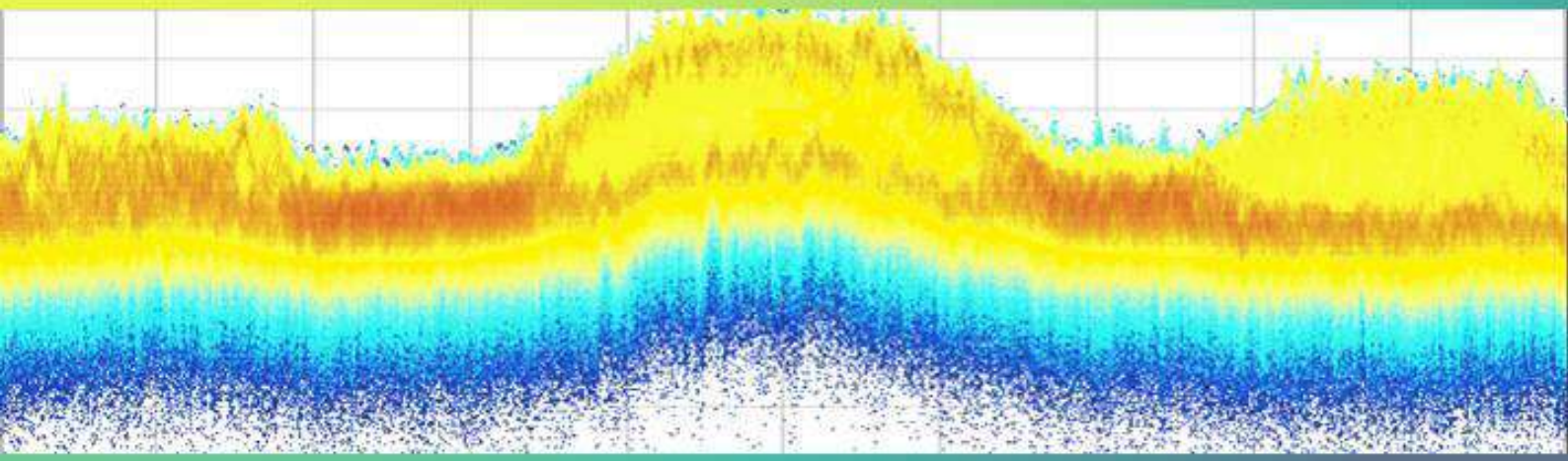
Government of India
Ministry of Communications
Department of Telecommunications

राष्ट्रीय आवृत्ति नियतन योजना -2018
NATIONAL FREQUENCY ALLOCATION PLAN-2018



बेतार योजना एवं समन्वय स्कन्ध
Wireless Planning and Coordination Wing

मनोज सिन्हा
MANOJ SINHA

सत्यमेव जयते

संचार राज्य मंत्री (स्वतंत्र प्रभार)
एवं
रेल राज्य मंत्री, भारत सरकार
Minister of State (Independent Charge)
for Communications
and
Minister of State for Railways
Government of India

MESSAGE

Spectrum is a key socioeconomic resource for the larger public good, with power to multiply opportunities under Digital India, while enhancing quality of life of citizens. The National Frequency Allocation Plan 2018 (NFAP-18) is accordingly envisaged as a tool of innovation, R&D and investment in the country enabling the Indian communications industry to develop and harness new technologies for all-round development.

High-speed-high-quality broadband services to the public is the vision of the National Digital Communications Policy 2018 (NDCP-18), and spectrum is an important resource to achieve this objective. I believe that the NFAP-18 presents a pioneering roadmap for Indian digital communications industry. India has been awaiting more spectrum in unlicensed bands since 2007 to provide world-class, cost-effective Wi-Fi services. The NFAP-18 unveils a quantum of 605 MHz license-exempt spectrum in 5GHz band for Wireless Access Services and Radio Local Area Networks in outdoor, to meet the ever-growing appetite for data. This is a fundamental step to realize the envisaged National Broadband Mission under NDCP-18 to establish millions of Wi-Fi hotspots in urban and rural areas, which have the power to transform our economy and society.

The NFAP-18 aims to enhance the landscape of innovation in wireless technologies by offering over 30 license-exempt bands for Short Range Devices (SRDs) and Ultra-Wideband Devices (UWDs) creating a plethora of opportunities for the public to enjoy benefits from technologies, and enabling the industry to build a robust domestic manufacturing ecosystem.

The Technology landscape in the radiocommunications sector is fast changing; spectrum allocation and assignments have to be equally dynamic and responsive. The NFAP-18 signals India's efforts to adopt 5G services in line with global developments.

I am confident that the NFAP-18 – brought out by The Department of Telecommunications after wide-ranging consultation with Government departments, telecom service providers, manufacturing industry, academia and other stakeholders – will enable us to achieve the objectives envisaged in the NDCP-18 and lead to large-scale job creation in the country.

Yours sincerely,

Manoj Sinha

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Government of India
Ministry of Communications
Department of Telecommunications

Dated the 24th October, 2018

FOREWORD

National Digital Communications Policy, 2018 (NDCP-18) recognizes Spectrum as a critical natural resource and enabler to achieve India's key socio-economic goals of inclusive growth and development. The National Frequency Allocation Plan 2018 (NFAP-18) accordingly aims to provide a roadmap for the availability and allocation of wireless spectrum to facilitate the development and deployment of next generation wireless services in the country.

As India becomes increasingly digital with over a billion wireless mobile connections in the country, ensuring the availability of adequate spectrum becomes a critical pre-requisite, not only for growth of broadband and data services, but also for the delivery next generation of services to citizens and industry.

The NFAP-18 is notable for several firsts, which are expected to drive the sustained growth of wireless services in India in the years to come. A few of the most notable contributions are – first, a massive expansion in the quantum of License Exempt Spectrum from 50 MHz to 605 MHz for wireless access services to promote high speed broadband through Wi Fi, second, a formal recognition of Short-range Devices (SRDs) and Ultra-Wideband Devices (UWDs) through the allocation of license exempted spectrum in several bands for such devices and three, enhancing the transparency in terms of providing consolidated and comprehensive information on all International Mobile Telecommunications (IMT) bands.

It is our belief that pursuant to the NFAP-18, new wireless services will see rapid development and adoption thus accelerating the Digital India and Make in India missions of the Government. It is also expected that the NFAP-18 would provide a strong fillip for the growth and development of Machine-to-Machine (M2M) communications and Internet of Things (IOT), which will be supported in a large measure by the forthcoming 5G technologies.

The Wireless Planning and Coordination and Policy Wings have played a key role drafting a progressive and forward looking future. Large scale availability of world class telecom services and products is crucially dependent upon the availability of spectrum in the right bands and in the right quantities.

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The NFAP-18 strategically signals the government's priorities w.r.t. adopting 5G services in India in line with the rest of the world and appropriately identifies bands to facilitate the rollout of dense backhaul networks to make the network 5G ready.

Importantly, expanding its horizon, the NFAP-18 aims to provide the requisite foundation for encouraging domestic R&D and innovation in wireless technologies in the country to fulfil the objectives of the NDCP; leading to enhanced quality of life and opportunities to our citizens.

The NFAP-18 would not have been possible in its present form without the wholehearted support of industry, academia and the various Government departments/ bodies. The Radiocommunications Bureau of the ITU deserves a special thanks for readily agreeing to incorporate certain texts from the Radio Regulations into NFAP-18.

(Aruna Sundararajan)
Secretary to the Government of India

Government of India
Ministry of Communications
Department of Telecommunications

National Frequency Allocation Plan - 2018

Wireless Planning and Coordination Wing

Contents

Chapter 1

National Frequency Allocation Plan 2018: An Overview

Section A — Introduction

1.1 The *National Frequency Allocation Plan-2018* of India provides a broad regulatory framework, identifying which frequency bands are available for cellular mobile service, Wi-fi, sound and television broadcasting, radionavigation for aircrafts and ships, defence and security communications, disaster relief and emergency communications, satellite communications and satellite-broadcasting, and amateur service, to name just a few.

1.2 The Radio Regulations, an international treaty signed by India and other Member States of the International Telecommunication Union (ITU), governs the use of radio-frequency spectrum and satellite-orbits (geostationary and non-geostationary) at the global level. Accordingly, the ***Radio Regulations*** (Edition of 2016) is the foundational text used for drawing up the National Frequency Allocation Plan 2018 (NFAP-18).

1.3 The central theme of NFAP-18 is the allocation of radio-frequency spectrum to different radiocommunication services as detailed in the column named "India" in the Table of Frequency Allocations in Section B of Chapter 3. NFAP-18 covers the frequency range up to 3000 GHz.

1.4 NFAP-18, though governing the use of spectrum in India, does not by itself provide the right to use the spectrum. Before any part of the spectrum is put to use in India, a licence is required to be obtained from the Wireless Planning and Coordination Wing (WPC Wing), Ministry of Communications, unless such a requirement is exempted by the WPC Wing.

1.5 With a view to providing a stable, yet flexible, regulatory framework, NFAP-18 doesn't attempt to list the various applications (uses) of the individual radiocommunication services that are currently authorised or may be authorised in future in India. WPC Wing may, having consulted as it considers appropriate, provide for new applications of individual radiocommunication services while ensuring conformity with the provisions of the Radio Regulations.

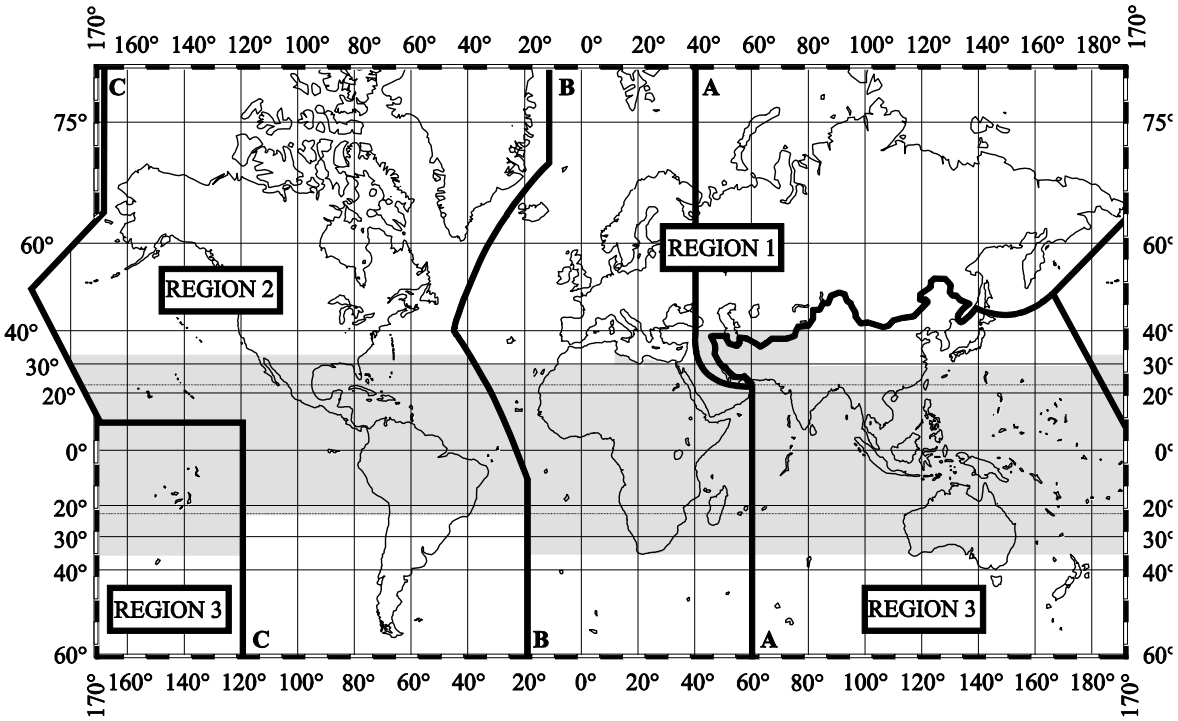
Section B — Frequency Allocations and NFAP-18

1.6 In order that all radiocommunication services — forty one in total (the 41st being *special service*) — have effective access to frequencies, the spectrum is divided into frequency bands and each band is allocated to one or more radiocommunication services. The principle of designating a band for the use by specified radiocommunication services is referred to as *frequency allocation*.

1.7 For the purpose of frequency allocation, the world has been divided into three Regions. They are referred to as Region 1, Region 2 and Region 3 in the Radio Regulations. The three Regions are as shown in the map[*] below. India is within Region 3. It should be noted that where the words "regions"

or “regional” are without a capital “R” in this document, they do not relate to the three Regions defined for purposes of frequency allocation.

Regions in the Radio Regions



1.8 Where a frequency band is allocated to more than one radiocommunication service, each service using the band is categorised either as a “primary” service or a “secondary” service. A station in a secondary service can’t cause harmful interference to stations of primary services, nor can it claim protection from harmful interference originating from stations of primary services, irrespective of the date the stations in the primary services begin operating.

1.9 Any entity (public and private bodies, as also individuals), intending to use the spectrum in India, can determine from the Frequency Allocation Table in Section B of Chapter 3 which frequency bands are available for the radiocommunication services of its interest.

1.10 A radiocommunication service usually encompasses more than one application. For example, cellular mobile service (2G, 3G, 4G and to be introduced, 5G,), Wi-Fi, radio trunking, radio paging, walkie-talkies and several others come under the “mobile’ service. As another example, broadcasting

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* This document contains text (including the map shown above), extracted from the Radio Regulations of the ITU, and for this prior authorisation has been obtained from the ITU. The responsibility for selecting the text and its reproduction lies with the WPC Wing alone and can in no way be attributed to the ITU.

includes sound broadcasting as well as television broadcasting. As the use of the spectrum is not static, and that the introduction of ever new application of spectrum is determined by demands from citizens and the industry, NFAP-18 doesn't list the various applications of any radiocommunication service. In a few cases, however, applications of a radiocommunication service in specific frequency bands have been indicated in the India footnote to the Table of Frequency Allocation in Section B of Chapter 3.

1.11 Frequency allocation is the first step towards ensuring efficient, rational, and interference-free use of the radio-frequency spectrum and satellite-orbits (geostationary and non-geostationary) — the natural, limited resources. The conditions (technical, procedural and regulatory) for using the radio-frequency spectrum and satellite-orbits come under the licensing-regime. Accordingly, NFAP-18 doesn't address the licensing aspects of the use of the spectrum-orbital resources.

1.12 The IMT 2020 or 5G services with its enhanced capabilities has relevance cutting across industry verticals. To take advantage of 5G services for Digital India, the millimetre bands viz. 24.25, 27.5, 31.8, 37 GHz and bands below 6 GHz are under active consideration for 5G services subject to co-existence studies and global deliberations.

1.13 Short-range Devices (SRDs) and devices using Ultra-wideband (UWB) technology make use of the radio-frequency spectrum. SRDs and UWB-devices are fast assuming crucial importance to citizens as well as specialized public and private sectors (e.g., medical implants, ground-probing radars, the latter for use by security and utility agencies). Machine-to-Machine (M2M) communications and Internet of Things (IoT) largely depend upon SRDs and UWB-devices. These devices are, however, not considered as providing radiocommunication services and are usually kept out of the purview Radio Regulations. For ready reference, Annex-1 presents the list of applications which have been declared 'license-exempt' by the WPC Wing. Annex-2 lists the commonly used frequencies for specific uses. Additional 1 MHz spectrum from 867-868 MHz for M2M services and other similar applications is under consideration for license exception

1.14 The terms such as *allocation*, *assignment*, *radio astronomy*, *safety service* which appear in the Frequency Allocation Table and the associated footnotes have specific definitions in the Radio Regulations. These terms are defined in "Chapter 2: Terms and Definitions."

1.15 Frequency Allocation Table is complemented with its footnotes. The Radio Regulations qualify the frequency allocations made to the three Regions with the footnotes. These footnotes, usually known as International Footnotes, are reproduced in Section C of Chapter 3. India specific footnotes, identified by the prefix "IND" and followed by a number, appear only in column 4 of the Table of Frequency Allocations in Section B of Chapter 3. These footnotes qualify the use of the frequency band(s) in India and are shown in Section D of Chapter 3.

1.16 The effective date of NFAP-2018 is **25.10.2018**.

Chapter 2

Terms and Definitions

2.1 The Table of Frequency Allocations in Section B of Chapter 3 makes references to radiocommunication services. Also, the international footnotes and India footnotes in Sections C and D of Chapter 3 respectively, make use of such terms as allotment, assignment, mobile station, primary service, and many others. All these terms are precisely defined in the Radio Regulations and are reproduced below.

Note: While reproducing the definitions below, the numbers preceding each definition have been changed from those in the Radio Regulations to make them consistent with the numbering scheme used in this document.

Section A — General terms

2.2 *administration:* Any governmental department or service responsible for discharging the obligations undertaken in the Constitution of the International Telecommunication Union, in the Convention of the International Telecommunication Union and in the Administrative Regulations.

Note: Wireless Planning and Coordination Wing, Ministry of Communications, is the administration wherever the use of the word *administration* in the Radio Regulations is taken to mean a reference to India.

2.3 *telecommunication:* Any transmission, emission or reception of signs, signals, writings, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems.

2.4 *radio*: A general term applied to the use of radio waves.

2.5 *radio waves or hertzian waves*: Electromagnetic waves of frequencies arbitrarily lower than 3000 GHz, propagated in space without artificial guide.

2.6 *radiocommunication*: Telecommunication by means of radio waves.

2.7 *terrestrial radiocommunication*: Any radiocommunication other than space radiocommunication or radio astronomy.

2.8 *space radiocommunication*: Any radiocommunication involving the use of one or more space stations or the use of one or more reflecting satellites or other objects in space.

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

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

2.11 *radiolocation:* Radiodetermination used for purposes other than those of radionavigation.

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

Section B — Terms related to spectrum management

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

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

2.15 *assignment* (of a radio frequency or radio frequency channel): Authorization given by an administration for a radio station to use a radio frequency or radio frequency channel under specified conditions.

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

Section C — Radio services

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

In these Regulations, unless otherwise stated, any radiocommunication service relates to terrestrial radiocommunication.

2.18 *fixed service*: A radiocommunication service between specified fixed points.

2.19 *fixed-satellite service:* A radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed

point or any fixed point within specified areas; in some cases, this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radiocommunication services.

2.20 inter-*satellite service:* A radiocommunication service providing links between artificial satellites.

2.21 space *operation service:* A radiocommunication service concerned exclusively with the operation of spacecraft, in particular space tracking, space telemetry and space telecommand.

These functions will normally be provided within the service in which the space station is operating.

2.22 *mobile service*: A radiocommunication service between mobile and land stations, or between mobile stations.

2.23 *mobile-satellite service*: A radiocommunication service:

– between mobile earth stations and one or more space stations, or between space stations used by this service; or

– between mobile earth stations by means of one or more space stations.

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

2.24 *land mobile service:* A mobile service between base stations and land mobile stations, or between land mobile stations.

2.25 *land mobile-satellite service:* A mobile-satellite service in which mobile earth stations are located on land.

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

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

2.28 *port operations service:* A maritime mobile service in or near a port, between coast stations and ship stations, or between ship stations, in which messages are restricted to those relating to the operational handling, the movement and the safety of ships and, in emergency, to the safety of persons.

Messages which are of a public correspondence nature shall be excluded from this service.

2.29 *ship movement service*: A safety service in the maritime mobile service other than a port operations service, between coast stations and ship stations, or between ship stations, in which messages are restricted to those relating to the movement of ships.

Messages which are of a public correspondence nature shall be excluded from this service.

2.30 *aeronautical mobile service:* A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate;

emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

2.31 *aeronautical mobile (R)* service*: An aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes. (* *(R)*: route)

2.32 *aeronautical mobile (OR)**service*: An aeronautical mobile service intended for communications, including those relating to flight coordination, primarily outside national or international civil air routes. (** *(OR)*: off-route)

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

2.34 *aeronautical mobile-satellite (R) service*: An aeronautical mobile-satellite service reserved for communications relating to safety and regularity of flights, primarily along national or international civil air routes.

2.35 *aeronautical mobile-satellite (OR) service*: An aeronautical mobile-satellite service intended for communications, including those relating to flight coordination, primarily outside national and international civil air routes.

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

2.37 *broadcasting-satellite service*: A radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public.

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

2.38 *radiodetermination service:* A radiocommunication service for the purpose of radiodetermination.

2.39 *radiodetermination-satellite service*: A radiocommunication service for the purpose of radiodetermination involving the use of one or more space stations.

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

2.40 *radionavigation service:* A radiodetermination service for the purpose of radionavigation.

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

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

2.42 *maritime radionavigation service*: A radionavigation service intended for the benefit and for the safe operation of ships.

2.43 *maritime radionavigation-satellite service:* A radionavigation-satellite service in which earth stations are located on board ships.

2.44 *aeronautical radionavigation service:* A radionavigation service intended for the benefit and for the safe operation of aircraft.

2.45 *aeronautical radionavigation-satellite service:* A radionavigation-satellite service in which earth stations are located on board aircraft.

2.46 *radiolocation service*: A radiodetermination service for the purpose of radiolocation.

2.47 *radiolocation-satellite service:* A radiodetermination-satellite service used for the purpose of radiolocation.

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

2.48 *meteorological aids service:* A radiocommunication service used for meteorological, including hydrological, observations and exploration.

2.49 *Earth exploration-satellite service:* A radiocommunication service between earth stations and one or more space stations, which may include links between space stations, in which:

– information relating to the characteristics of the Earth and its natural phenomena, including data relating to the state of the environment, is obtained from active sensors or passive sensors on Earth satellites;

– similar information is collected from airborne or Earth-based platforms;

– such information may be distributed to earth stations within the system concerned;

– platform interrogation may be included.

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

2.50 *meteorological-satellite service:* An earth exploration-satellite service for meteorological purposes.

2.51 *standard frequency and time signal service:* A radiocommunication service for scientific, technical and other purposes, providing the transmission of specified frequencies, time signals, or both, of stated high precision, intended for general reception.

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

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

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

2.54 *amateur service*: A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

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

2.56 *radio astronomy service:* A service involving the use of radio astronomy.

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

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

Chapter 3

Frequency Allocation

Section A — Interpretation of the Frequency Allocation Table

3.1 The basis of the frequency allocations in India is the Table of Frequency Allocations in Section IV of Article **5** of the Radio Regulations. The frequency allocations made to the three Regions in the Radio Regulations are reproduced in Columns 1 to 3, named Region 1, Region 2 and Region 3, respectively, in the Table of Frequency Allocations. The frequency allocations in India is listed in Column 4 —India — of the Table of Frequency Allocations.

3.2 Each box in the Table of Frequency Allocations refers to allocation of a frequency band to one or more radiocommunication services. The frequency band is indicated in the left-hand top corner of that box.

3.3 A frequency allocation to a service is categorised as a primary or a secondary allocation. In a box, a service which is shown in "capitals" (example: FIXED) is a primary service for that allocation. A service the name of which is printed in "normal characters" (example: Mobile) is a secondary service. Additional remarks, qualifying a service in a frequency allocation, is printed in normal characters (example: MOBILE except aeronautical mobile).

3.4 The footnotes indicated in a box in the Table of Frequency Allocations, without the prefix "IND", refer to the provisions of the Radio Regulations and are called International Footnotes. The footnotes, with prefix IND, are specific to India and appear in column 4 of the Table of Frequency Allocations.

3.5 In the cells, under the column heading "India", only those international footnotes are listed which apply to frequency allocations in India.

3.6 The word Resolution, followed by a number and some additional text in parenthesis (example: Resolution **339 (Rev.WRC-07)** refer to a Resolution in the Radio Regulations and the World Radiocommunication Conference which revised or adopted the Resolution.

3.7 For a radiocommunication service in the Table of Frequency Allocations, which is not qualified by an India footnote, the provisions of the Radio Regulations apply. For a radiocommunication service in the Table of Frequency Allocations, which is qualified by an India footnote(s), the provisions of that footnote(s) apply.

