473A 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**).

5.475 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)

5.476 (SUP - 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 radio-navigation and radiolocation services. (WRC-07)

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

5.478 *Additional allocation:* in Azerbaijan, Mongolia, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 9 800-10 000 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

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.

5.480 *Additional allocation:* in Argentina, Brazil, Chile, Costa Rica, Cuba, El Salvador, Ecuador, Guatemala, Honduras, Mexico, Paraguay, the Netherlands Antilles, Peru and Uruguay, the band 10-10.45 GHz is also allocated to the fixed and mobile services on a primary basis. In Venezuela, the band 10-10.45 GHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.481 *Additional allocation:* in Germany, Angola, Brazil, China, Costa Rica, Côte d'Ivoire, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania, Tanzania, Thailand and Uruguay, the band 10.45-10.5 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)

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

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

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

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

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

5.485 In Region 2, in the band 11.7-12.2 GHz, transponders on space stations in the fixed-satellite service may be used additionally for transmissions in the broadcasting-satellite service, provided that such transmissions do not have a maximum e.i.r.p. greater than 53 dBW per television channel and do not cause greater interference or require more protection from interference than the coordinated fixed-satellite service frequency assignments. With respect to the space services, this band shall be used principally for the fixed-satellite service.

5.486 *Different category of service:* in Mexico and the United States, the allocation of the band 11.7-12.1 GHz to the fixed service is on a secondary basis (see No. **5.32**).

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

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

5.488 The use of the band 11.7-12.2 GHz by geostationary-satellite networks in the fixed-satellite service in Region 2 is subject to application of the provisions of No. **9.14** for coordination with stations of terrestrial services in Regions 1, 2 and 3. For the use of the band 12.2-12.7 GHz by the broadcasting-satellite service in Region 2, see Appendix **30**. (WRC-03)

5.489 *Additional allocation:* in Peru, the band 12.1-12.2 GHz is also allocated to the fixed service on a primary basis.

5.490 In Region 2, in the band 12.2-12.7 GHz, existing and future terrestrial radiocommunication services shall not cause harmful interference to the space services operating in conformity with the broadcasting-satellite Plan for Region 2 contained in Appendix **30**.

5.491 (SUP - 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)

5.493 The broadcasting-satellite service in the band 12.5-12.75 GHz in Region 3 is limited to a power flux-density not exceeding –111 dB(W/(m^2 · 27 MHz)) for all conditions and for all methods of modulation at the edge of the service area. (WRC-97)

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

5.495 *Additional allocation:* in Bosnia and Herzegovina, France, Greece, Liechtenstein, Monaco, Montenegro, Uganda, Romania, Serbia, Switzerland, Tanzania and Tunisia, the band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-07)

5.496 *Additional allocation:* in Austria, Azerbaijan, Kyrgyzstan and Turkmenistan, the band 12.5-12.75 GHz is also allocated to the fixed service and the mobile, except aeronautical mobile, service on a primary basis. However, stations in these services shall not cause harmful interference to fixed-satellite service earth stations of countries in Region 1 other than those listed in this footnote. Coordination of these earth stations is not required with stations of the fixed and mobile services of the countries listed in this footnote. The power flux-density limit at the Earth's surface given in Table **21-4** of Article **21**, for the fixed-satellite service shall apply on the territory of the countries listed in this footnote. (WRC-2000)

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

5.498 (SUP - WRC-97)

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)

5.499 *Additional allocation:* in Bangladesh, India and Pakistan, the band 13.25-14 GHz is also allocated to the fixed service on a primary basis.

5.500 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Malta, Morocco, Mauritania, Nigeria, Pakistan, Qatar, the Syrian Arab Republic, Singapore, Sudan, Chad and Tunisia, the band 13.4-14 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-03)

5.501 *Additional allocation:* in Azerbaijan, Hungary, Japan, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 13.4-14 GHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.501A The allocation of the band 13.4-13.75 GHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis. (WRC-97)

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

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

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

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

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

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

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

i) $4.7D + 28$ 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)

5.503A (SUP - 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 band 14-14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M.1643, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz band located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa. (WRC-03)

5.504C In the band 14-14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Côte d'Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Kuwait, Lesotho, 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, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-03)

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

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

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

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

5.507 Not used.

5.508 *Additional allocation:* in Germany, Bosnia and Herzegovina, France, Italy, Libyan Arab Jamahiriya, The Former Yugoslav Rep. of Macedonia and the United Kingdom, the band 14.25-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.508A In the band 14.25-14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Lesotho, 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, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-03)

5.509 (SUP - WRC-07)

5.509A In the band 14.3-14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Lesotho, 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, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-03)

5.510 The use of the band 14.5-14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe.

5.511 *Additional allocation:* in Saudi Arabia, Bahrain, Bosnia and Herzegovina, Cameroon, Egypt, the United Arab Emirates, Guinea, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Kuwait, Lebanon, Pakistan, Qatar, the Syrian Arab Republic and Somalia, the band 15.35-15.4 GHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-07)

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

5.511B (SUP - WRC-97)

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. 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. (WRC-97)

5.511D Fixed-satellite service systems for which complete information for advance publication has been received by the Bureau by 21 November 1997 may operate in the bands 15.4-15.43 GHz and 15.63-15.7 GHz in the space-to-Earth direction and 15.63-15.65 GHz in the Earth-to-space direction. In the bands 15.4-15.43 GHz and 15.65-15.7 GHz, emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of -146 dB(W/(m$^2 \cdot$ MHz)) for any angle of arrival. In the band 15.63-15.65 GHz, where an administration plans emissions from a non-geostationary space station that exceed -146 dB(W/(m$^2 \cdot$ MHz)) for any angle of arrival, it shall coordinate under No. **9.11A** with the affected administrations. Stations in the fixed-satellite service operating in the band 15.63-15.65 GHz in the Earth-to-space direction shall not cause harmful interference to stations in the aeronautical radionavigation service (No. **4.10** applies). (WRC-97)

5.512 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Congo (Rep. of the), Costa Rica, Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), the Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Montenegro, Mozambique, Nepal, Nicaragua, Oman, Pakistan, Qatar, Syrian Arab Republic, Serbia, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad, Togo and Yemen, the band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)

5.513 *Additional allocation:* in Israel, the band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. These services shall not claim protection from or cause harmful interference to services operating in accordance with the Table in countries other than those included in No. **5.512**.

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

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

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

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

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

17.3-17.7 GHz	(space-to-Earth) in Region 1,
18.3-19.3 GHz	(space-to-Earth) in Region 2,
19.7-20.2 GHz	(space-to-Earth) in all Regions,
39.5-40 GHz	(space-to-Earth) in Region 1,
40-40.5 GHz	(space-to-Earth) in all Regions,
40.5-42 GHz	(space-to-Earth) in Region 2,
47.5-47.9 GHz	(space-to-Earth) in Region 1,
48.2-48.54 GHz	(space-to-Earth) in Region 1,

49.44-50.2 GHz (space-to-Earth) in Region 1,

and

27.5-27.82 GHz (Earth-to-space) in Region 1,

28.35-28.45 GHz (Earth-to-space) in Region 2,

28.45-28.94 GHz (Earth-to-space) in all Regions,

28.94-29.1 GHz (Earth-to-space) in Region 2 and 3,

29.25-29.46 GHz (Earth-to-space) in Region 2,

29.46-30 GHz (Earth-to-space) in all Regions,

48.2-50.2 GHz (Earth-to-space) in Region 2.

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

5.517 In Region 2, use of the fixed-satellite (space-to-Earth) service in the band 17.7-17.8 GHz shall not cause harmful interference to nor claim protection from assignments in the broadcasting-satellite service operating in conformity with the Radio Regulations. (WRC-07)

5.518 (SUP - WRC-07)

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

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

5.521 *Alternative allocation:* in Germany, Denmark, the United Arab Emirates and Greece, the 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-03)

5.522 (SUP - WRC-2000)

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

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

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

5.523 (SUP - 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)

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

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

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

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

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

5.524 *Additional allocation:* in Afghanistan, Algeria, Angola, 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, Tanzania, Chad, Togo and Tunisia, the 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 band 19.7-21.2 GHz and of space stations in the mobile-satellite service in the band 19.7-20.2 GHz where the allocation to the mobile-satellite service is on a primary basis in the latter band. (WRC-07)

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

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

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

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

5.529 The use of the bands 19.7-20.1 GHz and 29.5-29.9 GHz by the mobile-satellite service in Region 2 is limited to satellite networks which are both in the fixed-satellite service and in the mobile-satellite service as described in No. **5.526**.

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

5.531 *Additional allocation:* in Japan, the band 21.4-22 GHz is also allocated to the broadcasting service on a primary basis.

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.

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

5.534 (SUP - WRC-03)

5.535 In the band 24.75-25.25 GHz, feeder links to stations of the broadcasting-satellite service shall have priority over other uses in the fixed-satellite service (Earth-to-space). Such other uses shall protect and shall not claim protection from existing and future operating feeder-link networks to such broadcasting satellite stations.

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

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

5.536A Administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account Recommendations ITU-R SA.1278 and ITU-R SA.1625, respectively. (WRC-03)

5.536B In Germany, Saudi Arabia, Austria, Belgium, Brazil, Bulgaria, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Hungary, India, Iran (Islamic Republic of), Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Lebanon, Liechtenstein, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Sweden, Switzerland, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-07)

5.536C 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, 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-03)

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

5.537A In Bhutan, Cameroon, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Japan, Kazakhstan, Lesotho, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 27.9-28.2 GHz may also be used by high altitude platform stations (HAPS) within the territory of these countries. Such use of 300 MHz of the fixed-service allocation by HAPS in the above countries is further limited to operation in the HAPS-to-ground direction and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services. Furthermore, the development of these other services shall not be constrained by HAPS. See Resolution **145 (Rev.WRC-07)**. (WRC-07)

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

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

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

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

5.541A Feeder links of non-geostationary networks in the mobile-satellite service and geostationary networks in the fixed-satellite service operating in the band 29.1-29.5 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix **4** coordination information is considered as having been received by the Bureau after 17 May 1996 and until they are changed by a future competent world radiocommunication conference. Administrations submitting Appendix **4** information for coordination before this date are encouraged to utilize these techniques to the extent practicable. (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, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **21.3** and **21.5** shall apply. (WRC-07)

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

5.543A In Bhutan, Cameroon, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Japan, Kazakhstan, Lesotho, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 31-31.3 GHz may also be used by systems using high altitude platform stations (HAPS) in the ground-to-HAPS direction. The use of the band 31-31.3 GHz by systems using HAPS is limited to the territory of the countries listed above and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems, systems in the mobile service and systems operated under No. **5.545**. Furthermore, the development of these services shall not be constrained by HAPS. Systems using HAPS in the band 31-31.3 GHz shall not cause harmful interference to the radio astronomy service having a primary allocation in the band 31.3-31.8 GHz, taking into account the protection criterion as given in Recommendation ITU-R RA.769. In order to ensure the protection of satellite passive services, the level of unwanted power density into a HAPS ground station antenna in the band 31.3-31.8 GHz shall be limited to −106 dB(W/MHz) under clear-sky conditions, and may be increased up to −100 dB(W/MHz) under rainy conditions to mitigate fading due to rain, provided the effective impact on the passive satellite does not exceed the impact under clear-sky conditions. See Resolution **145 (Rev.WRC-07)**. (WRC-07)

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.

5.545 *Different category of service:* in Armenia, Georgia, Mongolia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 31-31.3 GHz to the space research service is on a primary basis (see No. **5.33**). (WRC-07)

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

5.547 The bands 31.8-33.4 GHz, 37-40 GHz, 40.5-43.5 GHz, 51.4-52.6 GHz, 55.78-59 GHz and 64-66 GHz are available for high-density applications in the fixed service (see Resolution **75 (WRC-2000)**). Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the bands 39.5-40 GHz and 40.5-42 GHz (see No. **5.516B**), administrations should further take into account potential constraints to high-density applications in the fixed service, as appropriate. (WRC-07)

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

5.547B *Alternative allocation*: in the United States, the band 31.8-32 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-97)

5.547C *Alternative allocation*: in the United States, the band 32-32.3 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-03)

5.547D *Alternative allocation*: in the United States, the band 32.3-33 GHz is allocated to the inter-satellite and radionavigation services on a primary basis. (WRC-97)

5.547E *Alternative allocation*: in the United States, the band 33-33.4 GHz is allocated to the radionavigation service on a primary basis. (WRC-97)

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, the Libyan Arab Jamahiriya, Jordan, Kuwait, Lebanon, Malaysia, Mali, Malta, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, Sri Lanka, Togo, Tunisia and Yemen, the band 33.4-36 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-03)

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

5.550 *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Mongolia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 34.7-35.2 GHz to the space research service is on a primary basis (see No. **5.33**). (WRC-07)

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)

5.551 (SUP - WRC-97)

5.551A (SUP - WRC-03)

5.551AA (SUP - WRC-03)

5.551B (SUP - WRC-2000)

5.551C (SUP - WRC-2000)

5.551D (SUP - WRC-2000)

5.551E (SUP - WRC-2000)

5.551F *Different category of service*: in Japan, the allocation of the band 41.5-42.5 GHz to the mobile service is on a primary basis (see No. **5.33**). (WRC-97)

5.551G (SUP - WRC-03)

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

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

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

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

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

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

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

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

5.551I The power flux-density in the band 42.5-43.5 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth), or the broadcasting-satellite service 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 bands 47.2-47.5 GHz and 47.9-48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2-47.5 GHz and 47.9-48.2 GHz is subject to the provisions of Resolution **122 (Rev.WRC-07)**. (WRC-07)

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

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

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

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

5.555A (SUP - WRC-03)

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

5.556 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)

5.556B *Additional allocation:* in Japan, the band 54.25-55.78 GHz is also allocated to the mobile service on a primary basis for low-density use. (WRC-97)

5.557 *Additional allocation:* in Japan, the band 55.78-58.2 GHz is also allocated to the radiolocation service on a primary basis. (WRC-97)

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

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

5.558A Use of the band 56.9-57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m^2 · 100 MHz)) for all angles of arrival. (WRC-97)

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

5.559A (SUP - WRC-07)

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)

5.561B In Japan, use of the band 84-86 GHz, by the fixed-satellite service (Earth-to-space) is limited to feeder links in the broadcasting-satellite service using the geostationary-satellite orbit. (WRC-2000)

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

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

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

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

5.562D *Additional allocation*: In Korea (Rep. of), the bands 128-130 GHz, 171-171.6 GHz, 172.2-172.8 GHz and 173.3-174 GHz are also allocated to the radio astronomy service on a primary basis until 2015. (WRC-2000)

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

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

5.562G The date of entry into force of the allocation to the fixed and mobile services in the band 155.5-158.5 GHz shall be 1 January 2018. (WRC-2000)

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

5.563 (SUP - WRC-03)

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)

5.564 (SUP - WRC-2000)

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

- radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;
- Earth exploration-satellite service (passive) and space research service (passive): 275-277 GHz, 294-306 GHz, 316-334 GHz, 342-349 GHz, 363-365 GHz, 371-389 GHz, 416-434 GHz, 442-444 GHz, 496-506 GHz, 546-568 GHz, 624-629 GHz, 634-654 GHz, 659-661 GHz, 684-692 GHz, 730-732 GHz, 851-853 GHz and 951-956 GHz.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the date when the allocation Table is established in the above-mentioned frequency band. (WRC-2000)

PART D – MALAYSIAN FOOTNOTE

MLA1 Users of frequencies below 9 kHz shall ensure that no harmful interference is caused to the services to which the bands above 9 kHz are allocated.

MLA2 Scientific researchers using frequencies below 9 kHz are urged to advise the Commission in order that such research may be afforded all practicable protection from harmful interference.

MLA3 Notification of Issuance of Class Assignment.

MLA4 For public correspondence in the Maritime Mobile Services.

MLA5 Public correspondence in the Maritime Mobile Services for frequencies 130 kHz to 148 kHz.

MLA6 Band allocated to Aeronautical Non Directional Beacon (NDB).

MLA7 Band allocated to:

1. Radiobeacons in the Maritime Radio Service
2. Frequency Band 283.5 kHz to 325 KHz allocated to DGNSS (radiolocation mobile station)
3. Aeronautical Non Directional Beacon (NDB).

MLA8 Band allocated to Radiobeacons and Aeronautical NDB.

MLA9 (suppressed)

MLA10 Band allocated to:

1. Aeronautical NDB
2. Public correspondence in the Maritime Mobile Service and Digital Global Positioning System.

MLA11 Band 526.5 kHz to 1606.5 kHz are currently used for Medium Wave (MW) Broadcasting Service and reserved for future Digital Broadcasting Service.

MLA12 (suppressed)

MLA13 Part of this band will be used for future Digital Broadcasting Service.