Section B — Frequency Allocation Table

8.3-70 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
Below 8.3 (Not allocated) 5.53 5.54			**Below 8.3** (Not allocated) 5.53 5.54
8.3-9 METEOROLOGICAL AIDS 5.54A 5.54B 5.54C			**8.3-9** METEOROLOGICAL AIDS 5.54A
9-11.3 METEOROLOGICAL AIDS 5.54A RADIONAVIGATION			**9-11.3** METEOROLOGICAL AIDS 5.54A RADIONAVIGATION
11.3-14 RADIONAVIGATION			**11.3-14** RADIONAVIGATION
14-19.95 FIXED MARITIME MOBILE 5.57 5.55 5.56			**14-19.95** FIXED MARITIME MOBILE 5.57 5.56
19.95-20.05 STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)			**19.95-20.05** STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)
20.05-70 FIXED MARITIME MOBILE 5.57 5.56 5.58			**20.05-70** FIXED MARITIME MOBILE 5.57 5.56

70-110 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
70-72 RADIONAVIGATION 5.60	**70-90** FIXED MARITIME MOBILE 5.57 MARITIME RADIO- NAVIGATION 5.60 Radiolocation	**70-72** RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59	**70-72** RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57
72-84 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56		**72-84** FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60	**72-84** FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60
84-86 RADIONAVIGATION 5.60		**84-86** RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59	**84-86** RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57
86-90 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56	5.61	**86-90** FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60	**86-90** FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60
90-110	RADIONAVIGATION 5.62 Fixed 5.64		**90-110** RADIONAVIGATION 5.62 Fixed 5.64

110-130 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
110-112 FIXED MARITIME MOBILE RADIONAVIGATION 5.64	**110-130** FIXED MARITIME MOBILE MARITIME RADIO- NAVIGATION 5.60 Radiolocation	**110-112** FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	**110-112** FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64
112-115 RADIONAVIGATION 5.60		**112-117.6** RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.65	**112-117.6** RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64
115-117.6 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.66			
117.6-126 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64		**117.6-126** FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	**117.6-126** FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64
126-129 RADIONAVIGATION 5.60		**126-129** RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.65	**126-129** RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64
129-130 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	5.61 5.64	**129-130** FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	**129-130** FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64

130-285 kHz

<table>
<tr><th colspan="4">Allocation to Radiocommunication Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td>130-135.7
FIXED
MARITIME MOBILE

5.64 5.67</td><td>130-135.7
FIXED
MARITIME MOBILE

5.64</td><td>130-135.7
FIXED
MARITIME MOBILE
RADIONAVIGATION
5.64</td><td>130-135.7
FIXED
MARITIME MOBILE
RADIONAVIGATION
5.64</td></tr>
<tr><td>135.7-137.8
FIXED
MARITIME MOBILE
Amateur 5.67A

5.64 5.67 5.67B</td><td>135.7-137.8
FIXED
MARITIME MOBILE
Amateur 5.67A

5.64</td><td>135.7-137.8
FIXED
MARITIME MOBILE
RADIONAVIGATION
Amateur 5.67A
5.64 5.67B</td><td>135.7-137.8
FIXED
MARITIME MOBILE
RADIONAVIGATION
Amateur 5.67A
5.64 5.67B</td></tr>
<tr><td>137.8-148.5
FIXED
MARITIME MOBILE

5.64 5.67</td><td>137.8-160
FIXED
MARITIME MOBILE

5.64</td><td>137.8-160
FIXED
MARITIME MOBILE
RADIONAVIGATION

5.64</td><td>137.8-160
FIXED
MARITIME MOBILE
RADIONAVIGATION

5.64</td></tr>
<tr><td rowspan="3">148.5-255
BROADCASTING

5.68 5.69 5.70</td><td>160-190
FIXED</td><td>160-190
FIXED
Aeronautical radionavigation</td><td>160-190
FIXED
Aeronautical radionavigation</td></tr>
<tr><td colspan="2">190-200
AERONAUTICAL RADIONAVIGATION</td><td>190-200
AERONAUTICAL RADIONAVIGATION IND 1</td></tr>
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AERONAUTICAL
RADIONAVIGATION
Aeronautical mobile</td><td>200-285
AERONAUTICAL
RADIONAVIGATION
Aeronautical mobile</td><td>200-285
AERONAUTICAL
RADIONAVIGATION IND 1
Aeronautical mobile</td></tr>
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BROADCASTING
AERONAUTICAL
RADIONAVIGATION
5.70 5.71</td><td></td><td></td><td></td></tr>
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275-415 kHz

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<tr><td></td><td>275-285
AERONAUTICAL
RADIONAVIGATION
Aeronautical mobile
Maritime radionavigation
(radiobeacons)</td><td></td><td></td></tr>
<tr><td>283.5-315
AERONAUTICAL
RADIONAVIGATION
MARITIME
RADIONAVIGATION
(radiobeacons) 5.73

5.74</td><td colspan="2">285-315
AERONAUTICAL RADIONAVIGATION
MARITIME RADIONAVIGATION (radiobeacons) 5.73</td><td>285-315
AERONAUTICAL RADIONAVIGATION IND 1
MARITIME RADIONAVIGATION
(radiobeacons) 5.73</td></tr>
<tr><td>315-325
AERONAUTICAL
RADIONAVIGATION
Maritime radionavigation
(radiobeacons) 5.73
5.75</td><td>315-325
MARITIME
RADIONAVIGATION
(radiobeacons) 5.73
Aeronautical radionavigation</td><td>315-325
AERONAUTICAL
RADIONAVIGATION
MARITIME
RADIONAVIGATION
(radiobeacons) 5.73</td><td>315-325
AERONAUTICAL
RADIONAVIGATION IND 1
MARITIME
RADIONAVIGATION
(radiobeacons) 5.73</td></tr>
<tr><td rowspan="2">325-405
AERONAUTICAL
RADIONAVIGATION</td><td>325-335
AERONAUTICAL
RADIONAVIGATION
Aeronautical mobile
Maritime radionavigation
(radiobeacons)</td><td rowspan="2">325-405
AERONAUTICAL
RADIONAVIGATION
Aeronautical mobile</td><td rowspan="2">325-405
AERONAUTICAL
RADIONAVIGATION IND 1
Aeronautical mobile</td></tr>
<tr><td>335-405
AERONAUTICAL
RADIONAVIGATION
Aeronautical mobile</td></tr>
<tr><td>405-415
RADIONAVIGATION 5.76</td><td colspan="2">405-415
RADIONAVIGATION 5.76
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RADIONAVIGATION 5.76
Aeronautical mobile</td></tr>
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415-526.5 kHz

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<tr><td>415-435
MARITIME MOBILE 5.79
AERONAUTICAL RADIONAVIGATION</td><td colspan="2" rowspan="2">415-472
MARITIME MOBILE 5.79
Aeronautical radionavigation 5.77 5.80</td><td>415-472
MARITIME MOBILE 5.79
AERONAUTICAL RADIONAVIGATION 5.77 IND 1</td></tr>
<tr><td>435-472
MARITIME MOBILE 5.79
Aeronautical radionavigation 5.77
5.82</td><td>5.78 5.82</td><td>5.82</td></tr>
<tr><td colspan="2">472-479
MARITIME MOBILE 5.79
Amateur 5.80A
Aeronautical radionavigation 5.77 5.80
5.80B 5.82</td><td colspan="2">472-479
MARITIME MOBILE 5.79
Amateur 5.80A
AERONAUTICAL RADIONAVIGATION 5.77 IND 1
5.80B 5.82</td></tr>
<tr><td>479-495
MARITIME MOBILE 5.79 5.79A
Aeronautical radionavigation 5.77
5.82</td><td colspan="2">479-495
MARITIME MOBILE 5.79 5.79A
Aeronautical radionavigation 5.77 5.80
5.82</td><td>479-495
MARITIME MOBILE 5.79 5.79A
AERONAUTICAL RADIONAVIGATION 5.77 IND 1
5.82</td></tr>
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MARITIME MOBILE</td><td colspan="2">495-505
MARITIME MOBILE</td></tr>
<tr><td rowspan="2">505-526.5
MARITIME MOBILE 5.79 5.79A 5.84
AERONAUTICAL RADIONAVIGATION</td><td>505-510
MARITIME MOBILE 5 .79</td><td rowspan="2">505-526.5
MARITIME MOBILE 5.79 5.79A 5.84
AERONAUTICAL RADIONAVIGATION
Aeronautical mobile
Land mobile</td><td rowspan="2">505-526.5
MARITIME MOBILE 5.79 5.79A 5.84
AERONAUTICAL RADIONAVIGATION IND 1
Aeronautical mobile
Land mobile</td></tr>
<tr><td>510-525
MARITIME MOBILE 5.79A 5.84
AERONAUTICAL RADIONAVIGATION</td></tr>
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525-1 800 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
	525-535 BROADCASTING 5.86 AERONAUTICAL RADIONAVIGATION		
526.5-1 606.5 BROADCASTING 5.87 5.87A		**526.5-535** BROADCASTING Mobile 5.88	**526.5-535** BROADCASTING **IND 3** Mobile
	535-1 605 BROADCASTING	**535-1 606.5** BROADCASTING	**535-1 606.5** BROADCASTING IND 3
	1 605-1 625 BROADCASTING 5.89 5.90		
1 606.5-1 625 FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92		**1 606.5-1 800** FIXED MOBILE RADIOLOCATION RADIONAVIGATION	**1 606.5-1 800** FIXED MOBILE RADIOLOCATION RADIONAVIGATION IND 2
1 625-1 635 RADIOLOCATION 5.93	**1 625-1 705** FIXED MOBILE		
1 635-1 800 FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92 5.96	BROADCASTING 5.89 Radiolocation 5.90		
	1 705-1 800 FIXED MOBILE RADIOLOCATION AERONAUTICAL RADIONAVIGATION	5.91	

1 800-2 065 kHz

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<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td>1 800-1 810
RADIOLOCATION
5.93</td><td rowspan="2">1 800-1 850
AMATEUR</td><td rowspan="2">1 800-2 000
AMATEUR
FIXED
MOBILE except aeronautical mobile
RADIONAVIGATION
Radiolocation</td><td>1 800-1 825
AMATEUR</td></tr>
<tr><td>1 810-1 850
AMATEUR
5.98 5.99 5.100</td><td rowspan="2">1 825-2 000
FIXED
MOBILE except aeronautical mobile
RADIONAVIGATION
Radiolocation</td></tr>
<tr><td>1 850-2 000
FIXED
MOBILE except aeronautical mobile
5.92 5.96 5.103</td><td>1 850-2 000
AMATEUR
FIXED
MOBILE except aeronautical mobile
RADIOLOCATION
RADIONAVIGATION
5.102</td><td>5.97</td><td>5.97</td></tr>
<tr><td>2 000-2 025
FIXED
MOBILE except aeronautical mobile (R)
5.92 5.103</td><td colspan="2" rowspan="2">2 000-2 065
FIXED
MOBILE</td><td rowspan="2">2 000-2 065
FIXED
MOBILE</td></tr>
<tr><td>2 025-2 045
FIXED
MOBILE except aeronautical mobile (R)
Meteorological aids 5.104
5.92 5.103</td></tr>
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2 045-2 498 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
2 045-2 160 FIXED MARITIME MOBILE LAND MOBILE 5.92			
	2 065-2 107 MARITIME MOBILE 5.105 5.106		**2 065-2 107** MARITIME MOBILE 5.106
2 160-2 170 RADIOLOCATION 5.93 5.107	**2 107-2 170** FIXED MOBILE		**2 107-2 170** FIXED MOBILE
2 170-2 173.5 MARITIME MOBILE			**2 170-2 173.5** MARITIME MOBILE
2 173.5-2 190.5 MOBILE (distress and calling) 5.108 5.109 5.110 5.111			**2 173.5-2 190.5** MOBILE (distress and calling) 5.108 5.109 5.110 5.111
2 190.5-2 194 MARITIME MOBILE			**2 190.5-2 194** MARITIME MOBILE
2 194-2 300 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.112	**2 194-2 300** FIXED MOBILE 5.112		**2 194-2 300** FIXED MOBILE
2 300-2 498 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.103	**2 300-2 495** FIXED MOBILE BROADCASTING 5.113		**2 300-2 495** FIXED MOBILE BROADCASTING 5.113

2 495-3 155 kHz

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STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)</td><td rowspan="2">2 495-2 501
STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)</td></tr>
<tr><td>2 498-2 501
STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)</td></tr>
<tr><td colspan="3">2 501-2 502
STANDARD FREQUENCY AND TIME SIGNAL
Space Research</td><td>2 501-2 502
STANDARD FREQUENCY AND TIME SIGNAL
Space Research</td></tr>
<tr><td rowspan="4">2 502-2 625
FIXED
MOBILE except aeronautical mobile (R)
5.92 5.103 5.114</td><td colspan="2">2 502-2 505
STANDARD FREQUENCY AND TIME SIGNAL</td><td>2 502-2 505
STANDARD FREQUENCY AND TIME SIGNAL</td></tr>
<tr><td colspan="2" rowspan="3">2 505-2 850
FIXED
MOBILE</td><td rowspan="3">2 505-2 850
FIXED
MOBILE</td></tr>
<tr><td>2 625-2 650
MARITIME MOBILE
MARITIME RADIONAVIGATION
5.92</td></tr>
<tr><td>2 650-2 850
FIXED
MOBILE except aeronautical mobile (R)
5.92 5.103</td></tr>
<tr><td colspan="3">2 850-3 025
AERONAUTICAL MOBILE (R)
5.111 5.115</td><td>2 850-3 025
AERONAUTICAL MOBILE (R) IND 4
5.111 5.115</td></tr>
<tr><td colspan="3">3 025-3 155
AERONAUTICAL MOBILE (OR)</td><td>3 025-3 155
AERONAUTICAL MOBILE (OR) IND 5</td></tr>
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3 155- 3 890 kHz

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<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td colspan="3">3 155-3 200
FIXED
MOBILE except aeronautical mobile (R)
5.116 5.117</td><td>3 155-3 200
FIXED
MOBILE except aeronautical mobile (R)
5.116</td></tr>
<tr><td colspan="3">3 200-3 230
FIXED
MOBILE except aeronautical mobile (R)
BROADCASTING 5.113
5.116</td><td>3 200-3 230
FIXED
MOBILE except aeronautical mobile (R)
BROADCASTING 5.113
5.116</td></tr>
<tr><td colspan="3">3 230-3 400
FIXED
MOBILE except aeronautical mobile
BROADCASTING 5.113
5.116 5.118</td><td>3 230-3 400
FIXED
MOBILE except aeronautical mobile
BROADCASTING 5.113
5.116</td></tr>
<tr><td colspan="3">3 400-3 500
AERONAUTICAL MOBILE (R)</td><td>3 400-3 500
AERONAUTICAL MOBILE (R) IND 4</td></tr>
<tr><td>3 500-3 800
AMATEUR
FIXED
MOBILE except aeronautical Mobile
5.92</td><td>3 500-3 750
AMATEUR

5.119</td><td rowspan="2">3 500-3 900
AMATEUR
FIXED
MOBILE</td><td>3 500-3 700
AMATEUR</td></tr>
<tr><td colspan="2"></td><td>3 700-3 890
FIXED
MOBILE</td></tr>
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3 750-4 488 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
	3 750-4 000 AMATEUR		
3 800-3 900 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	FIXED MOBILE except aeronautical mobile (R)		**3 890-3 900** AMATEUR
3 900-3 950 AERONAUTICAL MOBILE (OR) 5.123	 5.122 5.125	**3 900-3 950** AERONAUTICAL MOBILE BROADCASTING	**3 900-3 950** AERONAUTICAL MOBILE BROADCASTING
3 950-4 000 FIXED BROADCASTING		**3 950-4 000** FIXED BROADCASTING 5.126	**3 950-4 000** FIXED BROADCASTING 5.126
4 000-4 063 FIXED MARITIME MOBILE 5.127 5.126			**4 000-4 063** FIXED MARITIME MOBILE 5.127 5.126
4 063-4 438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128			**4 063-4 438** MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 IND 6 5.128
4 438-4 488 FIXED MOBILE except aeronautical mobile (R) Radiolocation 5.132A 5.132B	**4 438-4 488** FIXED MOBILE except aeronautical mobile (R) RADIOLOCATION 5.132A	**4 438-4 488** FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	**4 438-4 488** FIXED MOBILE except aeronautical mobile Radiolocation 5.132A

4 488-5 060 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
4 488-4 650 FIXED MOBILE except aeronautical mobile (R)		**4 488-4 650** FIXED MOBILE except aeronautical mobile	**4 488-4 650** FIXED MOBILE except aeronautical mobile
4 650-4 700 AERONAUTICAL MOBILE (R)			**4 650-4 700** AERONAUTICAL MOBILE (R) IND 4
4 700-4 750 AERONAUTICAL MOBILE (OR)			**4 700-4 750** AERONAUTICAL MOBILE (OR) IND 5
4 750-4 850 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	**4 750-4 850** FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113	**4 750-4 850** FIXED BROADCASTING 5.113 Land mobile	**4 750-4 850** FIXED BROADCASTING 5.113 Land mobile
4 850-4 995 FIXED LAND MOBILE BROADCASTING 5.113			**4 850-4 995** FIXED LAND MOBILE BROADCASTING 5.113
4 995-5 003 STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)			**4 995-5 003** STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)
5 003-5 005 STANDARD FREQUENCY AND TIME SIGNAL Space research			**5 003-5 005** STANDARD FREQUENCY AND TIME SIGNAL Space research
5 005-5 060 FIXED BROADCASTING 5.113			**5 005-5 060** FIXED BROADCASTING 5.113

5 060-5 680 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
5 060-5 250			**5 060-5 250**
	FIXED		FIXED
	Mobile except aeronautical mobile		Mobile except aeronautical mobile
	5.133		5.133
5 250-5 275	**5 250-5 275**	**5 250-5 275**	**5 250-5 275**
FIXED	FIXED	FIXED	FIXED
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	MOBILE except aeronautical mobile
Radiolocation 5.132A	RADIOLOCATION 5.132A	Radiolocation 5.132A	Radiolocation 5.132A
5.133A			
5 275-5 351.5			**5 275-5 351.5**
	FIXED		FIXED
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
5 351.5-5 366.5			**5 351.5-5 366.5**
	FIXED		FIXED
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	Amateur 5.133B		Amateur 5.133B
5 366.5-5 450			**5 366.5-5 450**
	FIXED		FIXED
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
5 450-5 480	**5 450-5 480**	**5 450-5 480**	**5 450-5 480**
FIXED	AERONAUTICAL MOBILE (R)	FIXED	FIXED
AERONAUTICAL MOBILE (OR)		AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR) IND 5
LAND MOBILE		LAND MOBILE	LAND MOBILE
5 480-5 680			**5 480-5 680**
	AERONAUTICAL MOBILE (R)		AERONAUTICAL MOBILE (R) IND 4
	5.111 5.115		5.111 5.115

5 680-7 100 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
5 680-5 730 AERONAUTICAL MOBILE (OR) 5.111 5.115			**5 680-5 730** AERONAUTICAL MOBILE (OR) IND 5 5.111 5.115
5 730-5 900 FIXED LAND MOBILE	**5 730-5 900** FIXED MOBILE except aeronautical mobile (R)	**5 730-5 900** FIXED Mobile except aeronautical mobile (R)	**5 730-5 900** FIXED Mobile except aeronautical mobile (R)
5 900-5 950 BROADCASTING 5.134 5.136			**5 900-5 950** BROADCASTING 5.134 5.136
5 950-6 200 BROADCASTING			**5 950-6 200** BROADCASTING IND 7
6 200-6 525 MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137			**6 200-6 525** MARITIME MOBILE 5.109 5.110 5.130 5.132 IND 6 5.137
6 525-6 685 AERONAUTICAL MOBILE (R)			**6 525-6 685** AERONAUTICAL MOBILE (R) IND 4
6 685-6 765 AERONAUTICAL MOBILE (OR)			**6 685-6 765** AERONAUTICAL MOBILE (OR) IND 5
6 765-7 000 FIXED MOBILE except aeronautical mobile (R) 5.138			**6 765-7 000** FIXED MOBILE except aeronautical mobile (R) 5.138
7 000-7 100 AMATEUR AMATEUR-SATELLITE 5.140 5.141 5.141A			**7 000-7 100** AMATEUR AMATEUR-SATELLITE

7 100-9 040 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
7 100-7 200			**7 100-7 200**
	AMATEUR		AMATEUR
	5.141A 5.141B		
7 200-7 300	**7 200-7 300**	**7 200-7 300**	**7 200-7 300**
BROADCASTING	AMATEUR	BROADCASTING	BROADCASTING IND 7
	5.142		5.142
7 300-7 400			**7 300-7 400**
	BROADCASTING 5.134		BROADCASTING 5.134
	5.143 5.143A 5.143B 5.143C 5.143D		5.143 5.143A
7 400-7 450	**7 400-7 450**	**7 400-7 450**	**7 400-7 450**
BROADCASTING	FIXED	BROADCASTING	BROADCASTING
	MOBILE except aeronautical		
5.143B 5.143C	mobile (R)	5.143A 5.143C	5.143A
7 450-8 100			**7 450-8 100**
	FIXED		FIXED
	MOBILE except aeronautical mobile (R)		MOBILE except aeronautical mobile (R)
	5.144		5.144
8 100-8 195			**8 100-8 195**
	FIXED		FIXED
	MARITIME MOBILE		MARITIME MOBILE IND 8
8 195-8 815			**8 195-8 815**
	MARITIME MOBILE 5.109 5.110 5.132 5.145		MARITIME MOBILE 5.109 5.110 5.132 5.145 IND 6
	5.111		5.111
8 815-8 965			**8 815-8 965**
	AERONAUTICAL MOBILE (R)		AERONAUTICAL MOBILE (R) IND 4
8 965-9 040			**8 965-9 040**
	AERONAUTICAL MOBILE (OR)		AERONAUTICAL MOBILE (OR) IND 5

9 040-10 100 kHz

<table>
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<tr><td>9 040-9 305
FIXED</td><td rowspan="3">9 040-9 400
FIXED</td><td>9 040-9 305
FIXED</td><td>9 040-9 305
FIXED</td></tr>
<tr><td>9 305-9 355
FIXED
Radiolocation 5.145A
5.145B</td><td>9 305-9 355
FIXED
Radiolocation 5.145A</td><td>9 305-9 355
FIXED
Radiolocation 5.145A</td></tr>
<tr><td>9 355-9 400
FIXED</td><td>9 355-9 400
FIXED</td><td>9 355-9 400
FIXED</td></tr>
<tr><td colspan="2">9 400-9 500
BROADCASTING 5.134
5.146</td><td colspan="2">9 400-9 500
BROADCASTING 5.134
5.146</td></tr>
<tr><td colspan="2">9 500-9 900
BROADCASTING
5.147</td><td colspan="2">9 500-9 900
BROADCASTING IND 7
5.147</td></tr>
<tr><td colspan="2">9 900-9 995
FIXED</td><td colspan="2">9 900-9 995
FIXED</td></tr>
<tr><td colspan="2">9 995-10 003
STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz)
5.111</td><td colspan="2">9 995-10 003
STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz)
5.111</td></tr>
<tr><td colspan="2">10 003-10 005
STANDARD FREQUENCY AND TIME SIGNAL
Space research
5.111</td><td colspan="2">10 003-10 005
STANDARD FREQUENCY AND TIME SIGNAL
Space research
5.111</td></tr>
<tr><td colspan="2">10 005-10 100
AERONAUTICAL MOBILE (R)
5.111</td><td colspan="2">10 005-10 100
AERONAUTICAL MOBILE (R) IND 4
5.111</td></tr>
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10 100-13 360 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
10 100-10 150			**10 100-10 150**
	FIXED		FIXED
	Amateur		Amateur IND 9
10 150-11 175			**10 150-11 175**
	FIXED		FIXED
	Mobile except aeronautical mobile (R)		Mobile except aeronautical mobile (R)
11 175-11 275			**11 175-11 275**
	AERONAUTICAL MOBILE (OR)		AERONAUTICAL MOBILE (OR) IND 5
11 275-11 400			**11 275-11 400**
	AERONAUTICAL MOBILE (R)		AERONAUTICAL MOBILE (R) IND 4
11 400-11 600			**11 400-11 600**
	FIXED		FIXED
11 600-11 650			**11 600-11 650**
	BROADCASTING 5.134		BROADCASTING 5.134
	5.146		5.146
11 650-12 050			**11 650-12 050**
	BROADCASTING		BROADCASTING IND 7
	5.147		5.147
12 050-12 100			**12 050-12 100**
	BROADCASTING 5.134		BROADCASTING 5.134
	5.146		5.146
12 100-12 230			**12 100-12 230**
	FIXED		FIXED
12 230-13 200			**12 230-13 200**
	MARITIME MOBILE 5.109 5.110 5.132 5.145		MARITIME MOBILE 5.109 5.110 5.132 5.145 IND 6
13 200-13 260			**13 200-13 260**
	AERONAUTICAL MOBILE (OR)		AERONAUTICAL MOBILE (OR) IND 5
13 260-13 360			**13 260-13 360**
	AERONAUTICAL MOBILE (R)		AERONAUTICAL MOBILE (R) IND 4