MLA14 The following frequency bands are exclusively use by the Government of Malaysia:

30 kHz to 70 kHz;	70 kHz to 90 kHz;
110 kHz to 160 kHz;	1985 kHz to 3000 kHz;
3025 kHz to 3155 kHz;	4700 kHz to 4750 kHz;
5680 kHz to 5730 kHz;	6685 kHz to 6765 kHz;
8965 kHz to 9040 kHz;	11175 kHz to 11275 kHz;
13200 kHz to 13260 kHz;	13360 kHz to 13410 kHz;
14500 kHz to 14900 kHz,	15010 kHz to 15100 kHz;
17970 kHz to 18030 kHz;	23200 kHz to 23350 kHz;
25550 kHz to 25670 kHz;	30.010 MHz to 37.500 MHz;
41.015 MHz to 44.000 MHz;	44.000 MHz to 47.000 MHz;
47.000 MHz to 50.000 MHz;	54.000 MHz to 68.000 MHz;
72.800 MHz to 74.800 MHz;	75.200 MHz to 75.400 MHz;
75.400 MHz to 87.000 MHz;	165.000 MHz to 167.000 MHz
170.000 MHz to 172.000 MHz,	230.000 MHz to 235.000 MHz;
235.000 MHz to 267.000 MHz;	267.000 MHz to 272.000 MHz;
272.000 MHz to 273.000 MHz;	273.000 MHz to 312.000 MHz;
312.000 MHz to 315.000 MHz;	315.000 MHz to 322.000 MHz;
322.000 MHz to 328.600 MHz;	335.400 MHz to 380.000 MHz;
380.000 MHz to 399.900 MHz;	444.000 MHz to 445.000 MHz
449.000 MHz to 450.000 MHz,	457.000 MHz to 458.000 MHz;
458.000 MHz to 459.000 MHz;	467.000 MHz to 468.000 MHz;
468.000 MHz to 469.000 MHz;	798.000 MHz to 806.000 MHz;
960.000 MHz to 1215.000 MHz;	1400.000 MHz to 1427.000 MHz;

2040.000 MHz to 2096.000 MHz 2035.000 MHz to 2036.000 MHz
2232.000 MHz to 2233.000 MHz; 2700.000 MHz to 2900.000 MHz;
2900.000 MHz to 3100.000 MHz; 3100.000 MHz to 3300.000 MHz;
3300.000 MHz to 3400.000 MHz; 4940.000 MHz to 4990.000 MHz;
5460.000 MHz to 5470.000 MHz; 5470.000 MHz to 5650.000 MHz;
8146.000 MHz to 8275.000 MHz; 9500.000 MHz to 9800.000 MHz;
9800.000 MHz to 10000.000 MHz.

MLA15 Use of the bands:

3025 kHz to 3155 kHz;
4700 kHz to 4750 kHz;
5680 kHz to 5730 kHz;
6685 kHz to 6765 kHz;
8965 kHz to 9040 kHz;
11175 kHz to 11275 kHz;
13200 kHz to 13260 kHz;
15010 kHz to 15100 kHz;
17970 kHz to 18030 kHz.

by the Aeronautical Mobile (OR) Service is subject to the provisions of Appendix 26 of the Radio Regulations.

MLA16 (suppressed)

MLA17 Reserved for Digital Broadcasting.

MLA18 (suppressed)

MLA19 (suppressed)

MLA20 (suppressed)

MLA21 (suppressed)

MLA22 (suppressed)

MLA23 (suppressed)

MLA24 Frequency band between 75.2 MHz and 78 MHz is assigned to the Government of Malaysia'. The transmitter power of the stations shall not exceed 5 W.

MLA25 (suppressed)

MLA26 (suppressed)

MLA27 (suppressed)

MLA28 Standard Radio System Plan 536: Requirements for Radio Amateur Service Operating in the Frequency Band 144 MHz to 148 MHz.

MLA29 Standard Radio System Plan 521: Requirements for Digital Terrestrial Television (including digital terrestrial sound) (DTT) Service Operating in the Frequency Bands 174 MHz to 230 MHz AND 470 MHz to 742 MHz.

MLA30 Part of the bands was allocated for paging service using maximum bandwidth of 25 kHz.

MLA31 Fixed and mobile services operating in the band between 174 MHz and 230 MHz shall not cause harmful interference to the broadcasting service.

MLA32 Frequency band between 225 MHz and 235 MHz is assigned to the Government of Malaysia; and stations in any service in this band shall not cause harmful interference to stations of the broadcasting service.

MLA33 (suppressed)

MLA34 Standard Radio System Plan 519M: Requirements for Digital Trunk Radio Service (DTRS) Operating in the Frequency Band 380 MHz to 400 MHz.

MLA35 Protection of frequency 401 MHz to 406 MHz band should be ensured for MET-AIDS.

MLA36 Frequencies 405.725 MHz, 405.8 MHz and 405.85 MHz are allocated to SCADA and telemetry.

MLA37 Standard Radio System Plan 537: Requirements for Digital Trunk Radio Systems (DTRS) Operating in the Frequency Band 410 MHz to 430 MHz.

MLA38 (suppressed)

MLA39 Standard Radio System Plan 541: Requirements for Mobile Cellular Services Operating in the Frequency Band from 452.000 MHz to 456.475 MHz and 462.000 MHz to 466.475 MHz.

MLA40 (suppressed)

MLA41 Portion of these bands 456.00 MHz to 459.00 MHz and 460.00 MHz to 470.00 MHz are used for walkie-talkie (point-to-point)**.**

MLA42 (suppressed)

MLA43 Standard Radio System Plan 530: Requirements for Radio Frequency Identification Device-RFID-Operating in the Frequency Band 919 MHz to 923 MHz.

MLA44 Frequency Spectrum 806 MHz to 960 MHz, 1710 MHz to 1880 MHz, 2500 MHz to 2690 MHz planned for IMT 2000 extension band.

MLA45 (suppressed)

MLA46 The space operation service in the band 1427 MHz to 1429 MHz is for telecommand.

MLA47 (suppressed)

MLA48 Standard Radio System Plan 520: Requirements for Digital Multimedia Service (DMS) Operating in the Frequency Band 1452 MHz to 1492 MHz.

MLA49 The space operation service in the band between 1525 MHz to 1535 MHz is solely used for telemetering.

MLA50 (suppressed)

MLA51 (suppressed)

MLA52 (suppressed)

MLA53 Standard Radio System Plan 524M: Requirements for International Mobile Telecommunications-2000 (IMT-2000) Services Operating in the Frequency Bands 1885 MHz to 2025 MHz and 2110 MHz to 2200 MHz.

MLA54 Standard Radio System Plan 532: Requirements for Broadband Wireless Access (BWA) Systems Operating in the Frequency Band from 2300 MHz to 2400 MHz.

MLA55 Standard Radio System Plan 523: Requirements for Multimedia Multipoint Distribution Service (MMDS) Operating in the Frequency Band 2504 MHz to 2688 MHz.

MLA55A All existing holders of AA in the band for BWA service are required to vacate the band subject to period not exceeding 31st December 2012. This band is planned for release by 2013 for IMT Services.

MLA56 (suppressed)

MLA57 Standard Radio System Plan 507a: Requirements for Fixed Point-to-Point Systems Sharing with Fixed Satellite Service Operating in the Frequency Band from 3400 MHz to 3600 MHz.

MLA57A All existing holders of AA in the band for FWA service are required to vacate the band subject to period not exceeding 31st December 2012.

MLA58 Priority given to Fixed Satellite Service (FSS). Existing fixed link should not cause interference into FSS.

MLA59 (suppressed)

MLA60 Standard Radio System Plan 534: Requirements for Wireless Local Area Networks (WLAN) system Operating in the Frequency Band 5150 MHz to 5350 MHz.

MLA61 Standard Radio System Plan 512: Requirements for Fixed Service Line-Of-Sight Radio-Relay Systems Operating in the Frequency Band 5925 MHz to 6425 MHz.

MLA62 Standard Radio System Plan 513: Requirements for Fixed Service Line-Of-Sight Radio-Relay Systems Operating in the Frequency Band 6430 MHz to 7110 MHz.

MLA63 (suppressed)

MLA64 Standard Radio System Plan 514: Requirements for Fixed Service Line-Of-Sight Radio-Relay Systems Operating in the Frequency Band 7111 MHz to 7425 MHz.

MLA65 Standard Radio System Plan 515: Requirements for Fixed Service Line-Of-Sight Radio-Relay Systems Operating in the Frequency Band 7425 MHz to 7725 MHz.

MLA66 Standard Radio System Plan 516: Requirements for Fixed Service Line-Of-Sight Radio-Relay Systems Operating in the Frequency Band 7725 MHz to 8275 MHz.

MLA67 Standard Radio System Plan 517: Requirements for Fixed Service Line-Of-Sight Radio-Relay Systems Operating in the Frequency Band 8275 MHz to 8500 MHz.

MLA68 Standard Radio System Plan 507b: Requirements for Fixed Wireless Access (FWA) Systems Operating in the Frequency Band from 10000 MHz to 10700 MHz.

MLA69 Standard Radio System Plan 518: Requirements for Fixed Service Line-Of-Sight Radio-Relay Systems Operating in the Frequency Band 10.70 GHz to 11.70 GHz.

MLA70 Standard Radio System Plan 525: Requirements for Fixed Service Line-Of-Sight Radio-Relay Systems Operating in the Frequency Band 12.75 GHz to 13.25 GHz.

MLA71 The spectrum 14.05GHz is used by Connexion By Boeing (CBB) for AMSS on secondary allocation.

MLA72 Standard Radio System Plan 526: Requirements for Fixed Service Line-Of-Sight Radio-Relay Systems Operating in the Frequency Band 14.40 GHz to 15.35 GHz.

MLA73 Standard Radio System Plan 527: Requirements for Fixed Service Line-Of-Sight Radio-Relay Systems Operating in the Frequency Band 17.70 GHz to 19.70 GHz.

MLA74 Standard Radio System Plan 528: Requirements for Fixed Service Line-Of-Sight Radio-Relay Systems Operating in the Frequency Band 21.20 GHz to 23.60 GHz.

MLA75 Standard Radio System Plan 509: Requirements for Local Multipoint Communications Service (LMCS) Operating in the Frequency Band from 24.25 GHz to 27.0 GHz, 27.0 GHz to 29.5 GHz and 31.0 GHz to 31.3 GHz.

MLA76 (suppressed)

MLA77 (suppressed)

MLA78 (suppressed)

MLA79 Standard Radio System Plan 502: Requirements for Trunk Radio Systems (TRS) Operating in the Frequency Band 806 MHz to 821 MHz and 851 MHz to 866 MHz.

MLA80 Standard Radio System Plan 531: Requirements for Broadband Wireless Access (BWA) Systems Operating in the frequency band from 821 MHz to 824 MHz and 866 MHz to 869MHz.

MLA81 Standard Radio System Plan 544: Requirements for Broadband Wireless Access (BWA) Systems Operating in the Frequency Band from 1790 MHz to 1800 MHz.

MLA82 Standard Radio System Plan 546: Requirements for Wireless Closed Circuit Television (CCTV) Systems Operating in the Frequency Band from 5650 MHz to 5725 MHz.

MLA83 The following frequencies in HF band have been identified as common Public Protection and Disaster Relief (PPDR) use in Brunei Darussalam, Malaysia and Singapore

3 MHz Band	6 MHz Band	11 MHz Band	14 MHz Band
3.122	6.314	11.202	14.27
3.341	6.3417	11.217	14.275
3.815	6.4501	11.23	14.293
3.925*	6.771*		14.303*
3.950*			14.325*

* - backup frequencies

MLA84 The following bands have been identified for Public Protection and Disaster Relief (PPDR) use in Malaysia:

380 MHz to 400 MHz;
816 MHz to 821 MHz / 861 MHz to 866 MHz;
4940 MHz to 4990 MHz

MLA85 Use of the band 477 MHz to 478 MHz for short range communication devices such as personal radio service is not allowed after year 2020. This band will be re-allocated to the Digital TV Broadcasting (DTT) Service.

MLA86 Existing analogue TV transmission operating in the Bands 174 MHz to 230 MHz and 470 MHz to 798 MHz may continue their service until the year 2015. However, they shall shut down their analogue transmission after year 2015.

MLA87 Use of frequency bands 223 MHz to 230 MHz and 606 MHz to 614 MHz by the existing assignment for Airport Tower operations and Radar by Aeronautical Service are not allowed after year 2020.

MLA88 Technical Specification for Amateur Radio Equipment (SKMM WTS ARE)

MLA89 Technical Specification for Broadband Wireless Access (SKMM WTS BWA)

MLA90 Technical Specification for Cordless Telephone Systems (SKMM WTS CTS)

MLA91 Technical Specification for GSM Mobile Terminals (SKMM WTS GSM-MT)

MLA92 Technical Specification for IMT-2000 Third-Generation (3G) Cellular Mobile Terminals (SKMM WTS IMT-MT)

MLA93 Technical Specification for Land Mobile Radio Equipment (SKMM WTS LMR)

MLA94 Technical Specification for Short Range Devices (SKMM WTS SRD)

MLA95 Technical Specification for Free to Air Digital Terrestrial Television Receiver (SKMM WTS STB-FTA)

CHAPTER 3

ASSIGNMENT PROCEDURES

CHAPTER 3: ASSIGNMENT PROCEDURES

3.1 Assignments of Spectrum Pursuant to the Act

Section 157 of the Act prohibits for the use of any part of the spectrum to provide a network service without holding or being conferred the rights to use under any one of the following categories of assignment:-

(a) Spectrum Assignment;

(b) Apparatus Assignment; or

(c) Class Assignment.

Where the term assignments are used in this Spectrum Plan, it refers to spectrum assignment and apparatus assignment unless indicated otherwise.

3.1.1 Spectrum Assignment

A spectrum assignment confers the right on a person to use one or more specified frequency bands for any purpose consistent with the assignment conditions. This allows the assignment holder to use the assigned spectrum with technology requirements as stipulated in the assignment conditions.

Regulation 10 of the Spectrum Regulations specifies the standard conditions which may be imposed by the Commission for any type of assignments including the spectrum assignment. In addition to the standard conditions, the Commission may impose other conditions on a spectrum assignment as stipulated in regulation 15 of the Spectrum Regulations.

Under the spectrum assignment, the assignment holder is obliged to pay the fees in accordance with regulation 16 of the Spectrum Regulations as structured below:-

(a) an annual fee component for the maintenance of the spectrum underlying the assignment; and

(b) a price component set by either auction, tender or other method within the scope of the Act.

A spectrum assignment issued by the Commission shall be valid for a maximum period of twenty (20) years or such lesser period as may be specified in the spectrum assignment.

3.1.2 Apparatus Assignment

An apparatus assignment authorises a person to use one or more specified frequency bands to operate an apparatus of a specified kind. The conditions that may be imposed on an apparatus assignment include the standard conditions stipulated under regulation 10 of the Spectrum Regulations and the additional conditions specified under regulation 22 of the Spectrum Regulations.

In apparatus assignment, the assignment holder is obliged to pay the prescribed fees in accordance with regulation 23 and the First Schedule of the Spectrum Regulations.

The First Schedule of the Spectrum Regulations provides for the fee applicable to an apparatus assignment which comprise a fixed fee and variable fee as stated in Table A and B respectively. The determination of the fee under Table A depends on the type of the apparatus used by the assignment holder whereas the fees under Table B are determined depending on the size of the bandwidth used and the spectrum bands in which the apparatus operates.

The apparatus assignment, when issued is valid for a maximum period of five (5) years or a specified lesser period.

3.1.3 Class Assignment

In accordance with Section 169 of the Act, the Commission may issue class assignment and impose conditions to the class assignment. This type of assignment confers rights on any person to use the frequency band for a list of devices without any fee. The usage of devices which have been listed in the list of class assignment issued under Section 169 of the Act are governed by the type of devices, emission power limit and frequency band.

The class assignment is reviewed periodically by the Commission. The devices which have been issued with class assignment are required to be certified by the Commission or its registered certifying agency.

Due to its nature of not being subject to any fee, the use of such devices is subject to interference and hence the user of the devices is not entitled to claim protection from the interference caused by such devices.

A class assignment is valid until it is cancelled by the Commission.

3.2 Methods of Assignment

Section 177 of the Act provides for the Spectrum Plan to include procedures of spectrum assignment and apparatus assignment which includes assignment by way of auction, tender and fixed price.

3.2.1 Fixed Price

Assignment of the spectrum by way of fixed price refers to a situation where the assignment is offered on a fixed price set by the Minister for spectrum assignment or the Commission for apparatus assignment.

The Commission may opt for this method of assignment including but may not be limited to the following circumstances:-

(a) where there is no competition for an assignment, meaning that the number of applicants equals the number of available assignments;

(b) when an auctioned or tendered spectrum assignment expires and reallocation would not be in the interest of consumers or operators;

(c) where the Commission has decided to offer a spectrum assignment to an existing user operating under an apparatus assignment (conversion process); or

(d) where an existing user is offered a renewal of an apparatus assignment once the validity of the current assignment has expired.

When demand for a specific spectrum band exceeds supply, fixed pricing shall not be an appropriate approach for assigning a spectrum. This is because a single fixed price will only be sufficient to allocate the assignment if the number of applicants does not exceed the number of spectrum lots available.

3.2.2 Auction

In an auction, the award of the assignment shall be made based on the highest bid price. A marketing plan will be issued for public consultation. The marketing plan shall specifies the present options and/or proposal (including the comments on all policy issues) including eligibility requirements, licence definition parameters, terms and conditions of the licence, financial considerations such as pre-auction deposits, reserve price and bid payment schedules, auction formats, rules and procedures and any other methods that may be necessary to guarantee that the national policy objectives are properly addressed even though they may not have been met.

Comments received pursuant to the marketing plan shall be reviewed and the Commission shall make a decision regarding all policy matters and auction rules. An Applicant Information Package ('AIP') will be issued subsequently to specify the details of the qualification criteria, assignment conditions, auction process and rules, including registration, bidding procedures, auction schedules and the number of lots available. The Commission shall determine a reserved price for each lot.

Interested parties must register with the Commission in accordance with the timetable for registration indicated in the AIP, specifying the lot(s) of interest and the names of their representatives authorised to bid in the auction process. The registration procedure may also call for the submission of deposits and/or bank guarantees.