13 360-14 000 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
13 360-13 410			**13 360-13 410**
	FIXED		FIXED
	RADIO ASTRONOMY		RADIO ASTRONOMY
	5.149		5.149
13 410-13 450			**13 410-13 450**
	FIXED		FIXED
	Mobile except aeronautical mobile (R)		Mobile except aeronautical mobile (R)
13 450-13 550	**13 450-13 550**		**13 450-13 550**
FIXED	FIXED		FIXED
Mobile except aeronautical mobile (R)	Mobile except aeronautical mobile (R)		Mobile except aeronautical mobile (R)
Radiolocation 5.132A	Radiolocation 5.132A		Radiolocation 5.132A
5.149A			
13 550-13 570			**13 550-13 570**
	FIXED		FIXED
	Mobile except aeronautical mobile (R)		Mobile except aeronautical mobile (R)
	5.150		5.150
13 570-13 600			**13 570-13 600**
	BROADCASTING 5.134		BROADCASTING 5.134
	5.151		5.151
13 600-13 800			**13 600-13 800**
	BROADCASTING		BROADCASTING IND 7
13 800-13 870			**13 800-13 870**
	BROADCASTING 5.134		BROADCASTING 5.134
	5.151		5.151
13 870-14 000			**13 870-14 000**
	FIXED		FIXED
	Mobile except aeronautical mobile (R)		Mobile except aeronautical mobile (R)

14 000-16 100 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
14 000-14 250			**14 000-14 250**
	AMATEUR		AMATEUR
	AMATEUR-SATELLITE		AMATEUR-SATELLITE
14 250-14 350			**14 250-14 350**
	AMATEUR		AMATEUR
	5.152		
14 350-14 990			**14 350-14 990**
	FIXED		FIXED
	Mobile except aeronautical mobile (R)		Mobile except aeronautical mobile (R)
14 990-15 005			**14 990-15 005**
	STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz)		STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz)
	5.111		5.111
15 005-15 010			**15 005-15 010**
	STANDARD FREQUENCY AND TIME SIGNAL		STANDARD FREQUENCY AND TIME SIGNAL
	Space research		Space research
15 010-15 100			**15 010-15 100**
	AERONAUTICAL MOBILE (OR)		AERONAUTICAL MOBILE (OR) IND 5
15 100-15 600			**15 100-15 600**
	BROADCASTING		BROADCASTING IND 7
15 600-15 800			**15 600-15 800**
	BROADCASTING 5.134		BROADCASTING 5.134
	5.146		5.146
15 800-16 100			**15 800-16 100**
	FIXED		FIXED
	5.153		5.153

16 100-18 168 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
16 100-16 200 FIXED Radiolocation 5.145A 5.145B	**16 100-16 200** FIXED RADIOLOCATION 5.145A	**16 100-16 200** FIXED Radiolocation 5.145A	**16 100-16 200** FIXED Radiolocation 5.145A
16 200-16 360	FIXED		**16 200-16 360** FIXED
16 360-17 410	MARITIME MOBILE 5.109 5.110 5.132 5.145		**16 360-17 410** MARITIME MOBILE 5.109 5.110 5.132 5.145 IND 6
17 410-17 480	FIXED		**17 410-17 480** FIXED
17 480-17 550	BROADCASTING 5.134 5.146		**17 480-17 550** BROADCASTING 5.134 5.146
17 550-17 900	BROADCASTING		**17 550-17 900** BROADCASTING IND 7
17 900-17 970	AERONAUTICAL MOBILE (R)		**17 900-17 970** AERONAUTICAL MOBILE (R) IND 4
17 970-18 030	AERONAUTICAL MOBILE (OR)		**17 970-18 030** AERONAUTICAL MOBILE (OR) IND 5
18 030-18 052	FIXED		**18 030-18 052** FIXED
18 052-18 068	FIXED Space research		**18 052-18 068** FIXED Space research
18 068-18 168	AMATEUR AMATEUR-SATELLITE 5.154		**18 068-18 168** AMATEUR AMATEUR-SATELLITE

18 168-21 450 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
18 168-18 780			**18 168-18 780**
	FIXED		FIXED
	Mobile except aeronautical mobile		Mobile except aeronautical mobile
18 780-18 900			**18 780-18 900**
	MARITIME MOBILE		MARITIME MOBILE IND 6
18 900-19 020			**18 900-19 020**
	BROADCASTING 5.134		BROADCASTING 5.134
	5.146		5.146
19 020-19 680			**19 020-19 680**
	FIXED		FIXED
19 680-19 800			**19 680-19 800**
	MARITIME MOBILE 5.132		MARITIME MOBILE 5.132 IND 6
19 800-19 990			**19 800-19 990**
	FIXED		FIXED
19 990-19 995			**19 990-19 995**
	STANDARD FREQUENCY AND TIME SIGNAL		STANDARD FREQUENCY AND TIME SIGNAL
	Space research		Space research
	5.111		5.111
19 995-20 010			**19 995-20 010**
	STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz)		STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz)
	5.111		5.111
20 010-21 000			**20 010-21 000**
	FIXED		FIXED
	Mobile		Mobile
21 000-21 450			**21 000-21 450**
	AMATEUR		AMATEUR
	AMATEUR-SATELLITE		AMATEUR-SATELLITE

21 450-24 450 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
21 450-21 850	BROADCASTING		**21 450-21 850** BROADCASTING IND 7
21 850-21 870	FIXED 5.155A 5.155		**21 850-21 870** FIXED
21 870-21 924	FIXED 5.155B		**21 870-21 924** FIXED 5.155B
21 924-22 000	AERONAUTICAL MOBILE (R)		**21 924-22 000** AERONAUTICAL MOBILE (R) IND 4
22 000-22 855	MARITIME MOBILE 5.132 5.156		**22 000-22 855** MARITIME MOBILE 5.132 IND 6
22 855-23 000	FIXED 5.156		**22 855-23 000** FIXED
23 000-23 200	FIXED Mobile except aeronautical mobile (R) 5.156		**23 000-23 200** FIXED Mobile except aeronautical mobile (R)
23 200-23 350	FIXED 5.156A AERONAUTICAL MOBILE (OR)		**23 200-23 350** FIXED 5.156A AERONAUTICAL MOBILE (OR) IND 5
23 350-24 000	FIXED MOBILE except aeronautical mobile 5.157		**23 350-24 000** FIXED MOBILE except aeronautical mobile 5.157
24 000-24 450	FIXED LAND MOBILE		**24 000-24 450** FIXED LAND MOBILE

24 450-25 670 kHz

<table>
<tr><th colspan="4">Allocation to Radiocommunication Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td>24 450-24 600
FIXED
LAND MOBILE
Radiolocation 5.132A
5.158</td><td rowspan="2">24 450-24 650
FIXED
LAND MOBILE
RADIOLOCATION 5.132A</td><td>24 450-24 600
FIXED
LAND MOBILE
Radiolocation 5.132A</td><td>24 450-24 600
FIXED
LAND MOBILE
Radiolocation 5.132A</td></tr>
<tr><td rowspan="2">24 600-24 890
FIXED
LAND MOBILE</td><td rowspan="2">24 600-24 890
FIXED
LAND MOBILE</td><td>24 600-24 890
FIXED
LAND MOBILE</td></tr>
<tr><td>24 650-24 890
FIXED
LAND MOBILE</td></tr>
<tr><td>24 890-24 990</td><td colspan="2">AMATEUR
AMATEUR-SATELLITE</td><td>24 890-24 990
AMATEUR
AMATEUR-SATELLITE</td></tr>
<tr><td>24 990-25 005</td><td colspan="2">STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)</td><td>24 990-25 005
STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)</td></tr>
<tr><td>25 005-25 010</td><td colspan="2">STANDARD FREQUENCY AND TIME SIGNAL
Space research</td><td>25 005-25 010
STANDARD FREQUENCY AND TIME SIGNAL
Space research</td></tr>
<tr><td>25 010-25 070</td><td colspan="2">FIXED
MOBILE except aeronautical mobile</td><td>25 010-25 070
FIXED
MOBILE except aeronautical mobile</td></tr>
<tr><td>25 070-25 210</td><td colspan="2">MARITIME MOBILE</td><td>25 070-25 210
MARITIME MOBILE IND 6</td></tr>
<tr><td>25 210-25 550</td><td colspan="2">FIXED
MOBILE except aeronautical mobile</td><td>25 210-25 550
FIXED
MOBILE except aeronautical mobile</td></tr>
<tr><td>25 550-25 670</td><td colspan="2">RADIO ASTRONOMY
5.149</td><td>25 550-25 670
RADIO ASTRONOMY
5.149</td></tr>
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25 670-27 500 kHz

<table>
<tr><th colspan="4">Allocation to Radiocommunication Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td colspan="3">25 670-26 100
BROADCASTING</td><td>25 670-26 100
BROADCASTING IND 7</td></tr>
<tr><td colspan="3">26 100-26 175
MARITIME MOBILE 5.132</td><td>26 100-26 175
MARITIME MOBILE 5.132</td></tr>
<tr><td colspan="3">26 175-26 200
FIXED
MOBILE except aeronautical mobile</td><td>26 175-26 200
FIXED
MOBILE except aeronautical mobile</td></tr>
<tr><td>26 200-26 350
FIXED
MOBILE except aeronautical mobile
Radiolocation 5.132A
5.133A</td><td rowspan="2">26 200-26 420
FIXED
MOBILE except aeronautical mobile
RADIOLOCATION 5.132A</td><td>26 200-26 350
FIXED
MOBILE except aeronautical mobile
Radiolocation 5.132A</td><td>26 200-26 350
FIXED
MOBILE except aeronautical mobile
Radiolocation 5.132A</td></tr>
<tr><td>26 350-27 500
FIXED
MOBILE except aeronautical mobile
5.150</td><td>26 350-27 500
FIXED
MOBILE except aeronautical mobile
5.150</td><td>26 350-27 500
FIXED
MOBILE except aeronautical mobile
5.150</td></tr>
<tr><td colspan="2">26 420-27 500
FIXED
MOBILE except aeronautical mobile
5.150</td><td></td></tr>
</table>

27.5-39.986 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
27.5-28			**27.5-28**
	METEOROLOGICAL AIDS		METEOROLOGICAL AIDS
	FIXED		FIXED
	MOBILE		MOBILE
28-29.7			**28-29.7**
	AMATEUR		AMATEUR
	AMATEUR-SATELLITE		AMATEUR-SATELLITE
29.7-30.005			**29.7-30.005**
	FIXED		FIXED
	MOBILE		MOBILE
30.005-30.01			**30.005-30.01**
	SPACE OPERATION (satellite identification)		SPACE OPERATION (satellite identification)
	FIXED		FIXED
	MOBILE		MOBILE
	SPACE RESEARCH		SPACE RESEARCH
30.01-37.5			**30.01-37.5**
	FIXED		FIXED
	MOBILE		MOBILE
37.5-38.25			**37.5-38.25**
	FIXED		FIXED
	MOBILE		MOBILE
	Radio astronomy		Radio astronomy
	5.149		5.149
38.25-39	**38.25-39.986**	**38.25-39.5**	**38.25-39.5**
FIXED	FIXED	FIXED	FIXED
MOBILE	MOBILE	MOBILE	MOBILE

39-41.015 MHz

<table>
<tr><th colspan="4">Allocation to Radiocommunication Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td>39-39.5
FIXED
MOBILE
Radiolocation 5.132A
5.159</td><td rowspan="2"></td><td></td><td></td></tr>
<tr><td>39.5-39.986
FIXED
MOBILE</td><td>39.5-39.986
FIXED
MOBILE
RADIOLOCATION 5.132A</td><td>39.5-39.986
FIXED
MOBILE
RADIOLOCATION 5.132A</td></tr>
<tr><td colspan="2" rowspan="2">39.986-40.02
FIXED
MOBILE
Space research</td><td>39.986-40
FIXED
MOBILE
RADIOLOCATION 5.132A
Space research</td><td>39.986-40
FIXED
MOBILE
RADIOLOCATION 5.132A
Space research</td></tr>
<tr><td>40-40.02
FIXED
MOBILE
Space research</td><td>40-40.02
FIXED
MOBILE
Space research</td></tr>
<tr><td colspan="2">40.02-40.98
FIXED
MOBILE
5.150</td><td colspan="2">40.02-40.98
FIXED
MOBILE
5.150</td></tr>
<tr><td colspan="2">40.98-41.015
FIXED
MOBILE
Space research
5.160 5.161</td><td colspan="2">40.98-41.015
FIXED
MOBILE
Space research</td></tr>
</table>

41.015-47 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
41.015-42			**41.015-42**
	FIXED		FIXED
	MOBILE		MOBILE
	5.160 5.161 5.161A		
42-42.5	**42-42.5**		**42-42.5**
FIXED	FIXED		FIXED
MOBILE	MOBILE		MOBILE
Radiolocation 5.132A			
5.160 5.161B	5.161		
42.5-44			**42.5-44**
	FIXED		FIXED
	MOBILE		MOBILE
	5.160 5.161 5.161A		
44-47			**44-47**
	FIXED		FIXED
	MOBILE		MOBILE
	5.162 5.162A		

47-68 MHz

<table>
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<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr>
<td rowspan="4">47-68
BROADCASTING

5.162A 5.163 5.164 5.165
5.169 5.171</td>
<td>47-50
FIXED
MOBILE</td>
<td>47-50
FIXED
MOBILE
BROADCASTING
5.162A</td>
<td>47-50
FIXED
MOBILE
BROADCASTING IND 9
IND 10</td>
</tr>
<tr>
<td colspan="2" rowspan="2">50-54
AMATEUR

5.162A 5.167 5.167A 5.168 5.170</td>
<td>50-52
FIXED
MOBILE
BROADCASTING IND 9
Amateur
5.167 IND 10</td>
</tr>
<tr>
<td>52-54
FIXED
MOBILE
BROADCASTING IND 9
5.167 IND 10</td>
</tr>
<tr>
<td>54-68
BROADCASTING
Fixed
Mobile
5.172</td>
<td>54-68
FIXED
MOBILE
BROADCASTING
5.162A</td>
<td>54-68
FIXED
MOBILE
BROADCASTING IND 9
IND 10</td>
</tr>
</table>

68-75.2 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
68-74.8 FIXED MOBILE except aeronautical mobile 5.149 5.175 5.177 5.179	**68-72** BROADCASTING Fixed Mobile 5.173 **72-73** FIXED MOBILE **73-74.6** RADIO ASTRONOMY 5.178 **74.6-74.8** FIXED MOBILE	**68-74.8** FIXED MOBILE 5.149 5.176 5.179	**68-74.8** FIXED MOBILE 5.149
74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180 5.181			**74.8-75.2** AERONAUTICAL RADIONAVIGATION IND 12 5.180

75.2-137 MHz

<table>
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<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td rowspan="4">75.2-87.5
FIXED
MOBILE except aeronautical mobile

5.175 5.179 5.187</td><td colspan="2">75.2-75.4
FIXED
MOBILE
5.179</td><td>75.2-75.4
FIXED
MOBILE</td></tr>
<tr><td>75.4-76
FIXED
MOBILE</td><td rowspan="3">75.4-87
FIXED
MOBILE
5.182 5.183 5.188</td><td rowspan="2">75.4-87
FIXED
MOBILE</td></tr>
<tr><td rowspan="3">76-88
BROADCASTING
Fixed
Mobile
5.185</td></tr>
<tr><td rowspan="2">87.5-100
BROADCASTING

5.190</td><td rowspan="2">87-100
FIXED
MOBILE
BROADCASTING</td><td rowspan="2">87-100
BROADCASTING
Fixed
Mobile</td></tr>
<tr><td>88-100
BROADCASTING</td></tr>
<tr><td>100-108</td><td colspan="2">BROADCASTING
5.192 5.194</td><td>100-108
BROADCASTING IND 11</td></tr>
<tr><td>108-117.975</td><td colspan="2">AERONAUTICAL RADIONAVIGATION
5.197 5.197A</td><td>108-117.975
AERONAUTICAL RADIONAVIGATION IND 12
5.197A</td></tr>
<tr><td>117.975-137</td><td colspan="2">AERONAUTICAL MOBILE (R)
5.111 5.200 5.201 5.202</td><td>117.975-137
AERONAUTICAL MOBILE (R) IND 12
5.111 5.200</td></tr>
</table>

137-137.825 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
137-137.025			**137-137.025**
	SPACE OPERATION (space-to-Earth)		SPACE OPERATION (space-to-Earth)
	METEOROLOGICAL-SATELLITE (space-to-Earth)		METEOROLOGICAL-SATELLITE (space-to-Earth)
	MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209		MOBILE-SATELLITE (space-to-Earth) 5.208 5.208A 5.208B 5.209
	SPACE RESEARCH (space-to-Earth)		SPACE RESEARCH (space-to-Earth)
	Fixed		FIXED
	Mobile except aeronautical mobile (R)		MOBILE EXCEPT AERONAUTICAL MOBILE (R)
	5.204 5.205 5.206 5.207 5.208		5.204
137.025-137.175			**137.025-137.175**
	SPACE OPERATION (space-to-Earth)		SPACE OPERATION (space-to-Earth)
	METEOROLOGICAL-SATELLITE (space-to-Earth)		METEOROLOGICAL-SATELLITE (space-to-Earth)
	SPACE RESEARCH (space-to-Earth)		SPACE RESEARCH (space-to-Earth)
	Fixed		FIXED
	Mobile except aeronautical mobile (R)		MOBILE EXCEPT AERONAUTICAL MOBILE (R)
	Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209		Mobile-satellite (space-to-Earth) 5.208 5.208A 5.208B 5.209
	5.204 5.205 5.206 5.207 5.208		5.204
137.175-137.825			**137.175-137.825**
	SPACE OPERATION (space-to-Earth)		SPACE OPERATION (space-to-Earth)
	METEOROLOGICAL-SATELLITE (space-to-Earth)		METEOROLOGICAL-SATELLITE (space-to-Earth)
	MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209		MOBILE-SATELLITE (space-to-Earth) 5.208 5.208A 5.208B 5.209
	SPACE RESEARCH (space-to-Earth)		FIXED
	Fixed		MOBILE EXCEPT AERONAUTICAL MOBILE (R)
	Mobile except aeronautical mobile (R)		
	5.204 5.205 5.206 5.207 5.208		5.204

137.825-146 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
137.825-138	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 5.204 5.205 5.206 5.207 5.208		**137.825-138** SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) FIXED MOBILE EXCEPT AERONAUTICAL MOBILE (R) Mobile-satellite (space-to-Earth) 5.208 5.208A 5.208B 5.209 5.204
138-143.6 AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	**138-143.6** FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	**138-143.6** FIXED MOBILE Space research (space-to-Earth) 5.207 5.213	**138-143.6** FIXED MOBILE Space research (space-to-Earth)
143.6-143.65 AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) 5.211 5.212 5.214	**143.6-143.65** FIXED MOBILE RADIOLOCATION SPACE RESEARCH (space-to-Earth)	**143.6-143.65** FIXED MOBILE SPACE RESEARCH (space-to-Earth) 5.207 5.213	**143.6-143.65** FIXED MOBILE SPACE RESEARCH (space-to-Earth)
143.65-144 AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	**143.65-144** FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	**143.65-144** FIXED MOBILE Space research (space-to-Earth) 5.207 5.213	**143.65-144** FIXED MOBILE Space research (space-to-Earth)
144-146	AMATEUR AMATEUR-SATELLITE 5.216		**144-146** AMATEUR AMATEUR-SATELLITE

146-154 MHz

<table>
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<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td>146-148
FIXED
MOBILE except aeronautical mobile (R)

5.217</td><td>146-148
AMATEUR

5.217</td><td>146-148
AMATEUR
FIXED
MOBILE
5.217</td><td>146-148
FIXED
MOBILE

5.217</td></tr>
<tr><td>148-149.9
FIXED
MOBILE except aeronautical mobile (R)
MOBILE-SATELLITE (Earth-to-space) 5.209
5.218 5.219 5.221</td><td colspan="2">148-149.9
FIXED
MOBILE
MOBILE-SATELLITE (Earth-to-space) 5.209

5.218 5.219 5.221</td><td>148-149.9
FIXED
MOBILE
MOBILE-SATELLITE (Earth-to-space) 5.209

5.218 5.219 5.221</td></tr>
<tr><td colspan="2">149.9-150.05

MOBILE-SATELLITE (Earth-to-space) 5.209 5.220</td><td colspan="2">149.9-150.05
MOBILE-SATELLITE (Earth-to-space) 5.209 5.220
IND 13</td></tr>
<tr><td>150.05-153
FIXED
MOBILE except aeronautical mobile
RADIO ASTRONOMY
5.149</td><td rowspan="2">150.05-154
FIXED
MOBILE</td><td rowspan="2"></td><td>150.05-153
FIXED
MOBILE
RADIO ASTRONOMY 5.225 IND 13</td></tr>
<tr><td>153-154
FIXED
MOBILE except aeronautical mobile (R)
Meteorological aids

5.225</td><td>153-154
FIXED
MOBILE

IND 13</td></tr>
</table>

154-156.8375 MHz

<table>
<tr><th colspan="4">Allocation to Radiocommunication Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td>154-156.4875
FIXED
MOBILE except aeronautical mobile (R)
5.225A 5.226</td><td>154-156.4875
FIXED
MOBILE
5.226</td><td>154-156.4875
FIXED
MOBILE
5.225A 5.226</td><td>154-156.4875
FIXED
MOBILE
5.225A 5.226</td></tr>
<tr><td colspan="3">156.4875-156.5625
MARITIME MOBILE (distress and calling via DSC)
5.111 5.226 5.227</td><td>156.4875-156.5625
MARITIME MOBILE (distress and calling via DSC)
5.111 5.226 5.227</td></tr>
<tr><td>156.5625-156.7625
FIXED
MOBILE except aeronautical mobile (R)
5.226</td><td colspan="2">156.5625-156.7625
FIXED
MOBILE
5.226</td><td>156.5625-156.7625
FIXED
MOBILE
5.226</td></tr>
<tr><td>156.7625-156.7875
MARITIME MOBILE
Mobile-satellite (Earth-to-space)
5.111 5.226 5.228</td><td>156.7625-156.7875
MARITIME MOBILE
MOBILE-SATELLITE (Earth-to-space)
5.111 5.226 5.228</td><td>156.7625-156.7875
MARITIME MOBILE
Mobile-satellite (Earth-to-space)
5.111 5.226 5.228</td><td>156.7625-156.7875
MARITIME MOBILE
Mobile-satellite (Earth-to-space)
5.111 5.226 5.228</td></tr>
<tr><td colspan="3">156.7875-156.8125
MARITIME MOBILE (distress and calling)
5.111 5.226</td><td>156.7875-156.8125
MARITIME MOBILE (distress and calling)
5.111 5.226</td></tr>
<tr><td>156.8125-156.8375
MARITIME MOBILE
Mobile-satellite (Earth-to-space)
5.111 5.226 5.228</td><td>156.8125-156.8375
MARITIME MOBILE
MOBILE-SATELLITE (Earth-to-space)
5.111 5.226 5.228</td><td>156.8125-156.8375
MARITIME MOBILE
Mobile-satellite (Earth-to-space)
5.111 5.226 5.228</td><td>156.8125-156.8375
MARITIME MOBILE
Mobile-satellite (Earth-to-space)
5.111 5.226 5.228</td></tr>
</table>

156.8375-162.0125 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
156.8375-161.9375 FIXED MOBILE except aeronautical mobile 5.226	**156.8375-161.9375** FIXED MOBILE 5.226		**156.8375-161.9375** FIXED MOBILE 5.226
161.9375-161.9625 FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to space) 5.228AA 5.226	**161.9375-161.9625** FIXED MOBILE Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226		**161.9375-161.9625** FIXED MOBILE Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226
161.9625-161.9875 FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B	**161.9625-161.9875** AERONAUTICAL MOBILE (OR) MARITIME MOBILE MOBILE-SATELITE (Earth-to-space) 5.228C 5.228D	**161.9625-161.9875** MARITIME MOBILE Aeronautical mobile (OR) 5.228E Mobile-satellite (Earth-to-space) 5.228F 5.226	**161.9625-161.9875** MARITIME MOBILE Aeronautical mobile (OR) 5.228E Mobile-satellite (Earth-to-space) 5.228F 5.226
161.9875-162.0125 FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to space) 5.228AA 5.226 5.229	**161.9875-162.0125** FIXED MOBILE Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226		**161.9875-162.0125** FIXED MOBILE Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226

162.0125-223 MHz

<table>
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<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td>162.0125-162.0375
FIXED
MOBILE except aeronautical mobile
Mobile-satellite (Earth-to-space) 5.228F
5.226 5.228A 5.228B 5.229</td><td>162.0125-162.0375
AERONAUTICAL MOBILE (OR)
MARITIME MOBILE
MOBILE-SATELITE (Earth-to-space)
5.228C 5.228D</td><td>162.0125-162.0375
MARITIME MOBILE
Aeronautical mobile (OR) 5.228E
Mobile-satellite (Earth-to-space) 5.228F
5.226</td><td>162.0125-162.0375
MARITIME MOBILE
Aeronautical mobile (OR) 5.228E
Mobile-satellite (Earth-to-space) 5.228F
5.226</td></tr>
<tr><td>162.0375-174
FIXED
MOBILE except aeronautical mobile
5.226 5.229</td><td colspan="3">162.0375-174
FIXED
MOBILE
5.226 5.230 5.231</td><td>162.0375-174
FIXED
MOBILE
5.226 5.231</td></tr>
<tr><td rowspan="2">174-223
BROADCASTING
5.235 5.237 5.243</td><td>174-216
BROADCASTING
Fixed
Mobile</td><td rowspan="2">174-223
FIXED
MOBILE
BROADCASTING
5.233 5.238 5.240 5.245</td><td>174-200
FIXED
MOBILE
BROADCASTING
5.238 5.240 IND 20</td></tr>
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FIXED
MOBILE
BROADCASTING
AERONAUTICAL RADIONAVIGATION
5.238 5.240 IND 20 IND 21</td></tr>
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216-267 MHz

<table>
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<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td></td><td>216-220
FIXED
MARITIME MOBILE
Radiolocation 5.241

5.242</td><td></td><td>216-223
FIXED
MOBILE
BROADCASTING
AERONAUTICAL RADIONAVIGATION
Radiolocation
5.238 5.240 IND 20 IND 21</td></tr>
<tr><td>223-230
BROADCASTING
Fixed
Mobile

5.243 5.246 5.247</td><td>220-225
AMATEUR
FIXED
MOBILE
Radiolocation 5.241
225-235
FIXED
MOBILE</td><td>223-230
FIXED
MOBILE
BROADCASTING
AERONAUTICAL
RADIONAVIGATION
Radiolocation
5.250</td><td>223-230
FIXED
MOBILE
BROADCASTING
AERONAUTICAL
RADIONAVIGATION
Radiolocation
IND 20</td></tr>
<tr><td>230-235
FIXED
MOBILE

5.247 5.251 5.252</td><td></td><td>230-235
FIXED
MOBILE
AERONAUTICAL
RADIONAVIGATION
5.250</td><td>230-235
FIXED
MOBILE
AERONAUTICAL
RADIONAVIGATION</td></tr>
<tr><td colspan="2">235-267
FIXED
MOBILE
5.111 5.252 5.254 5.256 5.256A</td><td></td><td>235-267
FIXED
MOBILE
5.111 5.254 5.256 5.256A</td></tr>
</table>

267-328.6 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
267-272			**267-272**
	FIXED		FIXED
	MOBILE		MOBILE
	Space operation (space-to-Earth)		Space operation (space-to-Earth)
	5.254 5.257		5.254 5.257
272-273			**272-273**
	SPACE OPERATION (space-to-Earth)		SPACE OPERATION (space-to-Earth)
	FIXED		FIXED
	MOBILE		MOBILE
	5.254		5.254
273-312			**273-312**
	FIXED		FIXED
	MOBILE		MOBILE
	5.254		5.254
312-315			**312-315**
	FIXED		FIXED
	MOBILE		MOBILE
	Mobile-satellite (Earth-to-space) 5.254 5.255		Mobile-satellite (Earth-to-space) 5.254 5.255
315-322			**315-322**
	FIXED		FIXED
	MOBILE		MOBILE
	5.254		5.254
322-328.6			**322-328.6**
	FIXED		FIXED
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	5.149		5.149 IND 13

328.6-400.15 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
328.6-335.4 AERONAUTICAL RADIONAVIGATION 5.258 5.259			**328.6-335.4** AERONAUTICAL RADIONAVIGATION 5.258 IND 13
335.4-387 FIXED MOBILE 5.254			**335.4-387** FIXED MOBILE IND 18 IND 19 5.254 IND 22
387-390 FIXED MOBILE Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255			**387-390** FIXED MOBILE IND 18 Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255
390-399.9 FIXED MOBILE 5.254			**390-399.9** FIXED MOBILE IND 18 IND 19 5.254
399.9-400.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.220			**399.9-400.05** MOBILE-SATELLITE (Earth-to-space) 5.209 5.220
400.05-400.15 STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261 5.262			**400.05-400.15** STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261

400.15-406.1 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
400.15-401			**400.15-401**
	METEOROLOGICAL AIDS		METEOROLOGICAL AIDS
	METEOROLOGICAL-SATELLITE (space-to-Earth)		METEOROLOGICAL-SATELLITE (space-to-Earth)
	MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209		MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209
	SPACE RESEARCH (space-to-Earth) 5.263		SPACE RESEARCH (space-to-Earth) 5.263
	Space operation (space-to-Earth)		Space operation (space-to-Earth)
	5.262 5.264		5.264
401-402			**401-402**
	METEOROLOGICAL AIDS		METEOROLOGICAL AIDS
	SPACE OPERATION (space-to-Earth)		SPACE OPERATION (space-to-Earth)
	EARTH EXPLORATION-SATELLITE (Earth-to-space)		EARTH EXPLORATION-SATELLITE (Earth-to-space)
	METEOROLOGICAL-SATELLITE (Earth-to-space)		METEOROLOGICAL-SATELLITE (Earth-to-space)
	Fixed		Fixed
	Mobile except aeronautical mobile		Mobile except aeronautical mobile
402-403			**402-403**
	METEOROLOGICAL AIDS		METEOROLOGICAL AIDS
	EARTH EXPLORATION-SATELLITE (Earth-to-space)		EARTH EXPLORATION-SATELLITE (Earth-to-space)
	METEOROLOGICAL-SATELLITE (Earth-to-space)		METEOROLOGICAL-SATELLITE (Earth-to-space)
	Fixed		Fixed
	Mobile except aeronautical mobile		Mobile except aeronautical mobile
403-406			**403-406**
	METEOROLOGICAL AIDS		METEOROLOGICAL AIDS
	Fixed		Fixed
	Mobile except aeronautical mobile		Mobile except aeronautical mobile
	5.265		5.265
406-406.1			**406-406.1**
	MOBILE-SATELLITE (Earth-to-space)		MOBILE-SATELLITE (Earth-to-space)
	5.265 5.266 5.267		5.265 5.266 5.267

406.1-432 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
406.1-410			**406.1-410**
	FIXED		FIXED
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	RADIO ASTRONOMY		RADIO ASTRONOMY
	5.149 5.265		5.149 5.265 IND 23
410-420			**410-420**
	FIXED		FIXED
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile IND 18
	SPACE RESEARCH (space-to-space) 5.268		SPACE RESEARCH (space-to-space) 5.268
			IND 23
420-430			**420-430**
	FIXED		FIXED
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile IND 18
	Radiolocation		RADIOLOCATION
			Aeronautical radionavigation
	5.269 5.270 5.271		5.269 5.271 IND 23
430-432	**430-432**		**430-432**
AMATEUR	RADIOLOCATION		RADIOLOCATION
RADIOLOCATION	Amateur		FIXED
			MOBILE except aeronautical mobile
			Aeronautical radionavigation
5.271 5.274 5.275 5.276			Amateur
5.277	5.271 5.276 5.278 5.279		5.271 5.276 IND 23

432-438 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
432-438 AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A 5.138 5.271 5.276 5.277 5.280 5.281 5.282	**432-438** RADIOLOCATION Amateur Earth exploration-satellite (active) 5.279A 5.271 5.276 5.278 5.279 5.281 5.282		**432-433.75** RADIOLOCATION FIXED MOBILE except aeronautical mobile Aeronautical radionavigation Earth exploration-satellite (active) 5.279A Amateur 5.271 5.276 5.282 IND 23
			433.75-434.25 RADIOLOCATION FIXED MOBILE except aeronautical mobile SPACE OPERATION (Earth-to-space) Aeronautical radionavigation Earth exploration-satellite (active) 5.279A Amateur 5.271 5.276 5.281 5.282 IND 23
			434.25-435 RADIOLOCATION FIXED MOBILE except aeronautical mobile Aeronautical radionavigation Earth exploration-satellite (active) 5.279A Amateur 5.271 5.276 5.282 IND 23

435-455 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
			435-438 RADIOLOCATION FIXED Aeronautical radionavigation Earth exploration-satellite (active) 5.279A Amateur 5.271 5.276 5.282 IND 23
438-440 AMATEUR RADIOLOCATION 5.271 5.274 5.275 5.276 5.277 5.283	**438-440** RADIOLOCATION Amateur 5.271 5.276 5.278 5.279		**438-440** RADIOLOCATION FIXED MOBILE except aeronautical mobile Aeronautical radionavigation Amateur 5.271 5.276 IND 23
440-450			**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 IND 14 Aeronautical radionavigation 5.269 5.271 5.286 IND 23
450-455			**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 IND 16 Aeronautical radionavigation 5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286E

455-470 MHz

<table>
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<tr><td>455-456
FIXED
MOBILE 5.286AA

5.209 5.271 5.286A 5.286B
5.286C 5.286E</td><td>455-456
FIXED
MOBILE 5.286AA
MOBILE-SATELLITE
(Earth-to-space) 5.209 5.286A
5.286B 5.286C</td><td>455-456
FIXED
MOBILE 5.286AA

5.209 5.271 5.286A 5.286B
5.286C 5.286E</td><td>455-456
FIXED
MOBILE 5.286AA IND 16
Aeronautical radionavigation

5.209 5.271 5.286A 5.286B 5.286C 5.286E</td></tr>
<tr><td colspan="2">456-459
FIXED
MOBILE 5.286AA

5.271 5.287 5.288</td><td colspan="2">456-459
FIXED
MOBILE 5.286AA IND 16
Aeronautical radionavigation
5.271 5.287</td></tr>
<tr><td>459-460
FIXED
MOBILE 5.286AA

5.209 5.271 5.286A 5.286B
5.286C 5.286E</td><td>459-460
FIXED
MOBILE 5.286AA
MOBILE-SATELLITE
(Earth-to-space) 5.209 5.286A
5.286B 5.286C</td><td>459-460
FIXED
MOBILE 5.286AA

5.209 5.271 5.286A 5.286B
5.286C 5.286E</td><td>459-460
FIXED
MOBILE 5.286AA IND 16
Aeronautical radionavigation

5.209 5.271 5.286A 5.286B 5.286C 5.286E</td></tr>
<tr><td colspan="2">460-470
FIXED
MOBILE 5.286AA
Meteorological-satellite (space-to-Earth)
5.287 5.288 5.289 5.290</td><td colspan="2">460-470
FIXED
MOBILE 5.286AA IND 16
Meteorological-satellite (space-to-Earth)
5.287 5.289</td></tr>
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470-890 MHz

<table>
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<tr>
<td rowspan="5">470-694
BROADCASTING

5.149 5.291A 5.294 5.296
5.300 5.304 5.306 5.311A
5.312</td>
<td>470-512
BROADCASTING
Fixed
Mobile

5.292 5.293 5.295</td>
<td rowspan="2">470-585
FIXED
MOBILE 5.296A
BROADCASTING

5.291 5.298</td>
<td rowspan="2">470-585
FIXED
MOBILE 5.296A IND 16
BROADCASTING
Space operation (space-to-Earth)

5.298 IND 24</td>
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<tr>
<td>512-608
BROADCASTING
5.295 5.297</td>
</tr>
<tr>
<td rowspan="3">608-614
RADIO ASTRONOMY
Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)</td>
<td rowspan="2">585-610
FIXED
MOBILE 5.296A
BROADCASTING
RADIONAVIGATION

5.149 5.305 5.306 5.307</td>
<td>585-608
FIXED
MOBILE 5.296A IND 16
BROADCASTING
RADIONAVIGATION
5.149 IND 25</td>
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<tr>
<td>608-610
FIXED
MOBILE 5.296A IND 16
BROADCASTING
RADIONAVIGATION
RADIO ASTRONOMY
5.149 5.307 IND 25</td>
</tr>
<tr>
<td rowspan="2">610-890
FIXED
MOBILE 5.296A 5.313A 5.317A
BROADCASTING

5.149 5.305 5.306 5.307
5.311A 5.320</td>
<td rowspan="2">610-614
FIXED
MOBILE 5.296A 5.313A 5.317A IND 16
BROADCASTING
RADIO ASTRONOMY
5.149 5.307 5.311A 5.320 IND 25</td>
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<tr>
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<td>614-698
BROADCASTING
Fixed
Mobile

5.293 5.308 5.308A 5.309
5.311A</td>
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694-942 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
694-790 MOBILE except aeronautical mobile 5.312A 5.317A BROADCASTING 5.300 5.311A 5.312			**614-890** FIXED MOBILE 5.296A 5.313A 5.317A IND 16 IND 18 BROADCASTING 5.149 5.311A 5.320 IND 25
790-862 FIXED MOBILE except aeronautical mobile 5.316B 5.317A BROADCASTING 5.312 5.319	**698-806** MOBILE 5.317A BROADCASTING Fixed 5.293 5.309 5.311A		
862-890 FIXED MOBILE except aeronautical Mobile 5.317A BROADCASTING 5.322 5.319 5.323	**806-890** FIXED MOBILE 5.317A BROADCASTING 5.317 5.318		
890-942 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation 5.323	**890-902** FIXED MOBILE except aeronautical Mobile 5.317A Radiolocation 5.318 5.325	**890-942** FIXED MOBILE 5.317A BROADCASTING Radiolocation 5.327	**890-942** FIXED MOBILE 5.317A IND 16 IND 26 BROADCASTING Radiolocation

902-1 215 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
	902-928 FIXED Amateur Mobile except aeronautical mobile 5.325A Radiolocation 5.150 5.325 5.326		
	928-942 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation 5.325		
942-960 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.323	**942-960** FIXED MOBILE 5.317A	**942-960** FIXED MOBILE 5.317A BROADCASTING 5.320	**942-960** FIXED MOBILE 5.317A IND 16 IND 26 BROADCASTING 5.320
960-1 164 AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328 5.328AA			**960-1 164** AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328 IND 12 5.328AA
1 164-1 215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.328A			**1 164-1 215** AERONAUTICAL RADIONAVIGATION 5.328 IND 12 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.328A

1 215-1 350 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
1 215-1 240			**1 215-1 240**
	EARTH EXPLORATION-SATELLITE (active)		FIXED
	RADIOLOCATION		MOBILE
	RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space)		RADIONAVIGATION
	5.328B 5.329 5.329A		EARTH EXPLORATION-SATELLITE (active)
	SPACE RESEARCH (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		5.330 5.331 5.332
1 240-1 300			**1 240-1 300**
	EARTH EXPLORATION-SATELLITE (active)		FIXED
	RADIOLOCATION		MOBILE
	RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space)		RADIONAVIGATION
	5.328B 5.329 5.329A		EARTH EXPLORATION-SATELLITE (active)
	SPACE RESEARCH (active)		RADIOLOCATION IND 14
	Amateur		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		5.282 5.330 5.331 5.332 5.335A
1 300-1 350			**1 300-1 350**
	RADIOLOCATION		RADIOLOCATION IND 14
	AERONAUTICAL RADIONAVIGATION 5.337		AERONAUTICAL RADIONAVIGATION 5.337
	RADIONAVIGATION-SATELLITE (Earth-to-space)		RADIONAVIGATION-SATELLITE (Earth-to-space)
	5.149 5.337A		5.149 5.337A

1 350-1 492 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
1 350-1 400 FIXED MOBILE RADIOLOCATION 5.149 5.338 5.338A 5.339	**1 350-1 400** RADIOLOCATION 5.338A 5.149 5.334 5.339		**1 350-1 400** RADIOLOCATION 5.338A 5.149 5.339
1 400-1 427	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341		**1 400-1 427** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341
1 427-1 429	SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.341A 5.341B 5.341C 5.338A 5.341		**1 427-1 429** SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.341C IND 16 5.338A 5.341
1 429-1 452 FIXED MOBILE except aeronautical mobile 5.341A 5.338A 5.341 5.342	**1 429-1 452** FIXED MOBILE 5.341B 5.341C 5.343 5.338A 5.341		**1 429-1 452** FIXED MOBILE 5.341C IND 16 5.338A 5.341
1 452-1 492 FIXED MOBILE except aeronautical mobile 5.346 BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.342 5.345	**1 452-1 492** FIXED MOBILE 5.341B 5.343 5.346A BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.344 5.345		**1 452-1 492** FIXED MOBILE 5.346A IND 16 BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.345

1 492-1 530 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
1 492-1 518 FIXED MOBILE except aeronautical mobile 5.341A 5.341 5.342	**1 492-1 518** FIXED MOBILE 5.341B 5.343 5.341 5.344	**1 492-1 518** FIXED MOBILE 5.341C 5.341	**1 492-1 518** FIXED MOBILE 5.341C IND 16 5.341
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	**1 518-1 525** FIXED MOBILE 5.343 MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341 5.344	**1 518-1 525** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341	**1 518-1 525** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341
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	**1 525-1 530** 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	**1 525-1 530** 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	**1 525-1 530** SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A Earth exploration-satellite Mobile 5.341 5.351 5.352A 5.354

1 530-1 610 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
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	**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 5.343 5.341 5.351 5.354		**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 5.341 5.351 5.354
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		**1 535-1 559** MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.341 5.351 5.353A 5.354 5.356 5.357 5.357A 5.362A
1 559-1 610	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.208B 5.328B 5.329A 5.341		**1 559-1 610** AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.208B 5.328B 5.329A 5.341

1 610-1 613.8 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
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	**1 610-1 610.6** 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	**1 610-1 610.6** 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	**1 610-1 610.6** MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (EARTH-TO-SPACE) 5.341 5.364 5.366 5.367 5.368 5.369 5.372
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	**1 610.6-1 613.8** 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	**1 610.6-1 613.8** 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	**1 610.6-1 613.8** 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 5.369 5.372

1 613.8-1 668 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
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	**1 613.8-1 626.5** 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	**1 613.8-1 626.5** 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	**1 613.8-1 626.5** 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 5.369 5.372
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		**1 626.5-1 660** MOBILE-SATELLITE (Earth-to-space) 5.351A 5.341 5.351 5.353A 5.354 5.357A 5.362A 5.374 5.375 5.376
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		**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
1 660.5-1 668	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A		**1 660.5-1 668** RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile Meteorological aids 5.149 5.341 5.379 5.379A

1 668-1 675 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
1 668-1 668.4			**1 668-1 668.4**
	MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C		MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	Fixed		Fixed
	Mobile except aeronautical mobile		Mobile except aeronautical mobile
			Meteorological aids
	5.149 5.341 5.379 5.379A		5.149 5.341 5.379 5.379A
1 668.4-1 670			**1 668.4-1 670**
	METEOROLOGICAL AIDS		METEOROLOGICAL AIDS
	FIXED		FIXED
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C		MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C
	RADIO ASTRONOMY		RADIO ASTRONOMY
	5.149 5.341 5.379D 5.379E		5.149 5.341 5.379D 5.379E
1 670-1 675			**1 670-1 675**
	METEOROLOGICAL AIDS		METEOROLOGICAL AIDS
	FIXED		FIXED
	METEOROLOGICAL-SATELLITE (space-to-Earth)		METEOROLOGICAL-SATELLITE (space-to-Earth)
	MOBILE		MOBILE
	MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B		MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B
	5.341 5.379D 5.379E 5.380A		5.341 5.379D 5.379E 5.380A

1 675-1 710 MHz

<table>
<tr><th colspan="4">Allocation to Radiocommunication Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td colspan="3">1 675-1 690
METEOROLOGICAL AIDS
FIXED
METEOROLOGICAL-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile
5.341</td><td>1 675-1 690
METEOROLOGICAL AIDS
FIXED
METEOROLOGICAL-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile
5.341</td></tr>
<tr><td>1 690-1 700
METEOROLOGICAL AIDS
METEOROLOGICAL
SATELLITE (space-to-Earth)
Fixed
Mobile except aeronautical mobile
5.289 5.341 5.382</td><td colspan="2">1690-1 700
METEOROLOGICAL AIDS
METEOROLOGICAL-SATELLITE (space-to-Earth)

5.289 5.341 5.381</td><td>1690-1 700
FIXED
MOBILE except aeronautical mobile
METEOROLOGICAL AIDS
METEOROLOGICAL-SATELLITE (space-to-Earth)

5.289 5.341 5.381</td></tr>
<tr><td colspan="2">1 700-1 710
FIXED
METEOROLOGICAL-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile

5.289 5.341</td><td>1 700-1 710
FIXED
METEOROLOGICAL
SATELLITE (space-to-Earth)
MOBILE except aeronautical
mobile
5.289 5.341 5.384</td><td>1 700-1 710
FIXED
METEOROLOGICAL
SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile
SPACE RESEARCH (space-to-Earth)
5.289 5.341 5.384</td></tr>
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1 710-2 010 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
1 710-1 930 FIXED MOBILE 5.384A 5.388A 5.388B 5.149 5.341 5.385 5.386 5.387 5.388			**1 710-1 750** FIXED MOBILE 5.384A 5.388A 5.388B IND 16 5.149 5.341 5.385 5.388
			1 750-1 850 FIXED MOBILE 5.384A 5.388A 5.388B IND 16 SPACE OPERATION (Earth-to-space) SPACE RESEARCH (Earth-to-space) 5.149 5.341 5.385 5.386 5.388
			1 850-1 930 FIXED MOBILE 5.384A 5.388A 5.388B IND 16 5.149 5.341 5.385 5.388
1 930-1 970 FIXED MOBILE 5.388A 5.388B 5.388	**1 930-1 970** FIXED MOBILE 5.388A 5.388B Mobile-satellite (space-to-Earth) 5.388	**1 930-1 970** FIXED MOBILE 5.388A 5.388B 5.388	**1 930-1 970** FIXED MOBILE 5.388A 5.388B IND 16 5.388
1 970-1 980 FIXED MOBILE 5.388A 5.388B 5.388			**1 970-1 980** FIXED MOBILE 5.388A 5.388B IND 16 5.388
1 980-2 010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389B 5.389F			**1 980-2 010** FIXED MOBILE IND 16 MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A

2 010-2 170 MHz

<table>
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<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td>2 010-2 025
FIXED
MOBILE 5.388A 5.388B