The Commission shall evaluate all applications based on the criteria set in the AIP to qualify an applicant to bid. Only applicants who pass the qualification stage are eligible to bid in the auction. The following factors may be taken into consideration by the Commission in evaluating the applications to bid: -

(a) compliance with all requirements of the 'policy and rules' document;

(b) the applicant does not control, is not controlled by or is under common control with any other applicants; and

(c) payment of necessary deposits in the application process.

The Commission shall notify the applicant whether they qualify or not qualify to be a bidder.

The auction will begin according to the scheduled time. For multi-round auction, interim results for each round will be notified to all bidders at end of each round. The auction will end when the winning bidder(s) could be determined. A result notice will be sent out to all bidders, showing the highest bid received for each lot on offer. For example, in an ascending

auction, the auction ends when a round goes by without any acceptable bids submitted on any auction items.

The Commission shall notify the successful bidders of the Commission's provisional acceptance of their bid and requiring the successful bidder to pay the total amount of the bid. Upon receipt by the Commission of the full amount of the bid within stipulated time frame, the relevant instrument for registration concerning the lots won will be issued.

The following chart describes the process flow in general in assigning a spectrum by way of auction.

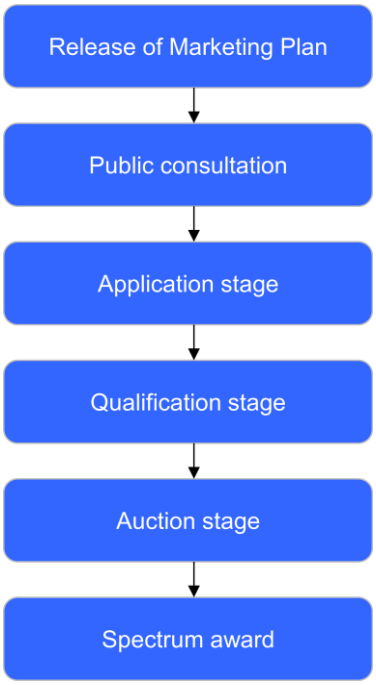

Figure 3.1: General process flow for auction

3.2.3 Tender

Assignment by way of tender is mainly (but not necessarily exclusively) done where there exist competition for a particular spectrum band. It is a mechanism which gives weight to both financial and non-financial criteria in determining which offer is best.

There are several types of tender which may be adopted by the Commission in assigning the spectrum if this method of assignment is chosen. Two types of tender which are 'beauty

contest' and 'comparative tender with price' are seen to be the most opted mode of tender adopted in many countries.

3.2.3.1 Beauty Contest

Beauty contest is an extension of a tender process. In a beauty contest, applicants for an assignment are assessed only on the basis of their experience and technical and commercial proposal. There may be a fee to be imposed but this is fixed beforehand and does not play a part in determination of who gets the assignment. In instances where a beauty contest procedure is used, the evaluation criteria and process will be specified in the marketing plan and AIP.

These criteria may include an evaluation of the applicant's experience, financial capability and implementation plan. The criteria may also require the applicant to demonstrate their commitment to specific service objectives and national priorities.

The Commission will review all applications made in accordance with the procedures defined in the AIP. The successful applicants will be drawn from those that have scored the highest in the evaluation process. For an assignment made through spectrum assignment, the successful applicants will be subject to a fixed price that has been pre-determined by the Commission. For assignment through apparatus assignment, the successful applicants will be subject to the apparatus assignment fee as set out in regulation 23 of the Spectrum Regulations.

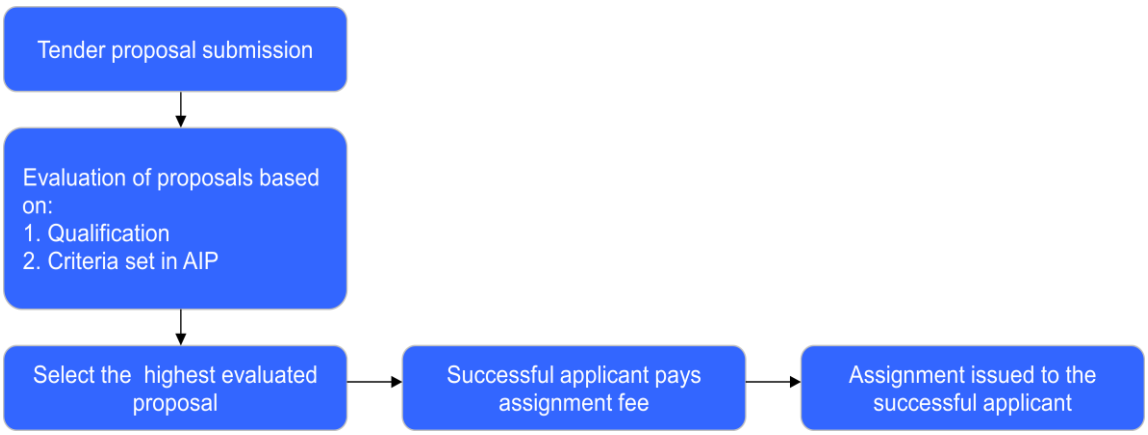

Figure 3.2: Beauty Contest

3.2.3.2 Comparative Tender with Price

A comparative tender with price is similar to a beauty contest in which it includes an evaluation process by which applicants are assessed based on set criteria. It is basically a full tender process in which bidder has to submit, among others, the following:-

(a) evidence of his qualification and experience;

(b) an implementation plan; and

(c) price offered.

Based on the above, it can be inferred that the main difference is that this tender process includes an evaluation on the price offered. In other words, it allows the Commission to balance out the technical offer and the financial offer.

This method requires applicants to submit a sealed tender proposal together with their price proposal as part of their applications. In the evaluation process, 'weightage' is given to criteria and price proposals and, again, the successful applicants are drawn from those who have scored the highest. The exact 'weightage' given to the price proposal and set criteria will depend on the tender design and objectives of the Commission. The other evaluation criteria will be similar to those described in the earlier section on beauty contest.

If this method is used for assigning spectrum, the marketing plan and AIP will specify the evaluation criteria and 'weightage' (in percentage or equivalent) that represent the importance of each criterion in the overall submission.

Figure 3.3: Comparative Tender with Price

3.2.4 Auction and Tender in Assignment

The auction and tender process for spectrum assignment begins from the issuance of the Ministerial Determination under Section 176 of the Act. Pursuant to regulation 5 of the Spectrum Regulations, the Commission may develop a marketing plan after the Minister issues a determination under Section 176 of the Act. The marketing plan may consist of, amongst others, the methods and procedures to be followed for issuing the assignment. The marketing plan may indicate whether the assignments are to be assigned by auction or tender.

If the marketing plan is prepared by the Commission, it will be released and consulted with the public before it is finalised. During the application stage, the AIP issued pursuant to regulation 8 of the Spectrum Regulations will be published and an invitation notice will be issued to invite submission of applications by the pre-determined closing date. Application information package will set out relevant information to assist an eligible person to comply with the procedures for applying for an assignment by auction or tender.

In distinguishing with the auction and tender in spectrum assignment, the process in the auction and tender of apparatus assignment starts with the issuance of the AIP. The AIP shall specify the conditions and requirement for a tender and an auction of the apparatus assignment.

3.3 Application for Assignment

3.3.1 Spectrum Assignment

Pursuant to regulation 14 of the Spectrum Regulations, an application for spectrum assignment may only be made after an invitation has been issued in accordance with regulation 8 of the Spectrum Regulations.

3.3.2 Apparatus Assignment

Any application for apparatus assignment can be submitted to the Commission in any of the following manner:-

(a) By manual directly to the Commission whether at headquarters or regional offices; or

(b) By online through e-Spektrum[1].

e-Spektrum is an electronic gateway for applicants to submit their applications for apparatus assignment to the Commission. e-Spektrum supports apparatus assignment applications for amateur service, broadcasting service, mobile service, fixed service, earth station and radio determination service.

In order for applicants to use e-Spektrum, they must first register with the Commission and obtain their client ID before they can proceed with submitting applications. The Commission will send a notification stating the status of the application registration. Applicants are only able to submit their AA applications after their username is activated.

Upon account activation, applicants are able to submit their applications by filling in the online forms. A processing fee of RM60.00 for each AA application must be paid upon submission of application. Once the applications are approved, applicants are required to pay the necessary assignment fee as given by regulation 23 of the Spectrum Regulations. Payment can be made through cheque, money order or postal order made payable to the Commission.

The apparatus assignment certificates may be collected at the nearest Commission offices or couriered once payment has been made.

For further details on the procedure for the application of apparatus assignment, please refer to http://aaig.skmm.gov.my

3.3.3 Class Assignment

There is no provision in the Act or the Spectrum Regulations which requires the application and registration of a class assignment. Further, no fees are required to be paid by persons subject to a class assignment. The class assignment is valid until cancelled by the Commission.