5.388</td><td>2 010-2 025
FIXED
MOBILE
MOBILE-SATELLITE
(Earth-to-space)
5.388 5.389C 5.389E</td><td>2 010-2 025
FIXED
MOBILE 5.388A 5.388B

5.388</td><td>2 010-2 025
FIXED
MOBILE 5.388A 5.388B IND 16

5.388</td></tr>
<tr><td>2 025-2 110</td><td colspan="2">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</td><td>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 IND 16
SPACE RESEARCH (Earth-to-space) (space-to-space)
5.392</td></tr>
<tr><td>2 110-2 120</td><td colspan="2">FIXED
MOBILE 5.388A 5.388B
SPACE RESEARCH (deep space) (Earth-to-space)
5.388</td><td>2 110-2 120
FIXED
MOBILE 5.388A 5.388B IND 16
SPACE RESEARCH (deep space) (Earth-to-space)
5.388</td></tr>
<tr><td>2 120-2 160
FIXED
MOBILE 5.388A 5.388B

5.388</td><td>2 120-2 160
FIXED
MOBILE 5.388A 5.388B
Mobile-satellite (space-to-Earth)
5.388</td><td>2 120-2 160
FIXED
MOBILE 5.388A 5.388B

5.388</td><td rowspan="2">2 120-2 170
FIXED
MOBILE 5.388A 5.388B IND 16

5.388</td></tr>
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2 160-2 300 MHz

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<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td>2 160-2 170
FIXED
MOBILE 5.388A 5.388B

5.388</td><td>2 160-2 170
FIXED
MOBILE
MOBILE-SATELLITE
(space-to-Earth)
5.388 5.389C 5.389E</td><td>2 160-2 170
FIXED
MOBILE 5.388A 5.388B

5.388</td><td></td></tr>
<tr><td>2 170-2 200</td><td colspan="2">FIXED
MOBILE
MOBILE-SATELLITE (space-to-Earth) 5.351A
5.388 5.389A 5.389F</td><td>2 170-2 200
FIXED
MOBILE IND 16
MOBILE-SATELLITE (space-to-Earth) 5.351A
5.388 5.389A</td></tr>
<tr><td>2 200-2 290</td><td colspan="2">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</td><td>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</td></tr>
<tr><td>2 290-2 300</td><td colspan="2">FIXED
MOBILE except aeronautical mobile
SPACE RESEARCH (deep space) (space-to-Earth)</td><td>2 290-2 300
FIXED
MOBILE except aeronautical mobile
SPACE RESEARCH (deep space) (space-to-Earth)
IND 15</td></tr>
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2 300-2 483.5 MHz

<table>
<tr><th colspan="4">Allocation to Radiocommunication Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td rowspan="3">2 300-2 450
FIXED
MOBILE 5.384A
Amateur
Radiolocation

5.150 5.282 5.395</td><td colspan="2" rowspan="3">2 300-2 450
FIXED
MOBILE 5.384A
RADIOLOCATION
Amateur

5.150 5.282 5.393 5.394 5.396</td><td>2 300-2 310
FIXED
MOBILE 5.384A IND 16
RADIOLOCATION
Amateur
5.150 5.282 IND 15</td></tr>
<tr><td>2 310-2 360
FIXED
MOBILE 5.384A IND 16
BROADCASTING-SATELLITE
RADIOLOCATION
Amateur
5.150 5.282 5.393 5.396</td></tr>
<tr><td>2 360-2 450
FIXED
MOBILE 5.384A IND 16
RADIOLOCATION
Amateur
5.150 5.282</td></tr>
<tr><td>2 450-2 483.5
FIXED
MOBILE
Radiolocation
5.150</td><td colspan="2">2 450-2 483.5
FIXED
MOBILE
RADIOLOCATION
5.150</td><td>2 450-2 483.5
FIXED
MOBILE
RADIOLOCATION
5.150</td></tr>
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2 483.5-2 500 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIODETERMINATION- SATELLITE (space-to-Earth) 5.398 Radiolocation 5.398A 5.150 5.399 5.401 5.402	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION- SATELLITE (space-to-Earth) 5.398 5.150 5.402	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION- SATELLITE (space-to-Earth) 5.398 5.150 5.401 5.402	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION- SATELLITE 5.150 5.401 5.402

2 500-2 520 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
2 500-2 520 FIXED 5.410 MOBILE except aeronautical mobile 5.384A 5.412	**2 500-2 520** FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A	**2 500-2 520** 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	**2 500-2 515** FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A IND 16 MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A RADIODETERMINATION- SATELLITE (space-to-Earth) 5.404 **2 515-2 516.5** FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A IND 16 MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A AERONAUTICAL MOBILE-SATELLITE (space-to-Earth) RADIODETERMINATION- SATELLITE (space-to-Earth) 5.404 5.415A **2 516.5-2 520** FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A IND 16 MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A AERONAUTICAL MOBILE-SATELLITE (space-to-Earth) 5.415A

2 520-2 655 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
2 520-2 655 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416	**2 520-2 655** FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416	**2 520-2 535** 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	**2 520-2 535** FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A IND 16 BROADCASTING-SATELLITE 5.413 5.416 AERONAUTICAL MOBILE-SATELLITE (space-to-Earth) 5.403 5.414A 5.415A
		2 535-2 655 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.418 5.418A 5.418B	**2 535-2 655** FIXED 5.410 MOBILE except aeronautical mobile 5.384A IND 16 BROADCASTING-SATELLITE 5.413 5.416 5.339 5.418 5.418A 5.418B
5.339 5.412 5.418B 5.418C	5.339 5.418B 5.418C	5.418C	5.418C IND 27

2 655-2 690 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
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	**2 655-2 670** 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	**2 655-2 670** FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 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 5.420	**2 655-2 670** FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A IND 16 BROADCASTING-SATELLITE 5.208B 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.420
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	**2 670-2 690** 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	**2 670-2 690** 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	**2 670-2 690** FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A IND 16 MOBILE-SATELLITE (Earth-to-space) 5.351A 5.419 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149

2 690-3 400 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
2 690-2 700			**2 690-2 700**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340 5.422		5.340
2 700-2 900			**2 700-2 900**
	AERONAUTICAL RADIONAVIGATION 5.337		AERONAUTICAL RADIONAVIGATION 5.337
	Radiolocation		Radiolocation
	5.423 5.424		5.423 IND 28
2 900-3 100			**2 900-3 100**
	RADIOLOCATION 5.424A		RADIOLOCATION 5.424A
	RADIONAVIGATION 5.426		RADIONAVIGATION 5.426
	5.425 5.427		5.425 5.427
3 100-3 300			**3 100-3 300**
	RADIOLOCATION		RADIOLOCATION
	Earth exploration-satellite (active)		Earth exploration-satellite (active)
	Space research (active)		Space research (active)
	5.149 5.428		5.149
3 300-3 400	**3 300-3 400**	**3 300-3 400**	**3 300-3 400**
RADIOLOCATION	RADIOLOCATION	RADIOLOCATION	FIXED
	Amateur	Amateur	MOBILE IND 16
	Fixed Mobile		RADIOLOCATION
			Amateur
5.149 5.429 5.429A 5.429B			
5.430	5.149 5.429C 5.429D	5.149 5.429 5.429E 5.429F	5.149 5.429 5.429F

3 400-4 200 MHz

<table>
<tr><th colspan="4">Allocation to Radiocommunication Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td rowspan="2">3 400-3 600
FIXED
FIXED-SATELLITE
(space-to-Earth)
MOBILE except aeronautical
mobile 5.430A
Radiolocation

5.431</td><td>3 400-3 500
FIXED
FIXED-SATELLITE (space-to-
Earth)
MOBILE except aeronautical
mobile 5.431A 5.431B
Amateur
Radiolocation 5.433
5.282</td><td>3 400-3 500
FIXED
FIXED-SATELLITE (space-to-
Earth)
Amateur
Mobile 5.432 5.432B
Radiolocation 5.433

5.282 5.432A</td><td>3 400-3 500
FIXED
FIXED-SATELLITE (space-to- Earth)
MOBILE except aeronautical mobile 5.432B IND 16
Amateur
Radiolocation 5.433

5.282 5.432A</td></tr>
<tr><td>3 500-3 600
FIXED
FIXED-SATELLITE (space-to-
Earth)
MOBILE except aeronautical
mobile 5.431B
Radiolocation 5.433</td><td>3 500-3 600
FIXED
FIXED-SATELLITE (space-to-
Earth)
MOBILE except aeronautical
mobile 5.433A
Radiolocation 5.433</td><td>3 500-3 600
FIXED
FIXED-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile 5.433A IND 16
Radiolocation 5.433</td></tr>
<tr><td rowspan="2">3 600-4 200
FIXED
FIXED-SATELLITE (space-
to-Earth)
Mobile</td><td>3 600-3 700
FIXED
FIXED-SATELLITE (space-
to-Earth)
MOBILE except aeronautical
mobile 5.434
Radiolocation 5.433</td><td>3 600-3 700
FIXED
FIXED-SATELLITE (space-
to-Earth)
MOBILE except aeronautical
mobile
Radiolocation
5.435</td><td>3 600-3 700
FIXED
FIXED-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile
Radiolocation</td></tr>
<tr><td colspan="2">3 700-4 200
FIXED
FIXED-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile</td><td>3 700-4 200
FIXED
FIXED-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile</td></tr>
</table>

4 200-5 010 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
4 200-4 400			**4 200-4 400**
	AERONAUTICAL MOBILE (R) 5.436		AERONAUTICAL MOBILE (R) 5.436
	AERONAUTICAL RADIONAVIGATION 5.438		AERONAUTICAL RADIONAVIGATION 5.438
	5.437 5.439 5.440		5.437 5.440
4 400-4 500			**4 400-4 500**
	FIXED		FIXED
	MOBILE 5.440A		MOBILE 5.440A
4 500-4 800			**4 500-4 800**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth) 5.441		FIXED-SATELLITE (space-to-Earth) 5.441
	MOBILE 5.440A		MOBILE 5.440A
4 800-4 990			**4 800-4 990**
	FIXED		FIXED
	MOBILE 5.440A 5.441A 5.441B 5.442		MOBILE
	Radio astronomy		Radio astronomy
	5.149 5.339 5.443		5.149 5.339
4 990-5 000			**4 990-5 000**
	FIXED		FIXED
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	RADIO ASTRONOMY		RADIO ASTRONOMY
	Space research (passive)		Space research (passive)
	5.149		5.149
5 000-5 010			**5 000-5 010**
	AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA		AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA
	AERONAUTICAL RADIONAVIGATION		AERONAUTICAL RADIONAVIGATION **IND 12**
	RADIONAVIGATION-SATELLITE (Earth-to-space)		RADIONAVIGATION-SATELLITE (Earth-to-space)

5 010-5 150 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
5 010-5 030			**5 010-5 030**
	AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA		AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA
	AERONAUTICAL RADIONAVIGATION		AERONAUTICAL RADIONAVIGATION **IND 12**
	RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space)		RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space)
	5.328B 5.443B		5.328B 5.443B
5 030-5 091			**5 030-5 091**
	AERONAUTICAL MOBILE (R) 5.443C		AERONAUTICAL MOBILE (R) 5.443C
	AERONAUTICAL MOBILE-SATELLITE (R) 5.443D		AERONAUTICAL MOBILE-SATELLITE (R) 5.443D
	AERONAUTICAL RADIONAVIGATION		AERONAUTICAL RADIONAVIGATION **IND 12**
	5.444		5.444
5 091-5 150			**5 091-5 150**
	FIXED-SATELLITE (Earth-to-space) 5.444A		FIXED-SATELLITE (Earth-to-space) 5.444A
	AERONAUTICAL MOBILE 5.444B		AERONAUTICAL MOBILE 5.444B
	AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA		AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA
	AERONAUTICAL RADIONAVIGATION		AERONAUTICAL RADIONAVIGATION **IND 12**
	5.444		5.444

5 150-5 350 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
5 150-5 250 FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B AERONAUTICAL RADIONAVIGATION 5.446 5.446C 5.447 5.447B 5.447C			**5 150-5 216** FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B IND 29 AERONAUTICAL RADIONAVIGATION **IND 12** RADIODETERMINATION- SATELLITE (space-to-Earth) 5.446 5.447B 5.447C **5 216-5 250** FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B IND 29 AERONAUTICAL RADIONAVIGATION **IND 12** 5.447B 5.447C
5 250-5 255 EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F RADIOLOCATION SPACE RESEARCH 5.447D 5.447E 5.448 5.448A			**5 250-5 255** FIXED EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F IND 29 RADIOLOCATION SPACE RESEARCH 5.447D 5.447E 5.448A
5 255-5 350 EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F RADIOLOCATION SPACE RESEARCH (active) 5.447E 5.448 5.448A			**5 255-5 350** FIXED EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F IND 29 RADIOLOCATION SPACE RESEARCH (active) 5.447E 5.448A

5 350-5 650 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
5 350-5 460	EARTH EXPLORATION-SATELLITE (active) 5.448B RADIOLOCATION 5.448D AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448C		**5 350-5 460** EARTH EXPLORATION-SATELLITE (active) 5.448B RADIOLOCATION 5.448D AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448C
5 460-5 470	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION 5.448D RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448B		**5 460-5 470** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION 5.448D RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448B
5 470-5 570	EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B MARITIME RADIONAVIGATION SPACE RESEARCH (active) 5.448B 5.450 5.451		**5 470-5 570** EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.450A IND 29 RADIOLOCATION 5.450B MARITIME RADIONAVIGATION SPACE RESEARCH (active) 5.448B
5 570-5 650	MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B MARITIME RADIONAVIGATION 5.450 5.451 5.452		**5 570-5 650** MOBILE except aeronautical mobile 5.446A 5.450A IND 29 RADIOLOCATION 5.450B MARITIME RADIONAVIGATION 5.452

5 650-5 925 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
5 650-5 725			**5 650-5 725**
			FIXED
	MOBILE except aeronautical mobile 5.446A 5.450A		MOBILE except aeronautical mobile 5.446A 5.450A IND 29
	RADIOLOCATION		RADIOLOCATION
	Amateur		Amateur
	Space research (deep space)		Space research (deep space)
	5.282 5.451 5.453 5.454 5.455		5.282 5.453
5 725-5 830	**5725-5 830**		**5725-5 830**
FIXED-SATELLITE	RADIOLOCATION		FIXED
(Earth-to-space)	Amateur		MOBILE IND 29
RADIOLOCATION			RADIOLOCATION
Amateur			Amateur
5.150 5.451 5.453 5.455	5.150 5.453 5.455		5.150 5.453
5 830-5 850	**5 830-5 850**		**5 830-5 850**
FIXED-SATELLITE	RADIOLOCATION		FIXED
(Earth-to-space)	Amateur		MOBILE IND 29
RADIOLOCATION	Amateur-satellite (space-to-Earth)		RADIOLOCATION
Amateur			Amateur
Amateur-satellite (space-to-Earth)			Amateur-satellite (space-to-Earth)
5.150 5.451 5.453 5.455	5.150 5.453 5.455		5.150 5.453
5 850-5 925	**5 850-5 925**	**5 850-5 925**	**5 850-5 925**
FIXED	FIXED	FIXED	FIXED
FIXED-SATELLITE	FIXED-SATELLITE	FIXED-SATELLITE	FIXED-SATELLITE (Earth-to-space)
(Earth-to-space)	(Earth-to-space)	(Earth-to-space)	MOBILE IND 29 IND 30
MOBILE	MOBILE	MOBILE	Radiolocation
	Amateur	Radiolocation	
	Radiolocation		
5.150	5.150	5.150	5.150

5 925-7 235 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
5 925-6 700			**5 925-6 700**
	FIXED 5.457		FIXED
	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B		FIXED-SATELLITE (Earth-to-space) 5.457A
	MOBILE 5.457C		MOBILE 5.457C
	5.149 5.440 5.458		5.149 5.440 5.458
6 700-7 075			**6 700-7 075**
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441		FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441
	MOBILE		MOBILE
	5.458 5.458A 5.458B		5.458 5.458A 5.458B
7 075-7 145			**7 075-7 145**
	FIXED		FIXED
	MOBILE		MOBILE
	5.458 5.459		5.458
7 145-7 190			**7 145-7 190**
	FIXED		FIXED
	MOBILE		MOBILE
	SPACE RESEARCH (deep space) (Earth-to-space)		SPACE RESEARCH (deep space) (Earth-to-space)
	5.458 5.459		5.458
7 190-7 235			**7 190-7 235**
	EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A 5.460B		EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A 5.460B
	FIXED		FIXED
	MOBILE		MOBILE
	SPACE RESEARCH (Earth-to-space) 5.460		SPACE RESEARCH (Earth-to-space) 5.460
	5.458 5.459		5.458

7 235-7 450 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
7 235-7 250	EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A FIXED MOBILE 5.458		**7 235-7 250** EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A FIXED MOBILE 5.458
7 250-7 300	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 5.461		**7 250-7 300** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 5.461
7 300-7 375	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461		**7 300-7 375** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461
7 375-7 450	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB		**7 375-7 450** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB

7 450-8 025 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
7 450-7 550			**7 450-7 550**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	METEOROLOGICAL-SATELLITE (space-to-Earth)		METEOROLOGICAL-SATELLITE (space-to-Earth)
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB		MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB
	5.461A		5.461A
7 550-7 750			**7 550-7 750**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB		MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB
7 750-7 900			**7 750-7 900**
	FIXED		FIXED
	METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B		METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
7 900-8 025			**7 900-8 025**
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space)		FIXED-SATELLITE (Earth-to-space)
	MOBILE		MOBILE
			MOBILE-SATELLITE (Earth-to-space)
	5.461		5.461

8 025-8 550 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
8 025-8 175			**8 025-8 175**
	EARTH EXPLORATION-SATELLITE (space-to-Earth)		EARTH EXPLORATION-SATELLITE (space-to-Earth)
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space)		FIXED-SATELLITE (Earth-to-space)
	MOBILE 5.463		MOBILE 5.463
	5.462A		5.462A
8 175-8 215			**8 175-8 215**
	EARTH EXPLORATION-SATELLITE (space-to-Earth)		EARTH EXPLORATION-SATELLITE (space-to-Earth)
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space)		FIXED-SATELLITE (Earth-to-space)
	METEOROLOGICAL-SATELLITE (Earth-to-space)		METEOROLOGICAL-SATELLITE (Earth-to-space)
	MOBILE 5.463		MOBILE 5.463
	5.462A		5.462A
8 215-8 400			**8 215-8 400**
	EARTH EXPLORATION-SATELLITE (space-to-Earth)		EARTH EXPLORATION-SATELLITE (space-to-Earth)
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space)		FIXED-SATELLITE (Earth-to-space)
	MOBILE 5.463		MOBILE 5.463
	5.462A		5.462A
8 400-8 500			**8 400-8 500**
	FIXED		FIXED
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	SPACE RESEARCH (space-to-Earth) 5.465 5.466		SPACE RESEARCH (space-to-Earth) 5.465
8 500-8 550			**8 500-8 550**
	RADIOLOCATION		RADIOLOCATION
	5.468 5.469		

8 550-9 300 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
8 550-8 650	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.468 5.469 5.469A		**8 550-8 650** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.469A
8 650-8 750	RADIOLOCATION 5.468 5.469		**8 650-8 750** RADIOLOCATION
8 750-8 850	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470 5.471		**8 750-8 850** RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470
8 850-9 000	RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473		**8 850-9 000** RADIOLOCATION MARITIME RADIONAVIGATION 5.472
9 000-9 200	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 5.471 5.473A		**9 000-9 200** RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 5.473A
9 200-9 300	EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473 5.474 5.474D		**9 200-9 300** EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.474 5.474D

9 300-10 000 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
9 300-9 500			**9 300-9 500**
	EARTH EXPLORATION-SATELLITE (active)		EARTH EXPLORATION-SATELLITE (active)
	RADIOLOCATION		RADIOLOCATION
	RADIONAVIGATION		RADIONAVIGATION
	SPACE RESEARCH (active)		SPACE RESEARCH (active)
	5.427 5.474 5.475 5.475A 5.475B 5.476A		5.427 5.474 5.475 5.475A 5.475B 5.476A
9 500-9 800			**9 500-9 800**
	EARTH EXPLORATION-SATELLITE (active)		EARTH EXPLORATION-SATELLITE (active)
	RADIOLOCATION		RADIOLOCATION
	RADIONAVIGATION		RADIONAVIGATION
	SPACE RESEARCH (active)		SPACE RESEARCH (active)
	5.476A		5.476A
9 800-9 900			**9 800-9 900**
	RADIOLOCATION		FIXED
	Earth exploration-satellite (active)		RADIOLOCATION
	Fixed		Earth exploration-satellite (active)
	Space research (active)		Space research (active)
	5.477 5.478 5.478A 5.478B		5.477 5.478A 5.478B
9 900-10 000			**9 900-10 000**
	EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C		FIXED
	RADIOLOCATION		EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C
	Fixed		RADIOLOCATION
	5.474D 5.477 5.478 5.479		5.474D 5.477 5.479

10-10.6 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
10-10.4 EARTH EXPLORATION SATELLITE (active) 5.474A 5.474B 5.474C FIXED MOBILE RADIOLOCATION Amateur 5.474D 5.479	**10-10.4** EARTH EXPLORATION SATELLITE (active) 5.474A 5.474B 5.474C RADIOLOCATION Amateur 5.474D 5.479 5.480	**10-10.4** EARTH EXPLORATION SATELLITE (active) 5.474A 5.474B 5.474C FIXED MOBILE RADIOLOCATION Amateur 5.474D 5.479	**10-10.4** EARTH EXPLORATION SATELLITE (active) 5.474A 5.474B 5.474C FIXED MOBILE RADIOLOCATION Amateur 5.474D 5.479
10.4-10.45 FIXED MOBILE RADIOLOCATION Amateur	**10.4-10.45** RADIOLOCATION Amateur 5.480	**10.4-10.45** FIXED MOBILE RADIOLOCATION Amateur	**10.4-10.45** FIXED MOBILE RADIOLOCATION Amateur
10.45-10.5	RADIOLOCATION Amateur Amateur-satellite 5.481		**10.45-10.5** RADIOLOCATION Amateur Amateur-satellite
10.5-10.55 FIXED MOBILE Radiolocation	**10.5-10.55** FIXED MOBILE RADIOLOCATION		**10.5-10.55** FIXED MOBILE RADIOLOCATION
10.55-10.6	FIXED MOBILE except aeronautical mobile Radiolocation		**10.55-10.6** FIXED MOBILE except aeronautical mobile Radiolocation

10.6-11.2 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
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			**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
10.68-10.7 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.483			**10.68-10.7** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
10.7-10.95 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 (Earth-to-space) 5.484 MOBILE except aeronautical mobile	**10.7-10.95** FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE except aeronautical mobile		**10.7-10.95** FIXED FIXED-SATELLITE (space-to-Earth) 5.441 IND 17 MOBILE except aeronautical mobile
10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B (Earth-to-space) 5.484 MOBILE except aeronautical Mobile	**10.95-11.2** FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B MOBILE except aeronautical mobile		**10.95-11.2** FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B IND 17 IND 31 MOBILE except aeronautical mobile

11.2-12.5 GHz

<table>
<tr><th colspan="4">Allocation to Radiocommunication Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td>11.2-11.45
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.441
(Earth-to-space) 5.484
MOBILE except aeronautical mobile</td><td colspan="2">11.2-11.45
FIXED
FIXED-SATELLITE (space-to-Earth) 5.441
MOBILE except aeronautical mobile</td><td>11.2-11.45
FIXED
FIXED-SATELLITE (space-to-Earth) 5.441 IND 17
MOBILE except aeronautical mobile</td></tr>
<tr><td>11.45-11.7
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.484A 5.484B
(Earth-to-space) 5.484
MOBILE except aeronautical mobile</td><td colspan="2">11.45-11.7
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B
MOBILE except aeronautical mobile</td><td>11.45-11.7
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B IND 17 IND 31
MOBILE except aeronautical mobile</td></tr>
<tr><td rowspan="2">11.7-12.5
FIXED
MOBILE except aeronautical mobile
BROADCASTING
BROADCASTING-SATELLITE 5.492

5.487 5.487A</td><td>11.7-12.1
FIXED 5.486
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.488
Mobile except aeronautical mobile
5.485</td><td rowspan="2">11.7-12.2
FIXED
MOBILE except aeronautical mobile
BROADCASTING
BROADCASTING-SATELLITE 5.492

5.487 5.487A</td><td rowspan="2">11.7-12.2
FIXED
MOBILE except aeronautical mobile
BROADCASTING
BROADCASTING-SATELLITE 5.492

5.487 5.487A</td></tr>
<tr><td>12.1-12.2
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.488
5.485 5.489</td></tr>
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12.2-13.4 GHz

<table>
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<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td></td><td>12.2-12.7
FIXED
MOBILE except aeronautical mobile
BROADCASTING
BROADCASTING-SATELLITE 5.492</td><td>12.2-12.5
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484B
MOBILE except aeronautical mobile
BROADCASTING
5.487 5.484A</td><td>12.2-12.5
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484B IND 31
MOBILE except aeronautical mobile
BROADCASTING
5.487 5.484A</td></tr>
<tr><td>12.5-12.75
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B
(Earth-to-space)
5.494 5.495 5.496</td><td>5.487A 5.488 5.490
12.7-12.75
FIXED
FIXED-SATELLITE (Earth-to-space)
MOBILE except aeronautical mobile</td><td>12.5-12.75
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B
MOBILE except aeronautical mobile
BROADCASTING-SATELLITE 5.493</td><td>12.5-12.75
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B IND 17 IND 31
MOBILE except aeronautical mobile
BROADCASTING- SATELLITE 5.493</td></tr>
<tr><td>12.75-13.25</td><td colspan="2">FIXED
FIXED-SATELLITE (Earth-to-space) 5.441
MOBILE
Space research (deep space) (space-to-Earth)</td><td>12.75-13.25
FIXED
FIXED-SATELLITE (Earth-to-space) 5.441
MOBILE
Space research (deep space) (space-to-Earth)</td></tr>
<tr><td>13.25-13.4</td><td colspan="2">EARTH EXPLORATION-SATELLITE (active)
AERONAUTICAL RADIONAVIGATION 5.497
SPACE RESEARCH (active)
5.498A 5.499</td><td>13.25-13.4
FIXED
EARTH EXPLORATION-SATELLITE (active)
AERONAUTICAL RADIONAVIGATION 5.497
SPACE RESEARCH (active)
5.498A 5.499</td></tr>
</table>

13.4-14 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
13.4-13.65 EARTH EXPLORATION-SATELLITE (active) FIXED-SATELLITE (space-to-Earth) 5.499A 5.499B RADIOLOCATION SPACE RESEARCH 5.499C 5.499D Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.499E 5.500 5.501 5.501B	**13.4-13.65** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.499C 5.499D Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.500 5.501 5.501B		**13.4-13.65** FIXED EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.499C 5.499D Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.501B
13.65-13.75	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		**13.65-13.75** FIXED EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.499 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		**13.75-14** FIXED FIXED-SATELLITE (Earth-to-space) 5.484A RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research 5.499 5.502 5.503

14-14.4 GHz

<table>
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<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td>14-14.25</td><td colspan="2">FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B
RADIONAVIGATION 5.504
Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A
Space research

5.504A 5.505</td><td>14-14.25
FIXED
FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B IND 17
RADIONAVIGATION 5.504
Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A
Space research
5.504A 5.505</td></tr>
<tr><td>14.25-14.3</td><td colspan="2">FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B
RADIONAVIGATION 5.504
Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A
Space research

5.504A 5.505 5.508</td><td>14.25-14.3
FIXED
FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B IND 17
RADIONAVIGATION 5.504
Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A
Space research
5.504A 5.505</td></tr>
<tr><td>14.3-14.4
FIXED
FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B
MOBILE except aeronautical mobile
Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A
Radionavigation-satellite
5.504A</td><td>14.3-14.4
FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B
Mobile-satellite (Earth-to-space) 5.506A
Radionavigation-satellite

5.504A</td><td>14.3-14.4
FIXED
FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B
MOBILE except aeronautical mobile
Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A
Radionavigation-satellite

5.504A</td><td>14.3-14.4
FIXED
FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B IND 17
MOBILE except aeronautical mobile
Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A
Radionavigation-satellite

5.504A</td></tr>
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14.4-14.8 GHz

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<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td colspan="3">14.4-14.47
FIXED
FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B
MOBILE except aeronautical mobile
Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A
Space research (space-to-Earth)
5.504A</td><td>14.4-14.47
FIXED
FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B IND 17
MOBILE except aeronautical mobile
Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A
Space research (space-to-Earth)
5.504A</td></tr>
<tr><td colspan="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</td><td>14.47-14.5
FIXED
FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B IND 17
MOBILE except aeronautical mobile
Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A
Radio astronomy
5.149 5.504A</td></tr>
<tr><td colspan="3">14.5-14.75
FIXED
FIXED-SATELLITE (Earth-to-space) 5.509B 5.509C 5.509D 5.509E 5.509F 5.510
MOBILE
Space research 5.509G</td><td rowspan="2">14.5-14.8
FIXED
FIXED-SATELLITE (Earth-to-space) 5.509B 5.509C 5.509D 5.509E 5.509F 5.510
MOBILE
Space research 5.509G</td></tr>
<tr><td colspan="2">14.75-14.8
FIXED
FIXED-SATELLITE (Earth-to-space) 5.510
MOBILE
Space research 5.509G</td><td>14.75-14.8
FIXED
FIXED-SATELLITE (Earth-to-space) 5.509B 5.509C 5.509D 5.509E 5.509F 5.510
MOBILE
Space research 5.509G</td></tr>
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14.8-16.6 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
14.8-15.35			**14.8-15.35**
	FIXED		FIXED
	MOBILE		MOBILE
	Space research		Space research
	5.339		5.339
15.35-15.4			**15.35-15.4**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340 5.511		5.340
15.4-15.43			**15.4-15.43**
	RADIOLOCATION 5.511E 5.511F		RADIOLOCATION 5.511E 5.511F
	AERONAUTICAL RADIONAVIGATION		AERONAUTICAL RADIONAVIGATION
15.43-15.63			**15.43-15.63**
	FIXED-SATELLITE (Earth-to-space) 5.511A		FIXED-SATELLITE (Earth-to-space) 5.511A
	RADIOLOCATION 5.511E 5.511F		RADIOLOCATION 5.511E 5.511F
	AERONAUTICAL RADIONAVIGATION		AERONAUTICAL RADIONAVIGATION
	5.511C		5.511C
15.63-15.7			**15.63-15.7**
	RADIOLOCATION 5.511E 5.511F		RADIOLOCATION 5.511E 5.511F
	AERONAUTICAL RADIONAVIGATION		AERONAUTICAL RADIONAVIGATION
15.7-16.6			**15.7-16.6**
	RADIOLOCATION		FIXED
			MOBILE
			RADIOLOCATION
	5.512 5.513		5.512

16.6-17.7 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
16.6-17.1			**16.6-17.1**
	RADIOLOCATION		FIXED
	Space research (deep space) (Earth-to-space)		MOBILE
			RADIOLOCATION
			Space research (deep space) (Earth-to-space)
	5.512 5.513		5.512
17.1-17.2			**17.1-17.2**
	RADIOLOCATION		FIXED
			MOBILE
			RADIOLOCATION
	5.512 5.513		5.512
17.2-17.3			**17.2-17.3**
	EARTH EXPLORATION-SATELLITE (active)		FIXED
	RADIOLOCATION		MOBILE
	SPACE RESEARCH (active)		EARTH EXPLORATION-SATELLITE (active)
			RADIOLOCATION
			SPACE RESEARCH (active)
	5.512 5.513 5.513A		5.512 5.513A
17.3-17.7	**17.3-17.7**	**17.3-17.7**	**17.3-17.7**
FIXED-SATELLITE	FIXED-SATELLITE	FIXED-SATELLITE	FIXED-SATELLITE (Earth-to-space) 5.516
(Earth-to-space) 5.516	(Earth-to-space) 5.516	(Earth-to-space) 5.516	Radiolocation
(space-to-Earth) 5.516A 5.516B	BROADCASTING-SATELLITE	Radiolocation	Fixed
Radiolocation	Radiolocation		Mobile
5.514	5.514 5.515	5.514	5.514

17.7-18.6 GHz

<table>
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<tr><td>17.7-18.1
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.484A
(Earth-to-space) 5.516
MOBILE</td><td>17.7-17.8
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.517
(Earth-to-space) 5.516
BROADCASTING-SATELLITE
Mobile
5.515
17.8-18.1
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.484A
(Earth-to-space) 5.516
MOBILE
5.519</td><td>17.7-18.1
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.484A
(Earth-to-space) 5.516
MOBILE</td><td>17.7-18.1
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A
(Earth-to-space) 5.516
MOBILE</td></tr>
<tr><td>18.1-18.4</td><td colspan="2">FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B
(Earth-to-space) 5.520
MOBILE

5.519 5.521</td><td>18.1-18.4
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B
(Earth-to-space) 5.520
MOBILE

5.519</td></tr>
<tr><td>18.4-18.6</td><td colspan="2">FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B
MOBILE</td><td>18.4-18.6
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B
MOBILE</td></tr>
</table>

18.6-19.7 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
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	**18.6-18.8** EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.522B MOBILE except aeronautical mobile SPACE RESEARCH (passive) 5.522A	**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	**18.6-18.8** EARTH EXPLORATION-SATELLITE (passive) IND 32 FIXED 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		**18.8-19.3** FIXED 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		**19.3-19.7** FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B 5.523C 5.523D 5.523E MOBILE

19.7-21.4 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A Mobile-satellite (space-to-Earth) 5.524	**19.7-20.1** FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 5.529	**19.7-20.1** FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A Mobile-satellite (space-to-Earth) 5.524	**19.7-20.1** FIXED MOBILE FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A IND 17 IND 33 Mobile-satellite (space-to-Earth) 5.524
20.1-20.2	FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528		**20.1-20.2** FIXED MOBILE FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A IND 17 IND 33 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		**20.2-21.2** FIXED MOBILE FIXED-SATELLITE (space-to-Earth) IND 33 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)		**21.2-21.4** EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)

21.4-23.15 GHz

<table>
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<tr><td>21.4-22
FIXED
MOBILE
BROADCASTING-SATELLITE
5.208B
5.530A 5.530B 5.530D</td><td>21.4-22
FIXED
MOBILE

5.530A</td><td>21.4-22
FIXED
MOBILE
BROADCASTING-SATELLITE
5.208B
5.530A 5.530B 5.530D 5.531</td><td>21.4-22
FIXED
MOBILE
BROADCASTING-SATELLITE 5.208B

5.530A 5.530B 5.530D</td></tr>
<tr><td>22-22.21</td><td colspan="2">FIXED
MOBILE except aeronautical mobile
5.149</td><td>22-22.21
FIXED
MOBILE except aeronautical mobile
5.149</td></tr>
<tr><td>22.21-22.5</td><td colspan="2">EARTH EXPLORATION-SATELLITE (passive)
FIXED
MOBILE except aeronautical mobile
RADIO ASTRONOMY
SPACE RESEARCH (passive)
5.149 5.532</td><td>22.21-22.5
EARTH EXPLORATION-SATELLITE (passive)
FIXED
MOBILE except aeronautical mobile
RADIO ASTRONOMY
SPACE RESEARCH (passive)
5.149 5.532</td></tr>
<tr><td>22.5-22.55</td><td colspan="2">FIXED
MOBILE</td><td>22.5-22.55
FIXED
MOBILE</td></tr>
<tr><td>22.55-23.15</td><td colspan="2">FIXED
INTER-SATELLITE 5.338A
MOBILE
SPACE RESEARCH (Earth-to-space) 5.532A
5.149</td><td>22.55-23.15
FIXED
INTER-SATELLITE 5.338A
MOBILE
SPACE RESEARCH (Earth-to-space) 5.532A
5.149</td></tr>
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23.15-24.45 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
23.15-23.55			**23.15-23.55**
	FIXED		FIXED
	INTER-SATELLITE 5.338A		INTER-SATELLITE 5.338A
	MOBILE		MOBILE
23.55-23.6			**23.55-23.6**
	FIXED		FIXED
	MOBILE		MOBILE
23.6-24			**23.6-24**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340		5.340
24-24.05			**24-24.05**
	AMATEUR		AMATEUR
	AMATEUR-SATELLITE		AMATEUR-SATELLITE
	5.150		5.150 IND 34
24.05-24.25			**24.05-24.25**
	RADIOLOCATION		RADIOLOCATION
	Amateur		Amateur
	Earth exploration-satellite (active)		Earth exploration-satellite (active)
	5.150		5.150 IND 34
24.25-24.45	**24.25-24.45**	**24.25-24.45**	**24.25-24.45**
FIXED	RADIONAVIGATION	RADIONAVIGATION	RADIONAVIGATION
		FIXED	FIXED
		MOBILE	MOBILE

24.45-25.5 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
24.45-24.65 FIXED INTER-SATELLITE	**24.45-24.65** INTER-SATELLITE RADIONAVIGATION 5.533	**24.45-24.65** FIXED INTER-SATELLITE MOBILE RADIONAVIGATION 5.533	**24.45-24.65** FIXED INTER-SATELLITE MOBILE RADIONAVIGATION 5.533
24.65-24.75 FIXED FIXED-SATELLITE (Earth-to-space)5.532B INTER-SATELLITE	**24.65-24.75** INTER-SATELLITE RADIOLOCATION- SATELLITE (Earth-to-space)	**24.65-24.75** FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE 5.533	**24.65-24.75** FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE 5.533
24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B	**24.75-25.25** FIXED-SATELLITE (Earth-to-space) 5.535	**24.75-25.25** FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE	**24.75-25.25** FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE
25.25-25.5	FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)		**25.25-25.5** FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)

25.5-29.1 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
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			**25.5-27** EARTH EXPLORATION-SATELLITE (space-to Earth) 5.536B IND 35 FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) Standard frequency and time signal-satellite (Earth-to-space) 5.536A
27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	**27-27.5** FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE		**27-27.5** FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE
27.5-28.5 FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540			**27.5-28.5** FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540
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			**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

29.1-30 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
29.1-29.5			**29.1-29.5**
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A		FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A
	MOBILE		MOBILE
	Earth exploration-satellite (Earth-to-space) 5.541 5.540		Earth exploration-satellite (Earth-to-space) 5.541 5.540
29.5-29.9	**29.5-29.9**	**29.5-29.9**	**29.5-29.9**
FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539	FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539	FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539	FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539 IND 17 IND 33
Earth exploration-satellite (Earth-to-space) 5.541	MOBILE-SATELLITE (Earth-to-space)	Earth exploration-satellite (Earth-to-space) 5.541	Fixed
			Mobile
Mobile-satellite (Earth-to-space)	Earth exploration-satellite (Earth-to-space) 5.541	Mobile-satellite (Earth-to-space)	Earth exploration-satellite (Earth-to-space) 5.541
			Mobile-satellite (Earth-to-space)
5.540 5.542	5.525 5.526 5.527 5.529 5.540	5.540 5.542	5.540 5.542
29.9-30			**29.9-30**
	FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539		FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539 IND 17 IND 33
	MOBILE-SATELLITE (Earth-to-space)		MOBILE-SATELLITE (Earth-to-space)
	Earth exploration-satellite (Earth-to-space) 5.541 5.543		Fixed
			Mobile
			Earth exploration-satellite (Earth-to-space) 5.541 5.543
	5.525 5.526 5.527 5.538 5.540 5.542		5.525 5.526 5.527 5.538 5.540 5.542

30-31.8 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
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			**30-31** FIXED-SATELLITE (Earth-to-space) 5.338A IND 33 MOBILE-SATELLITE (Earth-to-space) Fixed Mobile Standard frequency and time signal-satellite (space-to-Earth) 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			**31-31.3** FIXED 5.338A 5.543A MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.149
31.3-31.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			**31.3-31.5** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.546	**31.5-31.8** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	**31.5-31.8** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149	**31.5-31.8** EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149

31.8-34.7 GHz

<table>
<tr><th colspan="4">Allocation to Radiocommunication Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>India</th></tr>
<tr><td>31.8-32</td><td colspan="2">FIXED 5.547A
RADIONAVIGATION
SPACE RESEARCH (deep space) (space-to-Earth)
5.547 5.547B 5.548</td><td>31.8-32.3
FIXED 5.547A
RADIONAVIGATION
SPACE RESEARCH (deep space) (space-to-Earth)</td></tr>
<tr><td>32-32.3</td><td colspan="2">FIXED 5.547A
RADIONAVIGATION
SPACE RESEARCH (deep space) (space-to-Earth)
5.547 5.547C 5.548</td><td>5.547 5.548</td></tr>
<tr><td>32.3-33</td><td colspan="2">FIXED 5.547A
INTER-SATELLITE
RADIONAVIGATION
5.547 5.547D 5.548</td><td>32.3-33
FIXED 5.547A
INTER-SATELLITE
RADIONAVIGATION
5.547 5.548</td></tr>
<tr><td>33-33.4</td><td colspan="2">FIXED 5.547A
RADIONAVIGATION
5.547 5.547E</td><td>33-33.4
FIXED 5.547A
RADIONAVIGATION
5.547</td></tr>
<tr><td>33.4-34.2</td><td colspan="2">RADIOLOCATION
5.549</td><td>33.4-34.2
RADIOLOCATION</td></tr>
<tr><td>34.2-34.7</td><td colspan="2">RADIOLOCATION
SPACE RESEARCH (deep space)
(Earth-to-space)
5.549</td><td>34.2-34.7
RADIOLOCATION
SPACE RESEARCH (deep space) (Earth-to-space)</td></tr>
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34.7-37.5 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
34.7-35.2	RADIOLOCATION Space research 5.550 5.549		**34.7-35.2** RADIOLOCATION Space research
35.2-35.5	METEOROLOGICAL AIDS RADIOLOCATION 5.549		**35.2-35.5** METEOROLOGICAL AIDS RADIOLOCATION
35.5-36	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A		**35.5-36** METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549A
36-37	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A		**36-37** EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A
37-37.5	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.547		**37-37.5** FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.547

37.5-40.5 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
37.5-38			**37.5-38**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	SPACE RESEARCH (space-to-Earth)		SPACE RESEARCH (space-to-Earth)
	Earth exploration-satellite (space-to-Earth)		Earth exploration-satellite (space-to-Earth)
	5.547		5.547
38-39.5			**38-39.5**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	MOBILE		MOBILE
	Earth exploration-satellite (space-to-Earth)		Earth exploration-satellite (space-to-Earth)
	5.547		5.547
39.5-40			**39.5-40**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth) 5.516B		FIXED-SATELLITE (space-to-Earth) 5.516B
	MOBILE		MOBILE
	MOBILE-SATELLITE (space-to-Earth)		MOBILE-SATELLITE (space-to-Earth)
	Earth exploration-satellite (space-to-Earth)		Earth exploration-satellite (space-to-Earth)
	5.547		5.547
40-40.5			**40-40.5**
	EARTH EXPLORATION-SATELLITE (Earth-to-space)		EARTH EXPLORATION-SATELLITE (Earth-to-space)
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth) 5.516B		FIXED-SATELLITE (space-to-Earth) 5.516B
	MOBILE		MOBILE
	MOBILE-SATELLITE (space-to-Earth)		MOBILE-SATELLITE (space-to-Earth)
	SPACE RESEARCH (Earth-to-space)		SPACE RESEARCH (Earth-to-space)
	Earth exploration-satellite (space-to-Earth)		Earth exploration-satellite (space-to-Earth)

40.5-47 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547	**40.5-41** FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile Mobile-satellite (space-to-Earth) 5.547	**40.5-41** FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547	**40.5-41** 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		**41-42.5** 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		**42.5-43.5** 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		**43.5-47** MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554

47-48.2 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
47-47.2	AMATEUR AMATEUR-SATELLITE		**47-47.2** AMATEUR AMATEUR-SATELLITE
47.2-47.5	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A		**47.2-47.5** FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A
47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A MOBILE	**47.5-47.9** FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE		**47.5-47.9** FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE
47.9-48.2	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A		**47.9-48.2** FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A

48.2-50.4 GHz

<table>
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<tr><th>Region 1</th><th colspan="2">Region 2</th><th>India</th></tr>
<tr><td>48.2-48.54
FIXED
FIXED-SATELLITE
(Earth-to-space) 5.552
(space-to-Earth) 5.516B
5.554A 5.555B
MOBILE</td><td colspan="2" rowspan="3">48.2-50.2
FIXED
FIXED-SATELLITE (Earth-to-space) 5.516B 5.338A 5.552
MOBILE</td><td rowspan="3">48.2-50.2
FIXED
FIXED-SATELLITE (Earth-to-space) 5.516B 5.338A 5.552
MOBILE</td></tr>
<tr><td>48.54-49.44
FIXED
FIXED-SATELLITE
(Earth-to-space) 5.552
MOBILE
5.149 5.340 5.555</td></tr>
<tr><td>49.44-50.2
FIXED
FIXED-SATELLITE
(Earth-to-space) 5.338A 5.552
(space-to-Earth) 5.516B
5.554A 5.555B
MOBILE</td><td colspan="2">5.149 5.340 5.555</td><td>5.149 5.340 5.555</td></tr>
<tr><td colspan="2">50.2-50.4</td><td colspan="2">EARTH EXPLORATION-SATELLITE (passive)
SPACE RESEARCH (passive)
5.340</td><td>50.2-50.4
EARTH EXPLORATION-SATELLITE (passive)
SPACE RESEARCH (passive)
5.340</td></tr>
</table>

50.4-56.9 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
50.4-51.4			**50.4-51.4**
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space) 5.338A		FIXED-SATELLITE (Earth-to-space) 5.338A
	MOBILE		MOBILE
	Mobile-satellite (Earth-to-space)		Mobile-satellite (Earth-to-space)
51.4-52.6			**51.4-52.6**
	FIXED 5.338A		FIXED 5.338A
	MOBILE		MOBILE
	5.547 5.556		5.547 5.556
52.6-54.25			**52.6-54.25**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340 5.556		5.340 5.556
54.25-55.78			**54.25-55.78**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	INTER-SATELLITE 5.556A		INTER-SATELLITE 5.556A
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.556B		
55.78-56.9			**55.78-56.9**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	FIXED 5.557A		FIXED 5.557A
	INTER-SATELLITE 5.556A		INTER-SATELLITE 5.556A
	MOBILE 5.558		MOBILE 5.558
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.547 5.557		5.547

56.9-59.3 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
56.9-57			**56.9-57**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	FIXED		FIXED
	INTER-SATELLITE 5.558A		INTER-SATELLITE 5.558A
	MOBILE 5.558		MOBILE 5.558
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.547 5.557		5.547
57-58.2			**57-58.2**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	FIXED		FIXED IND 37
	INTER-SATELLITE 5.556A		INTER-SATELLITE 5.556A
	MOBILE 5.558		MOBILE 5.558
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.547 5.557		5.547
58.2-59			**58.2-59**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	FIXED		FIXED IND 37
	MOBILE		MOBILE
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.547 5.556		5.547 5.556
59-59.3			**59-59.3**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	FIXED		FIXED IND 37
	INTER-SATELLITE 5.556A		INTER-SATELLITE 5.556A
	MOBILE 5.558		MOBILE 5.558
	RADIOLOCATION 5.559		RADIOLOCATION 5.559
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)