3.4 The Issuance of Assignment

Upon completion of the application of the assignment procedure as elaborated above, the Commission will notify the successful applicants or bidders (as the case maybe) on their successful application or bid and the requirements for the award of the assignment. The

[1] http://espektrum.skmm.gov.my

Commission will proceed to issue the assignment after they have complied to the requirements of the award. The necessary certificates of assignment will be issued to the assignment holders incorporating, inter alia, the details of the assignment and the conditions to the said assignment.

3.5 Dealing with Spectrum

Spectrum which is assigned through apparatus assignment and spectrum assignment can be used by a third party subject to request by the assignment holders and approval by the Commission. The usage of assignment through a third party will open up opportunity for others to obtain rights to use the spectrum.

For spectrum assignment, as stipulated in Section 162 of the Act, spectrum assignment holders may transfer spectrum in whole or part through Third Party Transfer. Regulation 19 of the Spectrum Regulations further details the conditions and ways spectrum assignment holders may transfer or deal with the assignment.

For apparatus assignment, as stipulated in Section 167 of the Act, apparatus assignment holders may authorise a third party to operate the network. Regulation 25 of Spectrum Regulations further details the conditions and ways apparatus assignment holders may authorise third party to operate the network. A section on Third Party Authorisation is provided in the apparatus assignment guideline published in the Commission's website.

3.5.1 Third Party Transfer of Spectrum Assignment

The Act and the Spectrum Regulations provide provisions for transfer of spectrum assignment. Pursuant to regulation 19 of the Spectrum Regulations, a spectrum assignment holder may transfer or otherwise deal with the whole or any part of a spectrum assignment subject to:-

(a) the conditions of the spectrum assignment;

(b) the eligibility requirements applicable when the spectrum assignment was issued;

(c) the spectrum assignment not having been originally issued in the public or national interest;

(d) the rules made by the Minister under Section 163 of the Act; and

(e) such other conditions as the Commission may impose.

Depending on the conditions which a spectrum assignment holder may be subjected to under regulation 19(1) of the Spectrum Regulations, the spectrum assignment holder may transfer or deal with the spectrum assignment in the following manner:-

(a) absolute prohibition on transfer or otherwise dealing with the assignment;

(b) permitted if the assignment is transferred or otherwise dealt with in its entirely;

(c) permitted for a geographic area in multiplies of the stated geographic unit; or

(d) permitted in multiples of the stated spectrum unit.

A spectrum assignment holder shall inform the Commission in writing of its intention to transfer its spectrum assignment and submit relevant supporting documents to the Commission. The Commission will process the request and inform the spectrum assignment holder of the outcome.

3.5.2 Third Party Authorisation

Apparatus assignment holders may appoint a third party to operate their networks subject to application, criteria and conditions set by the Commission. Subject to the Commission's approval, an apparatus assignment holder may appoint a third party to operate its network facility without relinquishing its rights of the said apparatus assignment and its associated obligations. To obtain the Commission's approval, both the apparatus assignment holder and the third party must fulfil the criteria set out in the apparatus assignment guideline.

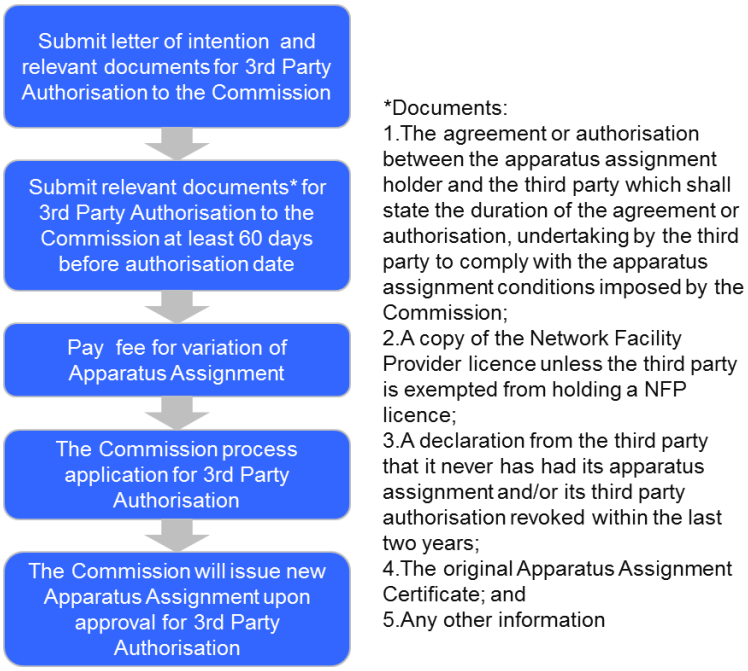

Figure 3.4: Third Party Authorisation Process Flow

The process to obtain a Third Party Authorisation is as shown in Figure 3.4. In accordance with regulation 25(2) of the Spectrum Regulations, the apparatus assignment holder shall notify the Commission in writing of its intention to authorise the third party and submit relevant documents specified in Figure 3.4 to the Commission not less than sixty (60) days before the authorisation date. The apparatus assignment holder is required to return the original Apparatus Assignment Certificate to the Commission for variation. A fee is imposed to the apparatus assignment holder for the variation of the Apparatus Assignment Certificate.

CHAPTER 4

CONVERSION PLAN PROCEDURES

CHAPTER 4: CONVERSION PLAN PROCEDURES

4.1 Conversion Plan

As specified under Section 177 of the Act, the spectrum plan may include procedures on conversion plan for the conversion of designated apparatus assignments to spectrum assignments.

The conversion plan prepared by the Commission may set out the procedures and timetable for issuing new spectrum assignments to replace existing apparatus assignments which are affected by the conversion plan.

The conversion plan may not require a spectrum assignment to be issued to the whole of the spectrum or geographic area to which the conversion plan applies.

4.2 Procedures

Section 176(1) of the Act provides for the Minister to determine that a certain spectrum be reallocated for spectrum assignments after taking into account the Commission's recommendation. Therefore, prior to any conversion of apparatus assignments into spectrum assignments, the Minister must make a determination under Section 176(1).

Pursuant to the Ministerial determination, the Commission will decide whether the services which are operating under the frequency bands that have been identified for conversion are to be maintained or vacated.

4.2.1 Retain Current Services in the Spectrum Band

If the Commission decides to maintain the current services, following are the procedures for the conversion of apparatus assignments to spectrum assignments.

(a) The current apparatus assignment holders will be offered the first right of refusal to obtain the spectrum by way of spectrum assignment. In order for this to take into effect, the Minister will have to make a determination under Section 174 of the Act to specify that the spectrum assignment may only be issued to particular persons or classes of persons who satisfy the conditions specified in the said determination.

(b) After the Minister has made a determination under Section 174, the Commission may prepare a conversion plan and marketing plan in accordance with Regulation 5 of the Spectrum Regulations.

(c) The conversion plan prepared by the Commission may include but not limited to the following procedures for issuing the spectrum assignment to replace the apparatus assignment such as:

i. allocation of vacant spectrum;
ii. assignment conditions;
iii. identification of frequency bands;
iv. extent of operation of apparatus;
v. timetable for the conversion process;
vi. reasons for the conversion;
vii. formal offer of spectrum assignment;
viii. closing date of offer;
ix. accepting the offer;
x. issue of spectrum assignment;
xi. transfer or dealing with spectrum assignment; and
xii. non acceptance of offer.

(d) The Commission will make a formal offer of the spectrum assignment to the current apparatus assignment holders.

(e) If the current apparatus assignment holders accept the offer, the Commission will issue the spectrum assignments to them.

(f) If the current assignment holders do not accept the offer, the Commission will offer the spectrum assignments to the market.

4.2.2 To vacate the spectrum

If the Commission decides that the spectrum or part of the spectrum to be vacated by the current apparatus assignment holders, the following procedures shall apply:

(a) Where the current apparatus assignment holders have to vacate the spectrum and the Commission will offer all the spectrum available to all parties, the Commission may prepare a conversion plan which may include the matters specified in subsection 4.2.1(c) as well as the followings:

i. the time table in which the current apparatus assignment holders must vacate the spectrum; and

ii. the compensation payable to the current apparatus assignment holder.

(b) Where the Commission will offer some of the spectrum to the current apparatus assignment holders and some of the spectrum to other parties:

i. the Commission may prepare a conversion plan which may include the matters specified in subsection 4.2.1(c) and 4.2.2(a);

ii. the Commission will make a formal offer of the spectrum assignment to the current apparatus assignment holders;

iii. if the current apparatus assignment holders accept the offer, the Commission will issue the spectrum assignments to them; and

iv. if the current apparatus assignment holders do not accept the offer, the Commission will offer the spectrum assignments to the market.

Note that the procedures in paragraph 4.2 are for guidance only. The Commission may at any time vary the procedures to suit the relevant conversion.