59.3-71 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
59.3-64			**59.3-64**
	FIXED		FIXED IND 37
	INTER-SATELLITE		INTER-SATELLITE
	MOBILE 5.558		MOBILE 5.558
	RADIOLOCATION 5.559		RADIOLOCATION 5.559
	5.138		5.138
64-65			**64-65**
	FIXED		FIXED
	INTER-SATELLITE		INTER-SATELLITE
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	5.547 5.556		5.547 5.556
65-66			**65-66**
	EARTH EXPLORATION-SATELLITE		EARTH EXPLORATION-SATELLITE
	FIXED		FIXED
	INTER-SATELLITE		INTER-SATELLITE
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	SPACE RESEARCH		SPACE RESEARCH
	5.547		5.547
66-71			**66-71**
	INTER-SATELLITE		INTER-SATELLITE
	MOBILE 5.553 5.558		MOBILE 5.553 5.558
	MOBILE-SATELLITE		MOBILE-SATELLITE
	RADIONAVIGATION		RADIONAVIGATION
	RADIONAVIGATION-SATELLITE		RADIONAVIGATION-SATELLITE
	5.554		5.554

71-78 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
71-74			**71-74**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	MOBILE		MOBILE
	MOBILE-SATELLITE (space-to-Earth)		MOBILE-SATELLITE (space-to-Earth)
			IND 36
74-76			**74-76**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	MOBILE		MOBILE
	BROADCASTING		BROADCASTING
	BROADCASTING-SATELLITE		BROADCASTING-SATELLITE
	Space research (space-to-Earth)		Space research (space-to-Earth)
	5.561		5.561 IND 36
76-77.5			**76-77.5**
	RADIO ASTRONOMY		RADIO ASTRONOMY
	RADIOLOCATION		RADIOLOCATION
	Amateur		Amateur
	Amateur-satellite		Amateur-satellite
	Space research (space-to-Earth)		Space research (space-to-Earth)
	5.149		5.149
77.5-78			**77.5-78**
	AMATEUR		AMATEUR
	AMATEUR-SATELLITE		AMATEUR-SATELLITE
	RADIOLOCATION 5.559B		RADIOLOCATION 5.559B
	Radio astronomy		Radio astronomy
	Space research (space-to-Earth)		Space research (space-to-Earth)
	5.149		5.149

78-86 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
78-79			**78-79**
	RADIOLOCATION		RADIOLOCATION
	Amateur		Amateur
	Amateur-satellite		Amateur-satellite
	Radio astronomy		Radio astronomy
	Space research (space-to-Earth)		Space research (space-to-Earth)
	5.149 5.560		5.149 5.560
79-81			**79-81**
	RADIO ASTRONOMY		RADIO ASTRONOMY
	RADIOLOCATION		RADIOLOCATION
	Amateur		Amateur
	Amateur-satellite		Amateur-satellite
	Space research (space-to-Earth)		Space research (space-to-Earth)
	5.149		5.149
81-84			**81-84**
	FIXED 5.338A		FIXED 5.338A
	FIXED-SATELLITE (Earth-to-space)		FIXED-SATELLITE (Earth-to-space)
	MOBILE		MOBILE
	MOBILE-SATELLITE (Earth-to-space)		MOBILE-SATELLITE (Earth-to-space)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	Space research (space-to-Earth)		Space research (space-to-Earth)
	5.149 5.561A		5.149 5.561A IND 36
84-86			**84-86**
	FIXED 5.338A		FIXED 5.338A
	FIXED-SATELLITE (Earth-to-space) 5.561B		FIXED-SATELLITE (Earth-to-space)
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	5.149		5.149 IND 36

86-95 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
86-92			**86-92**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340		5.340
92-94			**92-94**
	FIXED 5.338A		FIXED 5.338A
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	RADIOLOCATION		RADIOLOCATION
	5.149		5.149
94-94.1			**94-94.1**
	EARTH EXPLORATION-SATELLITE (active)		EARTH EXPLORATION-SATELLITE (active)
	RADIOLOCATION		RADIOLOCATION
	SPACE RESEARCH (active)		SPACE RESEARCH (active)
	Radio astronomy		Radio astronomy
	5.562 5.562A		5.562 5.562A
94.1-95			**94.1-95**
	FIXED		FIXED
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	RADIOLOCATION		RADIOLOCATION
	5.149		5.149

95-111.8 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
95-100			**95-100**
	FIXED		FIXED
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	RADIOLOCATION		RADIOLOCATION
	RADIONAVIGATION		RADIONAVIGATION
	RADIONAVIGATION-SATELLITE		RADIONAVIGATION-SATELLITE
	5.149 5.554		5.149 5.554
100-102			**100-102**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340 5.341		5.340 5.341
102-105			**102-105**
	FIXED		FIXED
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	5.149 5.341		5.149 5.341
105-109.5			**105-109.5**
	FIXED		FIXED
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive) 5.562B		SPACE RESEARCH (passive) 5.562B
	5.149 5.341		5.149 5.341
109.5-111.8			**109.5-111.8**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340 5.341		5.340 5.341

111.8-123 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
111.8-114.25			**111.8-114.25**
	FIXED		FIXED
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive) 5.562B		SPACE RESEARCH (passive) 5.562B
	5.149 5.341		5.149 5.341
114.25-116			**114.25-116**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340 5.341		5.340 5.341
116-119.98			**116-119.98**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	INTER-SATELLITE 5.562C		INTER-SATELLITE 5.562C
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.341		5.341
119.98-122.25			**119.98-122.25**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	INTER-SATELLITE 5.562C		INTER-SATELLITE 5.562C
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.138 5.341		5.138 5.341
122.25-123			**122.25-123**
	FIXED		FIXED
	INTER-SATELLITE		INTER-SATELLITE
	MOBILE 5.558		MOBILE 5.558
	Amateur		Amateur
	5.138		5.138

123-141 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
123-130			**123-130**
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	MOBILE-SATELLITE (space-to-Earth)		MOBILE-SATELLITE (space-to-Earth)
	RADIONAVIGATION		RADIONAVIGATION
	RADIONAVIGATION-SATELLITE		RADIONAVIGATION-SATELLITE
	Radio astronomy 5.562D		Radio astronomy
	5.149 5.554		5.149 5.554
130-134			**130-134**
	EARTH EXPLORATION-SATELLITE (active) 5.562E		EARTH EXPLORATION-SATELLITE (active) 5.562E
	FIXED		FIXED
	INTER-SATELLITE		INTER-SATELLITE
	MOBILE 5.558		MOBILE 5.558
	RADIO ASTRONOMY		RADIO ASTRONOMY
	5.149 5.562A		5.149 5.562A
134-136			**134-136**
	AMATEUR		AMATEUR
	AMATEUR-SATELLITE		AMATEUR-SATELLITE
	Radio astronomy		Radio astronomy
136-141			**136-141**
	RADIO ASTRONOMY		RADIO ASTRONOMY
	RADIOLOCATION		RADIOLOCATION
	Amateur		Amateur
	Amateur-satellite		Amateur-satellite
	5.149		5.149

141-164 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
141-148.5			**141-148.5**
	FIXED		FIXED
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	RADIOLOCATION		RADIOLOCATION
	5.149		5.149
148.5-151.5			**148.5-151.5**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340		5.340
151.5-155.5			**151.5-155.5**
	FIXED		FIXED
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	RADIOLOCATION		RADIOLOCATION
	5.149		5.149
155.5-158.5			**155.5-158.5**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	FIXED		FIXED
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive) 5.562B		SPACE RESEARCH (passive) 5.562B
	5.149 5.562F 5.562G		5.149 5.562F 5.562G
158.5-164			**158.5-164**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	MOBILE		MOBILE
	MOBILE-SATELLITE (space-to-Earth)		MOBILE-SATELLITE (space-to-Earth)

164-190 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
164-167			**164-167**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340		5.340
167-174.5			**167-174.5**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	INTER-SATELLITE		INTER-SATELLITE
	MOBILE 5.558		MOBILE 5.558
	5.149 5.562D		5.149
174.5-174.8			**174.5-174.8**
	FIXED		FIXED
	INTER-SATELLITE		INTER-SATELLITE
	MOBILE 5.558		MOBILE 5.558
174.8-182			**174.8-182**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	INTER-SATELLITE 5.562H		INTER-SATELLITE 5.562H
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
182-185			**182-185**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340		5.340
185-190			**185-190**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	INTER-SATELLITE 5.562H		INTER-SATELLITE 5.562H
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)

190-217 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
190-191.8			**190-191.8**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340		5.340
191.8-200			**191.8-200**
	FIXED		FIXED
	INTER-SATELLITE		INTER-SATELLITE
	MOBILE 5.558		MOBILE 5.558
	MOBILE-SATELLITE		MOBILE-SATELLITE
	RADIONAVIGATION		RADIONAVIGATION
	RADIONAVIGATION-SATELLITE		RADIONAVIGATION-SATELLITE
	5.149 5.341 5.554		5.149 5.341 5.554
200-209			**200-209**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340 5.341 5.563A		5.340 5.341 5.563A
209-217			**209-217**
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space)		FIXED-SATELLITE (Earth-to-space)
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	5.149 5.341		5.149 5.341

217-238 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
217-226			**217-226**
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space)		FIXED-SATELLITE (Earth-to-space)
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive) 5.562B		SPACE RESEARCH (passive) 5.562B
	5.149 5.341		5.149 5.341
226-231.5			**226-231.5**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340		5.340
231.5-232			**231.5-232**
	FIXED		FIXED
	MOBILE		MOBILE
	Radiolocation		Radiolocation
232-235			**232-235**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	MOBILE		MOBILE
	Radiolocation		Radiolocation
235-238			**235-238**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.563A 5.563B		5.563A 5.563B

238-252 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
238-240			**238-240**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	MOBILE		MOBILE
	RADIOLOCATION		RADIOLOCATION
	RADIONAVIGATION		RADIONAVIGATION
	RADIONAVIGATION-SATELLITE		RADIONAVIGATION-SATELLITE
240-241			**240-241**
	FIXED		FIXED
	MOBILE		MOBILE
	RADIOLOCATION		RADIOLOCATION
241-248			**241-248**
	RADIO ASTRONOMY		RADIO ASTRONOMY
	RADIOLOCATION		RADIOLOCATION
	Amateur		Amateur
	Amateur-satellite		Amateur-satellite
	5.138 5.149		5.138 5.149
248-250			**248-250**
	AMATEUR		AMATEUR
	AMATEUR-SATELLITE		AMATEUR-SATELLITE
	Radio astronomy		Radio astronomy
	5.149		5.149
250-252			**250-252**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340 5.563A		5.340 5.563A

252-3 000 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
252-265			**252-265**
	FIXED		FIXED
	MOBILE		MOBILE
	MOBILE-SATELLITE (Earth-to-space)		MOBILE-SATELLITE (Earth-to-space)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	RADIONAVIGATION		RADIONAVIGATION
	RADIONAVIGATION-SATELLITE		RADIONAVIGATION-SATELLITE
	5.149 5.554		5.149 5.554
265-275			**265-275**
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space)		FIXED-SATELLITE (Earth-to-space)
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	5.149 5.563A		5.149 5.563A
275-3 000			**275-3 000**
	(Not allocated) 5.565		(Not allocated) 5.565

Section 3C –Footnotes to the Table of Frequency Allocations in the Radio Regulations

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

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

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

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

5.54C *Additional allocation:* in China, the frequency band 8.3-9 kHz is also allocated to the maritime radionavigation and maritime mobile services on a primary basis. (WRC-12)

5.55 *Additional allocation:* in Armenia, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the frequency band 14-17 kHz is also allocated to the radionavigation service on a primary basis. (WRC-15)

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

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

5.58 *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, Lebanon, Syrian Arab Republic, Sudan, South Sudan and Tunisia is limited to the fixed and maritime mobile services. The amateur service shall not be used in the above-mentioned countries in the band 135.7-137.8 kHz, and this should be taken into account by the countries authorizing such use. (WRC-12)

5.68 *Alternative allocation:* in Congo (Rep. of the), the Dem. Rep. of the Congo and South Africa, the frequency band 160-200 kHz is allocated to the fixed service on a primary basis. (WRC-15)

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, 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-12)

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

5.72 (SUP - WRC-12)

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 radionavigationservice. 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, Korea (Rep. of), India, Iran (Islamic Republic of), Japan, Pakistan, Papua New Guinea and Sri Lanka, the allocation of the frequency band 415-495 kHz to the aeronautical radionavigation service is on a primary basis. In Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Latvia, Uzbekistan and Kyrgyzstan, the allocation of the frequency band 435-495 kHz to the aeronautical radionavigation service is on a primary basis. Administrations in all the aforementioned countries shall take all practical steps necessary to ensure that aeronautical radionavigation stations

in the frequency band 435-495 kHz do not cause interference to reception by coast stations of transmissions from ship stations on frequencies designated for ship stations on a worldwide basis. (WRC-12)

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.

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

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

5.81 (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 frequency band 415-495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz. In using the frequency band 472-479 kHz for the amateur service, administrations shall ensure that no harmful interference is caused to the frequency 490 kHz. (WRC-12)

5.82A (SUP - WRC-12)

5.82B (SUP - WRC-12)

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, Niger and Swaziland, the band 526.5-535 kHz is also allocated to the mobile service on a secondary basis. (WRC-12)

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 Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Tajikistan, Chad, Turkmenistan and Ukraine, the frequency 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-15)

5.94and5.95 Not used.

5.96 In Germany, Armenia, Austria, Azerbaijan, Belarus, Croatia, 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 frequency bands 1 715-1 800 kHz and 1 850-2 000 kHz. However, when allocating the frequency 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-15)

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

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

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

5.101 (SUP - WRC-12)

5.102 *Alternative allocation:* in Bolivia, Chile, Paraguay and Peru, the frequency band 1 850-2 000 kHz is allocated to the fixed, mobile except aeronautical mobile, radiolocation and radionavigation services on a primary basis. (WRC-15)

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

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

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

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

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

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

5.112 *Alternative allocation*: in Denmark 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-12)

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 and Iraq, the band 2 502-2 625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)

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, 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-12)

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 Peru, the frequency band 3 500-3 750 kHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)

5.120 (SUP - WRC-2000)

5.121 Not used.

5.122 *Alternative allocation:* in Bolivia, Chile, Ecuador, Paraguay and Peru, the frequency band 3 750-4 000 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-15)

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, Pakistan, 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-12)

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**).

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

5.132B *Alternative allocation:* in Armenia, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 4 438-4 488 kHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. (WRC-15)

5.133 *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Niger, 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-12)

5.133A *Alternative allocation:* in Armenia, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency bands 5 250-5 275 kHz and 26 200-26 350 kHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-15)

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

Netherlands in Region 2, stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 25 W (e.i.r.p.). (WRC-15)

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

5.135 (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 (SUP-WRC-12)

5.139 (SUP-WRC-12)

5.140 *Additional allocation:* in Angola, Iraq, Somalia and Togo, the frequency band 7 000-7 050 kHz is also allocated to the fixed service on a primary basis. (WRC-15)

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

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

5.141C (SUP - WRC-12)

5.142 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-12)

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* *Note by the Secretariat:* This Resolution was revised by WRC-15.

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

5.143A In Region 3, frequencies in the band 7 350-7 450 kHz may be used by stations in the fixed service on a primary basis and land mobile service on a secondary basis, 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-12)

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

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

5.143D In Region 2, frequencies in the band 7 350-7 400 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-12)

5.143E (SUP - WRC-12)

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)

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

5.145B *Alternative allocation:* in Armenia, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency bands 9 305-9 355 kHz and 16 100-16 200 kHz are allocated to the fixed service on a primary basis. (WRC-15)

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)

5.149A *Alternative allocation:* in Armenia, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 13 450-13 550 kHz is allocated to the fixed service on a primary basis and to the mobile, except aeronautical mobile (R), service on a secondary basis. (WRC-15)

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 *Alternative allocation:* in Armenia, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 24 450-24 600 kHz is allocated to the fixed and land mobile services on a primary basis. (WRC-15)

5.159 *Alternative allocation:* in Armenia, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 39-39.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-15)

5.160 *Additional allocation:* in Botswana, Burundi, Dem. Rep. of the Congo and Rwanda, the band 41-44 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)

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.

5.161A *Additional allocation:* in Korea (Rep. of) and the United States, the frequency bands 41.015-41.665 MHz and 43.35-44 MHz are also allocated to the radiolocation service on a primary basis. Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution **612 (Rev.WRC-12)**. (WRC-12)

5.161B *Alternative allocation:* in Albania, Germany, Armenia, Austria, Belarus, Belgium, Bosnia and Herzegovina, Cyprus, Vatican, Croatia, Denmark, Spain, Estonia, Finland, France, Greece, Hungary, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Rep. of Macedonia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Montenegro, Norway, Uzbekistan, Netherlands, Portugal, Kyrgyzstan, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Slovenia, Sweden, Switzerland, Turkey and Ukraine, the frequency band 42-42.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-15)

5.162 *Additional allocation:* in Australia, the band 44-47 MHz is also allocated to the broadcasting service on a primary basis. (WRC-12)

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, 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-12)

5.163 *Additional allocation:* in Armenia, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Moldova, Uzbekistan, Kyrgyzstan, 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-12)

5.164 *Additional allocation:* in Albania, Algeria, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Croatia, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Slovakia, Czech Rep., Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the frequency band 47-68 MHz, in South Africa the frequency band 47-50 MHz, and in Latvia the frequency 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 frequency 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 frequency band. (WRC-15)

5.165 *Additional allocation:* in Angola, Cameroon, Congo (Rep. of the), Madagascar, Mozambique, Niger, Somalia, Sudan, South 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. (WRC-12)

5.166 (SUP - WRC-15)

5.167 *Alternative allocation:* in Bangladesh, Brunei Darussalam, India, Iran (Islamic Republic of), Pakistan and Singapore, the frequency band 50-54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-15)

5.167A *Additional allocation:* in Indonesia and Thailand, the frequency band 50-54 MHz is also allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-15)

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, 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. In Senegal, the band 50-51 MHz is allocated to the amateur service on a primary basis. (WRC-12)

5.170 *Additional allocation:* in New Zealand, the frequency band 51-54 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)

5.171 *Additional allocation:* in Botswana, Lesotho, Malawi, Mali, Namibia, Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Zambia and Zimbabwe, the band 54-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)

5.172 *Different category of service:* in the French overseas departments and communities in Region 2 and Guyana, the allocation of the frequency band 54-68 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**). (WRC-15)

5.173 *Different category of service:* in the French overseas departments and communities in Region 2 and Guyana, the allocation of the frequency band 68-72 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**). (WRC-15)

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, 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. (WRC-12)

5.179 *Additional allocation:* in Armenia, Azerbaijan, Belarus, China, the Russian Federation, Georgia, Kazakhstan, Lithuania, Mongolia, Kyrgyzstan, 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-12)

5.180 The frequency 75 MHz is assigned to marker beacons. Administrations shall refrain from assigning frequencies close to the limits of the guard band 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 and Paraguay, the allocation of the frequency band 76-88 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**). (WRC-15)

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)

5.195and5.196 Not used.

5.197 *Additional allocation:* in 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-12)

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 Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq (Republic of), Japan, Kazakhstan, Moldova, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the frequency 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-15)

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

5.203 (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)

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

5.208B[*] In the frequency bands:

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

Resolution **739(Rev.WRC-15)** applies. (WRC-15)

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, Guinea, Ireland, Israel, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Liechtenstein, Luxembourg, Mali, Malta, Montenegro, Norway, the Netherlands, Qatar, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia and Turkey, the frequency band 138-144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis. (WRC-15)

5.212 *Alternative allocation:* in Angola, Botswana, Cameroon, the Central African Rep., Congo (Rep. of the), Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Lesotho, Liberia, Libya, Malawi, Mozambique, Namibia, Niger, 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-12)

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, Montenegro, Serbia, Somalia, Sudan, South Sudan and Tanzania, the band 138-144 MHz is also allocated to the fixed service on a primary basis. (WRC-12)

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

5.221 Stations of the mobile-satellite service in the frequency band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei

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

Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Djibouti, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Georgia, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-15)

5.222 (SUP - WRC-15)

5.223 (SUP - WRC-15)

5.224 (SUP - WRC-97)

5.224A (SUP - WRC-15)

5.224B (SUP - WRC-15)

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.

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

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

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

Inthebands156-156.4875MHz,156.5625-156.7625MHz,156.8375-157.45MHz,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 (SUP - WRC-12)

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

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

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

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

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

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

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

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

5.229 *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 and China, 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. (WRC-12)

5.232 (SUP - WRC-15)

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 (SUP - WRC-15)

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), Egypt, Eritrea, Ethiopia, Gambia, Guinea, Libya, Mali, Sierra Leone, Somalia and Chad, the band 174-223 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-12)

5.238 *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.

5.248and5.249 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 and Kazakhstan, the frequency 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, or claim protection from, or constrain the use and development of, the mobile service systems and mobile-satellite service systems operating in the frequency 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-15)

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

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

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

5.260 (SUP - WRC-15)

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

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

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

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

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

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

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

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

5.269 *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 (SUP - WRC-12)

5.273 (SUP - WRC-12)

5.274 *Alternative allocation:* in Denmark, Norway, Sweden and Chad, the bands 430-432 MHz and 438-440 MHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)

5.275 *Additional allocation:* in Croatia, Estonia, Finland, Libya, The Former Yugoslav Republic of Macedonia, Montenegro and Serbia, the frequency 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-15)

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

5.277 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo (Rep. of the), Djibouti, the Russian Federation, Georgia, Hungary, Israel, Kazakhstan, Mali, Mongolia, Uzbekistan, Poland, the Dem. Rep. of the Congo, 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-12)

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

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

5.286B 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 Use of the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz by the maritime mobile service is limited to on-board communication stations. The characteristics of the equipment and the channelling arrangement shall be in accordance with Recommendation ITU-R M.1174-3. The use of these frequency bands in territorial waters is subject to the national regulations of the administration concerned. (WRC-15)

5.288 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.1174-3. (WRC-15)

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

5.290 *Different category of service:* in Afghanistan, Azerbaijan, Belarus, China, the Russian Federation, Japan, Kyrgyzstan, Tajikistan and Turkmenistan, 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-12)

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, Liechtenstein, the Czech Rep., Serbia and Switzerland, the frequency 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-15)

5.292 *Different category of service:* in Argentina, Uruguay and Venezuela, the allocation of the frequency band 470-512 MHz to the mobile service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-15)

5.293 *Different category of service:* in Canada, Chile, Cuba, the United States, Guyana, Jamaica and Panama, the allocation of the frequency 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 the Bahamas, Barbados, Canada, Chile, Cuba, the United States, Guyana, Jamaica, Mexico and Panama, the allocation of the frequency 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 frequency 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-15)

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

5.295 In the Bahamas, Barbados, Canada, the United States and Mexico, the frequency band 470-608 MHz, or portions thereof, is identified for International Mobile Telecommunications (IMT) – see Resolution **224 (Rev.WRC-15)**. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Mobile service stations of the IMT system within the frequency band are subject to agreement obtained under No. **9.21** and shall not cause harmful interference to, or claim protection from, the broadcasting service of neighbouring countries. Nos. **5.43** and **5.43A** apply. In Mexico, the use of IMT in this frequency band will not start before 31 December 2018 and may be extended if agreed by the neighbouring countries. (WRC-15)

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

5.296A In Micronesia, the Solomon Islands, Tuvalu and Vanuatu, the frequency band 470-698 MHz, or portions thereof, and in Bangladesh, Maldives and New Zealand, the frequency band 610-698 MHz, or portions thereof, are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolution **224(Rev.WRC-15)**. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. The mobile allocation in this frequency band shall not be used for IMT systems unless subject to agreement obtained under No. **9.21**and shall not cause harmful interference to, or claim protection from, the broadcasting service of neighbouring countries. Nos. **5.43** and **5.43A** apply. (WRC-15)

5.297 *Additional allocation:* in Canada, Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana and Jamaica, the frequency 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**. In the Bahamas, Barbados and Mexico, the frequency band 512-608 MHz is also allocated to the mobile service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-15)

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

5.301 Not used.

5.302 (SUP - WRC-12)

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 *Additional allocation:* in Belize and Colombia, the frequency band 614-698 MHz is also allocated to the mobile service on a primary basis. Stations of the mobile service within the frequency band are subject to agreement obtained under No. **9.21**. (WRC-15)

5.308A In the Bahamas, Barbados, Belize, Canada, Colombia, the United States and Mexico, the frequency band 614-698 MHz, or portions thereof, is identified for International Mobile Telecommunications (IMT) – see Resolution **224(Rev.WRC-15)**. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Mobile service stations of the IMT system within the frequency band are subject to agreement obtained under No. **9.21** and shall not cause harmful interference to or claim protection from the broadcasting service of neighbouring countries. Nos. **5.43** and **5.43A** apply. In Belize and Mexico, the use of IMT in this frequency band will not start before 31 December 2018 and may be extended if agreed by the neighbouring countries. (WRC-15)

5.309 *Different category of service*: in El Salvador, the allocation of the frequency 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**. (WRC-15)

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, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 645-862 MHz, in Bulgaria the frequency bands 646-686 MHz, 726-758 MHz, 766-814 MHz and 822-862 MHz, and in Poland the frequency band 860-862 MHz until 31 December 2017, are also allocated to the aeronautical radionavigation service on a primary basis. (WRC-15)

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

5.313 (SUP - WRC-97)

5.313A The frequency band, or portions of the frequency band 698-790 MHz, in Australia, Bangladesh, Brunei Darussalam, Cambodia, China, Korea (Rep. of), Fiji, India, Indonesia, Japan, Kiribati, Lao P.D.R., Malaysia, Myanmar (Union of), New Zealand, Pakistan, Papua New Guinea, the Philippines, Solomon Islands, Samoa, Singapore, Thailand, Tonga, Tuvalu, Vanuatu and Viet Nam, are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. In China, the use of IMT in this frequency band will not start until2015. (WRC-15)

5.313B (SUP - WRC-15)

5.314 (SUP - WRC-15)

5.315 (SUP - WRC-15)

5.316 (SUP - WRC-15)

5.316A (SUP - WRC-15)

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

5.317 *Additional allocation*: in Region 2 (except Brazil, the United States and Mexico), the frequency 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. (WRC-15)

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

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

5.323 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 862-960 MHz, in Bulgaria the bands 862-890.2 MHz and 900-935.2 MHz, in Poland the band 862-876 MHz until 31 December 2017, and in Romania the bands 862-880 MHz and 915-925 MHz, are 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-12)

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 Argentina, Brazil, Costa Rica, Cuba, Dominican Republic, El Salvador, Ecuador, the French overseas departments and communities in Region 2,Guatemala, Mexico, Paraguay, Uruguay and Venezuela, the frequency band 902-928 MHz is allocated to the land mobile service on a primary basis. In Colombia, the frequency band 902-905 MHz is allocated to the land mobile service on a primary basis. (WRC-15)

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

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

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

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

protection from stations operating in the aeronautical radionavigation service. Resolution **425 (WRC-15)** shall apply. (WRC-15)

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

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

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

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

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

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

5.333 (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

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* *Note by the Secretariat:* This Resolution was revised by WRC-15.