4.3 Procedures for issuance of spectrum assignment

After the conversion of apparatus assignment to spectrum assignment has been completed, the following processes will take place:

(a) the Commission may prepare a marketing plan in accordance with Regulation 6 of the Spectrum Regulations;

(b) the Commission shall prepare an applicant information package in accordance with Regulation 8 of the Spectrum Regulations; and

(c) after a decision is made on the application for the spectrum assignment, the Commission may issue the spectrum assignment to the successful applicant.

The flowchart below depicts the procedures for conversion plan and issuance of spectrum assignment.

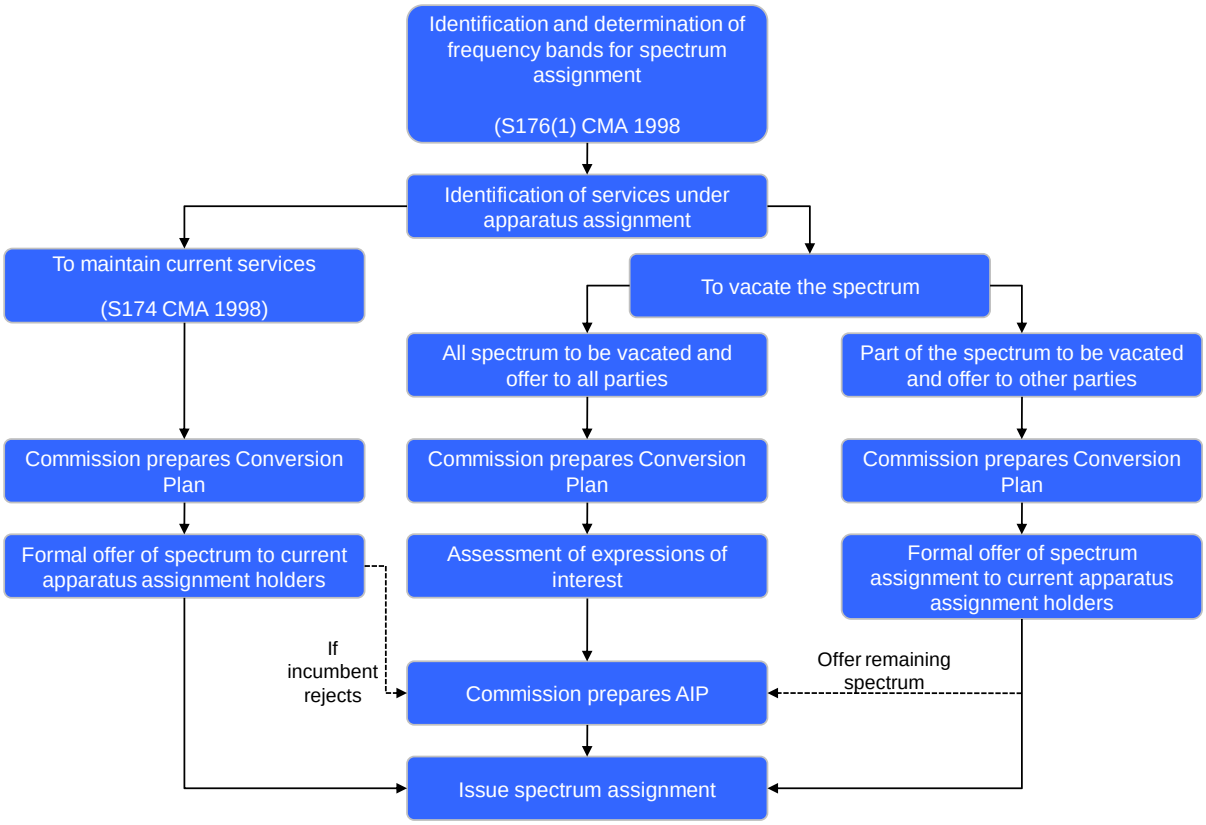

Figure 4.1: Conversion Plan Procedure

Annex 1

GENERAL FREQUENCY INFORMATION

ANNEX 1 – GENERAL FREQUENCY INFORMATION

1. Introduction

This Annex provides general information on frequency band plans in Malaysia. The plans were developed based on national priorities and conform to the ITU frequency allocations.

2. Radio Frequency Spectrums

The ITU categorises the relevant continuous radio spectrum, from 3 kHz through to 3,000 GHz, into nine frequency ranges, as shown in the table below.

No.	Symbol	Band	Frequency Range (lower limit exclusive, upper limit inclusive)
1	VLF	Very Low Frequency	3-30 kHz
2	LF	Low Frequency	30-300 kHz
3	MF	Medium Frequency	300-3 000 kHz
4	HF	High Frequency	3-30 MHz
5	VHF	Very High Frequency	30-300 MHz
6	UHF	Ultra High Frequency	300-3 000 MHz
7	SHF	Super High Frequency	3-30 GHz
8	EHF	Extremely High Frequency	30-300 GHz
9	THF	Tremendously High Frequency	300-3 000 GHz

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

PART A - GENERAL FREQUENCY

The tables below indicate the frequency bands and channels for the specified services or systems used in Malaysia.

3. Sound Broadcasting Frequency Bands

Services	Lower Frequency Limits	Upper Frequency Limits
Mediumwave (AM Radio) Broadcasting	526.5 kHz	1 606.5 kHz
Shortwave Broadcasting	5 900 kHz	6 200 kHz
	7 200 kHz	7 450 kHz
	9 400 kHz	9 900 kHz
	11 600 kHz	12 100 kHz
	13 570 kHz	13 870 kHz
	15 100 kHz	15 800 kHz
	17 480 kHz	17 900 kHz
	18 900 kHz	19 020 kHz
	21 450 kHz	21 850 kHz
	25 670 kHz	26 100 kHz
FM Radio Broadcasting (Band II)	87.5 MHz	108.0 MHz
Band III	174 MHz	230 MHz
L Band	1 452 MHz	1 492 MHz

Note:

1. The use of mediumwave (MW) or AM Radio band is subject to Geneva Agreement 1975 (GE75). The agreement requires for any new or modified services be coordinated with other countries to minimise the risk of interference between similar services. This coordination is carried out by ITU-R. The Commission is responsible to coordinate AM Radio frequency assignments with the ITU-R.

2. The use of shortwave band (SW) is subject to coordination procedure underlined by Article 12 of the Radio Regulation.

4. TV Broadcasting Frequency Bands

(i) VHF TV Broadcasting Band III (174 MHz to 230 MHz)

Channel Number	Frequency Band (MHz)	Remark
5	174 - 181	Existing use by analogue TV service. It will be used for DTT service after Analogue Switch Off (ASO).
6	181 - 188	
7	188 - 195	
8	195 – 202	
9	202 – 209	
10	209 – 216	
11	216 – 223	
12	223 – 230	

Note: Channels 1 to 4 are not part of broadcasting band allocation.

(ii) UHF TV Broadcasting Band IV (470 MHz to 582 MHz)

Channel Number	Frequency Band (MHz)	Remark
21	470 – 478	Existing use by analogue mobile service shared with analogue TV service. This band is reserved for DTT implementation.
22	478 – 486	
23	486 – 494	
24	494 – 502	
25	502 – 510	
26	510 – 518	
27	518 – 526	
28	526 – 534	
29	534 – 542	
30	542 – 550	
31	550 – 558	
32	558 – 566	
33	566 – 574	
34	574 – 582	

Note: Channels 13 to 20 are not part of broadcasting band allocation.

(iii) UHF TV Broadcasting Band V (582 MHz to 798 MHz)

Channel Number	Frequency Band (MHz)	Channel Number	Frequency Band (MHz)
35	582 - 590	48	686 - 694
36	590 - 598	49	694 - 702
37	598 - 606	50	702 - 710
38	606 - 614	51	710 - 718
39	614 - 622	52	718 - 726
40	622 - 630	53	726 - 734
41	630 - 638	54	734 - 742
42	638 - 646	55	742 - 750
43	646 - 654	56	750 - 758
44	654 - 662	57	758 - 766
45	662 - 670	58	766 - 774
46	670 - 678	59	774 - 782
47	678 - 686	60	782 - 790

Note: Channels 35 to 54 are reserved for DTT service and channels 55 to 60 may be reallocated to other services after ASO.

5. Point to Multipoint Radio Systems

Service	Lower Frequency Limits	Upper Frequency Limits
Broadband Wireless Access (BWA)	821 MHz 866 MHz 1 790 MHz 2 300 MHz 2 500 MHz	824 MHz 869 MHz 1 800 MHz 2 400 MHz 2 690 MHz
Fixed Wireless Access (FWA)	824 MHz 869 MHz	835 MHz 880 MHz
Fixed Wireless Access (FWA)	1 900 MHz 10.00 GHz 24.25 GHz 27.0 GHz[1] 31.00 GHz	1 915 MHz 10.70 GHz 27.0 GHz 29.50 GHz[1] 31.30 GHz
Wireless Local Area Network (WLAN)	2 400 MHz 5 150 MHz 5 725 MHz	2 500 MHz 5 350 MHz 5 875 MHz

[1] This frequency band is shared with Fixed Satellite Service (FSS)

6. Radionavigation Satellite Service

Satellite Network	Frequency (MHz)
Galileo GLONASS COSPA-SARSAT	1215 MHz – 1300 MHz, 1 559 MHz – 1 592 MHz, 1 602.5625 MHz – 1 615.5 MHz and 1 240 MHz – 1 260 MHz

7. Cellular Mobile Services

Standard		Lower Frequency Limits	Upper Frequency Limits
CDMA 450	(Base Rx)	452.000 MHz	456.475 MHz
	(Base Tx)	462.000 MHz	466.475 MHz
EGSM/ GSM	(Base Rx)	880.000 MHz	915.000 MHz
	(Base Tx)	925.000 MHz	960.000 MHz
	(Base Rx)	1 710 MHz	1 785 MHz
	(Base Tx)	1 805 MHz	1 880 MHz
IMT		TDD : 1 885 – 1 920 MHz and 2 010 – 2 025 MHz MSS : 1 980 – 2 010 MHz and 2 170 – 2 200 MHz FDD : 1 920 – 1 980 MHz and 2 110 – 2 170 MHz	

8. Other Mobile Services

Service		Lower Frequency Limit	Upper Frequency Limit
VHF Mobile Radio	(Base Rx)	138.000 MHz	139.400 MHz
	(Base Tx)	142.600 MHz	144.000 MHz
Walkie-Talkie VHF	(point-to-point)	141 MHz	142 MHz
UHF Mobile Radio	(Base Rx)	443.0125 MHz	443.9875 MHz
	(Base Tx)	448.0125 MHz	448.9875 MHz
Walkie-Talkie UHF	(point-to-point)	456.525 MHz 466.525 MHz	456.975 MHz 466.975 MHz
Trunked Radio (Analogue and Digital)	(Base Rx)	380 MHz	390 MHz
	(Base Tx)	390 MHz	400 MHz
	(Base Rx)	410 MHz	420 MHz
	(Base Tx)	420 MHz	430 MHz
	(Base Rx)	806.000 MHz	821.000 MHz
	(Base Tx)	851.000 MHz	866.000 MHz
Radio Paging		152.075 MHz 152.275 MHz 153.025 MHz 153.175 MHz 154.370 MHz 164.475 MHz 168.950 MHz 172.525 MHz*	

Note: * Shall cease operation by end of 2011

Annex 2

MALAYSIA'S SATELLITE NETWORKS

ANNEX 2 – MALAYSIA'S SATELLITE NETWORKS

1. Geostationary Satellite Networks

Satellite Name	Uplink Frequency (MHz)	Downlink Frequency (MHz)	Type of Service
MLA-GOV (78.5ºE)	6 725-7 025	4 500-4 800	FSS
	12 750-13 250	10 700-10 950 11 200-11 450	FSS
MEASAT-IK 91.5E (91.5ºE)	13 750-14 000	12 200-12 700	FSS
MEASAT-AK 91.5 (91.5ºE)	13 750-14 500	10 950-11 200 11 450-11 700 12 200-12 700	FSS
MEASAT-IC 91.5 (91.5ºE)	5 925-6 725	3400-4200	FSS
MEASAT-91.5E (91.5ºE)	5 925-6 725	3 400-4 200	FSS
	13750-14500	10 950-11 200 11 450-11 700 12 250-12 750	FSS
MEASAT-1 (91.5ºE)	5 925-6 725	3 400-4 200	FSS
	13 750-14 500	10 950-11 200 11 450-11 700 12 200-12 750	FSS
MEASAT-5.7E (5.7ºE)	5 925-6 725	3 400-4 200	FSS
MEASAT-SA1 (5.7ºE)	5 925-6 725	3 400-4 200	FSS
MEASAT-46E (46ºE)	5 925-6 725	3 400-4 200	FSS

2. Non Geostationary Satellite Network

Satellite Name	Uplink Frequency (MHz)	Downlink Frequency (MHz)	Type of Service
MLA-NEQO	2 035.01 – 2 035.06	2 232.01 – 2 232.06 8 160.50 – 8 200.50	EESS

Annex 3

ALLOTMENT PLANS AND INTERNATIONAL CALL SIGNS FOR MALAYSIA

ANNEX 3 – ALLOTMENT PLANS AND INTERNATIONAL CALL SIGNS FOR MALAYSIA

1. Allotment Plans for Malaysia

ITU Radio Regulations 2008	Service	Frequency	Remarks
Appendix 25 (rev. WRC-03)	Coast radiotelephone stations (maritime mobile bands)	4 400.4 kHz channel 415 4406.4 kHz channel 417 4 415.4 kHz channel 420 4 430.4 kHz channel 425 6 502.4 kHz channel 601 8 720.4 kHz channel 801 8 771.4 kHz channel 818 8 810.4 kHz channel 831 1 7273.4 kHz channel 1611 22787.4 kHz Channel 2231	

Appendix 26 (WRC-2000)	Aeronautical mobile (OR), 3 025-18 030 kHz	3 074, 3 080, 3 095, 3 101, 3 116, 4 703, 4 715, 4 718, 4 739, 5 693, 5 711, 6 685, 6 694, 6 700, 6 724, 6 730, 6 739, 6 760, 8 968, 9 019, 9 028, 9 031, 9 034, 11 199, 11 247, 13 206 and 17 985 kHz	Use of 3 074, 3 095, 3 101, 3 116, 4 718, 6 685, 6 694, 6 700, 6 730, 6 760, 8 968, 11 199 & 13 206 kHz by Singapore is subject to coordination with Malaysia. (Ref AP26-25 Note 3.1) Use of 3 080, 4 739, 6 724 & 9 019 by Malaysia is subject to coordination with Singapore. (Ref AP26-25 Note 3.2)
Appendix 27 (Rev.WRC-07)	Aeronautical mobile (R), 2 850-22 000 kHz	See Section II of Appendix 27 (Rev.WRC-2007)	Regional and worldwide allocations

ITU Radio Regulations 2008	Service	Frequency		Remarks
Appendix 30, 30A (Rev. WRC-07)	Broadcasting – Satellite Service in frequency band:- 11.7-12.2 GHz (space-to- Earth); 17.3-18.1 GHz (Earth-to- space)	Channel	Frequency Number(MHz)	Orbital position: 91.5ºE Beam identification no: MLA_100 Emission: 27M0G7W
		2	11 746.66	
		4	11 785.02	
		6	11 823.38	
		8	11 861.74	
		10	11 900.10	
		12	11 938.46	
		14	11 976.82	
		16	12 015.18	
		18	12 053.54	
		20	12 091.90	
		22	12 130.26	
		24	12 168.62	
		(U/L)		
		2	17 346.66	
		4	17 385.02	
		6	17 423.38	

		8	17 461.74	
		10	17 500.10	
		12	17 538.46	
		14	17 576.82	
		16	17 615.18	
		18	17 653.54	
		20	17 691.90	
		22	17 730.26	
		24	17 768.62	
Appendix 30B (Rev. WRC-07)	Fixed-Satellite Service	4 500-4 800 MHz (space-to- Earth), 6 725-7 025 MHz (Earth-to- space): Beam identification no: MLA00000 10.70-10.95 GHz (space-to- Earth), 11.20-11.45 GHz (space-to- Earth), and 12.75-13.25 GHz(Earth-to- space):		Orbital position: 78.5ºE Beam identification no: MLA00000

2. International call sign series allocation for Malaysia:

Call sign series
9WA-9WZ
9MA-9MZ

Reference: ITU Radio Regulations: Appendix 42 (Rev. WRC-07)

3. Call sign series for Amateur Radio Service:

a. Call sign by territory:

Geographical Territory	Category	Malaysian Amateur Radio Service Call sign
Peninsular Malaysia	Class A Class B	9M2LLL 9W2LLL
Sabah	Class A Class B	9M6LLL 9W6LLL
Sarawak	Class A Class B	9M8LLL 9W8LLL

Note: 1. L may represent any letter A to Z

2. Class A refers to Amateur Radio Operator's Certificate Class A
Class B refers to Amateur Radio Operator's Certificate Class B

b. Call sign for special events/purposes:

Event/Purpose	Malaysian Amateur Radio Service Call sign
Amateur Radio Beacons	9M4BLL
Amateur Radio Club	9M4CLL
Experimental	9M4ELL
Amateur Radio Gateways	9M4GLL
Amateur Radio Repeaters	9M4RLL
Special Events	9M4SLL

Note: L may represent any letter A to Z

4. Call sign series for Aeronautical Service:

Call sign series
9M-LLL

Note: L represents any alphabet letter (A to Z)

5. Call sign series for Maritime Service:

Call sign series
9MLLX
9WLLX

Note: L and X represent alphabet letter (A to Z) and number respectively

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