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 Kyrgyzstan, Slovakia and Turkmenistan, existing installations of the radionavigation service may continue to operate in the band 1 350-1 400 MHz. (WRC-12)

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

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

5.339A (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)	

[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)

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 extra-terrestrial origin.

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

5.341B In Region 2, the frequency band 1 427-1 518 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**. This identification does not preclude the use of this frequency band by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.341C The frequency bands 1 427-1 452 MHz and 1 492-1 518 MHz are identified for use by administrations in Region 3 wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**. The use of these frequency bands by the above administrations for the implementation of IMT in the frequency bands 1 429-1 452 MHz and 1 492-1 518 MHz is subject to agreement obtained under No. **9.21** from countries using stations of the aeronautical mobile service. This identification does not preclude the use of these frequency bands by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.342 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Uzbekistan, Kyrgyzstan and Ukraine, the frequency 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 frequency band 1 452-1 492 MHz is subject to agreement between the administrations concerned. (WRC-15)

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

5.346A The frequency band 1 452-1 492 MHz is identified for use by administrations in Region 3 wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)** andResolution**761 (WRC-15)**. The use of this frequency band by the above administrations for the implementation of IMT is subject to agreement obtained under No. **9.21** from countries using stations of the aeronautical mobile service.

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[*] *Note by the Secretariat:* This Resolution was revised by WRC-03 and WRC-15.

[**]The use by Palestine of the allocation to the mobile service in the frequency band 1 452-1 492 MHz identified for IMT is noted, pursuant to Resolution 99 (Rev. Busan, 2014) and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.347 (SUP - WRC-07)

5.347A* (SUP - WRC-07)

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 1518-1525 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 5-2of 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)

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-15.

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

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

5.353 (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**.

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

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

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

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

5.358 (SUP - WRC-97)

5.359 *Additional allocation:* in Germany, Saudi Arabia, Armenia, Azerbaijan, Belarus, Benin, Cameroon, the Russian Federation, France, Georgia, Guinea, Guinea-Bissau, Jordan, Kazakhstan, Kuwait, Lithuania, Mauritania, Uganda, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Tajikistan, Tunisia, Turkmenistan and Ukraine, the frequency bands 1 550-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in these frequency bands. (WRC-15)

5.360 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 (SUP - WRC-15)

5.362C (SUP - WRC-15)

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

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

networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. **5.366**.

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

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

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

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

5.369 *Different category of service:* in Angola, Australia, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Israel, Lebanon, Liberia, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, the Dem. Rep. of the Congo, Sudan, South Sudan, 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-12)

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

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

5.373 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, 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-12)

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

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

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

5.386 *Additional allocation:* the frequency 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 (except in Mexico), 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-15)

5.387 *Additional allocation:* in Belarus, Georgia, Kazakhstan, Kyrgyzstan, 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-12)

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

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

5.388B In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire, China, Cuba, Djibouti, Egypt, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Libya, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, South Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT base station in neighbouring countries, in the bands referred to in No. **5.388A**, shall not exceed a co-channel power flux-density of −127 dB(W/(m^2 · MHz)) at the Earth's surface outside a country's borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS. (WRC-12)

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

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

5.392A (SUP - WRC-07)

5.393 *Additional allocation:* in Canada, the United States and India, the frequency 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-15)**, with the exception of *resolves* 3 in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz. (WRC-15)

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)

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

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 (SUP - WRC-12)

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.

5.398A *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Ukraine, the band 2 483.5-2 500 MHz is allocated on a primary basis to the radiolocation service. The radiolocation stations in these countries shall not cause harmful interference to, or claim protection from, stations of the fixed, mobile and mobile-satellite services operating in accordance with the Radio Regulations in the frequency band 2 483.5-2 500 MHz. (WRC-12)

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

5.400 (SUP - WRC-12)

5.401 In Angola, Australia, Bangladesh, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, Dem. Rep. of the Congo, Sudan, Swaziland, Togo and Zambia, the frequency band 2 483.5-2 500 MHz was already allocated on a primary basis to the radiodetermination-satellite service before WRC-12, subject to agreement obtained under No. **9.21** from countries not listed in this provision. Systems in the radiodetermination-satellite service for which complete coordination information has been received by the Radiocommunication Bureau before 18 February 2012 will retain their regulatory status, as of the date of receipt of the coordination request information. (WRC-15)

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

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

5.404 *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 (SUP - WRC-12)

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/($m^2 \cdot 4$ 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**. No. **9.21** does not apply to tropospheric scatter links situated entirely outside Region 1. Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in

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[*] *Note by the Secretariat:* This Resolution was revised by WRC-03 and WRC-15.

this band. When planning new tropospheric scatter radio-relay links in this band, all possible measures shall be taken to avoid directing the antennas of these links towards the geostationary-satellite orbit. (WRC-12)

5.411 (SUP - WRC-07)

5.412 *Alternative allocation:* in 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-12)

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

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

5.414A 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:

$$-136 \quad \text{dB}(W/(m^2 \cdot MHz)) \qquad \text{for} \quad 0° \leq \theta \leq 5°$$

$$-136 + 0.55\,(\theta - 5) \quad \text{dB}(W/(m^2 \cdot MHz)) \qquad \text{for} \quad 5° < \theta \leq 25°$$

$$-125 \quad \text{dB}(W/(m^2 \cdot MHz)) \qquad \text{for} \quad 25° < \theta \leq 90°$$

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 (SUP - WRC-15)

5.417B (SUP - WRC-15)

5.417C (SUP - WRC-15)

5.417D (SUP - WRC-15)

5.418 *Additional allocation:* in India, the frequency 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-15)**. 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-15)**. Geostationary broadcasting-satellite service (sound) systems for which complete Appendix **4** coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting satellite service (sound) space station operating in the frequency band 2 630-2 655 MHz, and for which complete Appendix **4** coordination information has been received after 1 June 2005, shall not exceed the following limits, for all conditions and for all methods of modulation:

-130 dB(W/(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-15)

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

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

5.424 *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, Kyrgyzstan and Turkmenistan, the frequency band 3 100-3 300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-15)

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

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

5.429B In the following countries of Region 1 south of 30° parallel north: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Congo (Rep. of the),Côte d'Ivoire, Egypt, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Uganda, the Dem. Rep. of the Congo, Rwanda, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). The use of this frequency band shall be in accordance with Resolution **223 (Rev.WRC-15)**. The use of the frequency band 3 300-3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement

of neighbouring countries to protect operations within the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.429C *Different category of service*: in Argentina, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Paraguay and Uruguay, the frequency band 3 300-3 400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. In Argentina, Brazil, Guatemala, Mexico and Paraguay, the frequency band 3 300-3 400 MHz is also allocated to the fixed service on a primary basis. Stations in the fixed and mobile services operating in the frequency band 3 300-3 400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-15)

5.429D In the following countries in Region 2: Argentina, Colombia, Costa Rica, Ecuador, Mexico and Uruguay, the use of the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). Such use shall be in accordance with Resolution **223 (Rev.WRC-15)**. This use in Argentina and Uruguay is subject to the application of No. **9.21**. The use of the frequency band 3 300-3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to protect operations within the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.429E *Additional allocation*: in Papua New Guinea, the frequency band 3 300-3 400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. Stations in the mobile service operating in the frequency band 3 300-3 400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-15)

5.429F In the following countries in Region 3: Cambodia, India, Lao P.D.R., Pakistan, the Philippines and Viet Nam, the use of the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). Such use shall be in accordance with Resolution **223 (Rev.WRC-15)**. The use of the frequency band 3 300-3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service. Before an administration brings into use a base or mobile station of an IMT system in this frequency band, it shall seek agreement under No. **9.21** with neighbouring countries to protect the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

5.430 *Additional allocation:* in Azerbaijan, Kyrgyzstan and Turkmenistan, the frequency band 3 300-3 400 MHz is also allocated to the radionavigation service on a primary basis. (WRC-15)

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

5.431 *Additional allocation:* in Germany and Israel, the frequency band 3 400-3 475 MHz is also allocated to the amateur service on a secondary basis. (WRC-15)

5.431A In Region 2, the allocation of the frequency band 3 400-3 500 MHz to the mobile, except aeronautical mobile, service on a primary basis is subject to agreement obtained under No. **9.21**. (WRC-15)

5.431B In Region 2, the frequency band 3 400-3 600 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this

frequency band by any application of the services to which it is allocated and does not establish 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 an IMT system, it shall seek agreement under No. **9.21** with other administrations and 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, including IMT systems, in the frequency band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-15)

5.432 *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 Australia, Bangladesh, China, French overseas communities of Region 3, India, Iran (Islamic Republic of), New Zealand, the Philippines and Singapore, the frequency 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 frequency 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 frequency band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m^2 · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), 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 frequency 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-15)

5.433 In Regions 2and 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 Australia, Bangladesh, China, French overseas communities of Region 3, Korea (Rep. of), India, Iran (Islamic Republic of), Japan, New Zealand, Pakistan and the Philippines, the frequency band 3 500-3 600 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio

Regulations. 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 frequency band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m^2 · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), 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 frequency 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-15)

5.434 In Canada, Colombia, Costa Rica and the United States, the frequency band 3 600-3 700 MHz, or portions thereof, is identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish 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 an IMT system, it shall seek agreement under No. **9.21** with other administrations and 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, including IMT systems, in the frequency band 3 600-3 700 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-15)

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

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

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

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

5.439 *Additional allocation:* in Iran (Islamic Republic of), the band 4 200-4 400 MHz is also allocated to the fixed service on a secondary basis. (WRC-12)

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 this band by other mobile service applications or by other services to which this band is allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-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)

5.441A In Uruguay, the frequency band 4 800-4 900 MHz, or portions thereof, is identified for the implementation of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained with neighbouring countries, and IMT stations shall not claim protection from stations of other applications of the mobile service. Such use shall be in accordance with Resolution **223 (Rev.WRC-15)**. (WRC-15)

5.441B In Cambodia, Lao P.D.R. and Viet Nam, the frequency band 4 800-4 990 MHz, or portions thereof, is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained under No. **9.21** with concerned administrations, and IMT stations shall not claim protection from stations of other applications of the mobile service. In addition, before an administration brings into use an IMT station in the mobile service, it shall ensure that the power flux-density produced by this station does not exceed −155 dB(W/(m^2 · 1 MHz)) produced up to 19 km above sea level at 20 km from the coast, defined as the low-water mark, as officially recognized by the coastal State. This criterion is subject to review at WRC-19. See Resolution **223 (Rev.WRC-15)**. This identification shall be effective after WRC-19. (WRC-15)

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

5.443 *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)

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

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

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

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

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

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

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

– systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution **748 (Rev.WRC-15)**;

– aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **418 (Rev.WRC-15)**. (WRC-15)

5.445 Not used.

5.446 *Additional allocation:* in the countries listed in No. **5.369**, the frequency band 5 150-5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **9.21**. In Region 2 (except in Mexico), the frequency band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in No. **5.369** and Bangladesh, the frequency band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the frequency bands 1 610-1 626.5 MHz and/or 2 483.5-2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed −159 dB(W/m^2) in any 4 kHz band for all angles of arrival. (WRC-15)

5.446A The use of the bands 5 150-5 350 MHz and 5 470-5 725 MHz by the stations in the mobile, except aeronautical mobile, service shall be in accordance with Resolution **229(Rev.WRC-12)**. (WRC-12)

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

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

5.447 *Additional allocation:* in Côte d'Ivoire, Egypt, Israel, Lebanon, 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(Rev.WRC-12)** do not apply. (WRC-12)

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

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* *Note by the Secretariat:* This Resolution was revised by WRC-15.

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 5 250-5255 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 frequency 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 frequency band by the fixed service is intended for the implementation of fixed wireless access systems and shall comply with Recommendation ITU-R F.1613-0. 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-15)

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

5.448 *Additional allocation:* in Azerbaijan, Kyrgyzstan, Romania and Turkmenistan, the band 5 250-5 350 MHz is also allocated to the radionavigation service on a primary basis. (WRC-12)

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), 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-12)

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

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

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

5.454 *Different category of service:* in Azerbaijan, the Russian Federation, Georgia, 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-12)

5.455 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band5 670-5 850 MHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.456 (SUP - WRC-15)

5.457 In Australia, Burkina Faso, Cote d'Ivoire, Mali and Nigeria, the allocation to the fixed service in the bands 6 440-6 520 MHz (HAPS-to-ground direction) and 6 560-6 640 MHz (ground-to-HAPS direction) may also be used by gateway links for high-altitude platform stations (HAPS) within the territory of these countries. Such use is limited to operation in HAPS gateway links and shall not cause harmful interference to, and shall not claim protection from, existing services, and shall be in compliance with Resolution **150 (WRC-12)**. Existing services shall not be constrained in future development by HAPS gateway links. The use of HAPS gateway links in these bands requires explicit agreement with other administrations whose territories are located within 1 000 kilometres from the border of an administration intending to use the HAPS gateway links. (WRC-12)

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

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

5.457C In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Mexico, Paraguay, Uruguay and Venezuela), the frequency 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, or claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of this frequency band by other mobile service applications or by other services to which this frequency band is allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-15)

5.458 In the band 6 425-7 075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7 075-7 250 MHz, passive microwave sensor measurements are carried out. Administrations should bear

in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6 425-7 075 MHz and 7 075-7 250 MHz.

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

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

5.458C (SUP - WRC-15)

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**. In the frequency band 7 190-7 235 MHz, with respect to the Earth exploration-satellite service (Earth-to-space), No. **9.21** does not apply. (WRC-15)

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

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

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

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

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

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

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

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

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

$$-135 \text{ dB}(\text{W}/\text{m}^2) \text{ in a 1 MHz band} \qquad \text{for} \quad 0 \leq \theta < 5^\circ$$

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

-125 dB(W/m^2) in a 1 MHz band for $25 \leq \theta \leq 90°$ (WRC-12)

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

5.464 (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 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-12)

5.467 (SUP - WRC-03)

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

5.469 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Lithuania, 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-12)

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

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

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

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

5.473 *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**).

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

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

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

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

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

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

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

5.476 (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 radionavigation and radiolocation services. (WRC-07)

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

5.478 *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, Cuba, El Salvador, Ecuador, Guatemala, Honduras, Paraguay, the Netherlands Antilles, Peru and Uruguay, the frequency band 10-10.45 GHz is also allocated to the fixed and mobile services on a primary basis. In Colombia, Costa Rica, Mexico and Venezuela, the frequency band 10-10.45 GHz is also allocated to the fixed service on a primary basis. (WRC-15)

5.481 *Additional allocation:* in Algeria, Germany, Angola, Brazil, China, Côte d'Ivoire, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Pakistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania and Uruguay, the frequency band 10.45-10.5 GHz is also allocated to the fixed and mobile services on a primary basis. In Costa Rica, the frequency band 10.45-10.5 GHz is also allocated to the fixed service on a primary basis. (WRC-15)

5.482 In the band 10.6-10.68 GHz, the power delivered to the antenna of stations of the fixed and mobile, except aeronautical mobile, services shall not exceed −3 dBW. This limit may be exceeded, subject to agreement

obtained under No. **9.21**. However, in Algeria, Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, Egypt, United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Moldova, Nigeria, Oman, Uzbekistan, Pakistan, Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, Singapore, Tajikistan, Tunisia, Turkmenistan and Viet Nam, this restriction on the fixed and mobile, except aeronautical mobile, services is not applicable. (WRC-07)

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

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

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

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

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

5.485 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 the United States, the allocation of the frequency band 11.7-12.1 GHz to the fixed service is on a secondary basis (see No. **5.32**). (WRC-15)

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

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

5.488 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/($m^2 \cdot 27$ 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, Saudi Arabia, Bahrain, Cameroon, the Central African Rep., Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Madagascar, Mali, Morocco, Mongolia, Nigeria, Oman, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-15)

5.495 *Additional allocation:* in France, Greece, Monaco, Montenegro, Uganda, Romania and Tunisia, the frequency band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-15)

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 and India, the band 13.25-14 GHz is also allocated to the fixed service on a primary basis. In Pakistan, the band 13.25-13.75 GHz is allocated to the fixed service on a primary basis. (WRC-12)

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

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

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

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

– active spaceborne sensors,

– satellite systems operating in the space research service (space-to-Earth) to relay data from space stations in the geostationary-satellite orbit to associated earth stations.

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

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

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

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

5.501 *Additional allocation:* in Azerbaijan, Hungary, Japan, Kyrgyzstan, Romania and Turkmenistan, the band 13.4-14 GHz is also allocated to the radionavigation service on a primary basis. (WRC-12)

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

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

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

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

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

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

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

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

i) $4.7D + 28$ 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 frequency band 14-14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M.1643-0, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz frequency band located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa. (WRC-15)

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

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

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

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

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

5.507 Not used.

5.508 *Additional allocation:* in Germany, France, Italy, Libya, 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-12)

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

5.509 (SUP - WRC-07)

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

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

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

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

altitudes from 0 m to 19 000 m above sea level at 22 km seaward from all coasts, defined as the low-water mark, as officially recognized by each coastal State. (WRC-15)

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

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

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

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

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

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

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

5.511D (SUP - WRC-15)

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

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

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

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

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

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

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

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

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

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

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

5.522 (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, Jordan, Lebanon, Libya, Morocco, Oman, Qatar, the Syrian Arab Republic, Tunisia and Yemen, fixed-service systems in operation at the date of entry into force of the Final Acts of WRC-2000 are not subject to the limits of No. **21.5A**. (WRC-2000)

5.523 (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)

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)

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

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

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

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

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

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

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

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

5.529 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 (SUP - WRC-12)

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

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

5.530C (SUP - WRC-15)

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

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.

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* *Note by the Secretariat:* This Resolution was revised by WRC-15

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

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

5.533 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 the most recent version of Recommendation ITU-R SA.1862. (WRC-12)

5.536B In Saudi Arabia, Austria, Bahrain, Belgium, Brazil, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Estonia, Finland, Hungary, India, Iran (Islamic Republic of), Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Sweden, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the frequency band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-15)

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

5.537 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), Iraq, Japan, Kazakhstan, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sudan, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the 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-12)**. (WRC-12)

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

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

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

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

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

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

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

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

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

5.545 *Different category of service:* in Armenia, Georgia, 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-12)

5.546 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Lebanon, Moldova, Mongolia, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, the United Kingdom, South Africa, Tajikistan, Turkmenistan and Turkey, the allocation of the band 31.5-31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**). (WRC-12)

5.547 The bands 31.8-33.4 GHz, 37-40 GHz, 40.5-43.5 GHz, 51.4-52.6 GHz, 55.78-59 GHz and 64-66 GHz are available for high-density applications in the fixed service (see Resolution **75(WRC-2000)**[*]). Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the

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

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, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan, Sri Lanka, Togo, Tunisia and Yemen, the band 33.4-36 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

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

5.550 *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, 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-12)

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

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

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

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

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

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

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

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC-03)** shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-15)

5.551I The power flux-density in the band 42.5-43.5 GHz produced by any geostationary space station in the 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)

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

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

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

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

5.561B 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 · MHz)) for all angles of arrival. (WRC-2000)

5.562D *Additional allocation*: In Korea (Rep. of), the frequency 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. Radio astronomy stations in Korea (Rep. of) operating in the frequency bands referred to in this footnote shall not claim protection from, or constrain the use and development of, services in other countries operating in accordance with the Radio Regulations. (WRC-15)

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

– radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;

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

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

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

Section 3D — India Footnotes to the column named "India" in the Table of Frequency Allocations

IND 1 The use of the frequency bands 190-405 kHz, 415-495 kHz and 505-526.5 kHz by the aeronautical radionavigation service for non-directional beacons (NDBs) shall take into account Annex 10 to the Convention on International Civil Aviation and the Standards and Recommended Practices of the International Civil Aviation Organisation (ICAO).

IND 2 In using the frequency band 1606.5-1800 kHz for the NDBs in the aeronautical radionavigation service, Annex 10 to the Convention on International Civil Aviation and the Standards and Recommended Practices of the International Civil Aviation Organisation (ICAO) shall be taken into account.

IND 3 In using the bands 526.5-535 kHz and 535-1606.5 kHz**,** the broadcasting service shall take into account the provisions of the Final Acts of the Regional Administrative LF/ MF Broadcasting Conference (Region 1 and 3), Geneva, 1975.

IND 4 The provisions of Appendix 27 of the Radio Regulations shall apply to the use of the frequency bands 2 850–3 025 kHz, 3 400–3 500 kHz, 4 650–4 700 kHz, 5 480–5 680 kHz, 6 525–6 685 kHz, 8815–8 965 kHz, 10 005– 10 100 kHz, 11 275–11 400 kHz, 13 260–13 360 kHz, 17 900– 17 970 kHz and 21 924–22 000 kHz by the aeronautical mobile (R) service.

IND 5 The use of the bands 3 025–3 155 kHz, 3 900–3 950 kHz, 4 700–4 750 kHz, 5 450–5 480 kHz, 5 680–5 730 kHz, 6 685–6 765 kHz, 8 965–9 040 kHz, 11 175–11 275 kHz, 13 200–13 260 kHz, 15 060– 15 100 kHz, 17 970–18 030 kHz and 23 200–23 350 kHz by the aeronautical mobile (OR) service shall be subject to Chapter VIII and other provisions of the Radio Regulations.

IND 6 The use of the bands 4 063–4 438 kHz, 6 200– 6 525 kHz, 8 195–8 815 kHz, 12 230–13 200 kHz, 16 360–17 410 kHz, 18 780–18 900 kHz, 22 000–22 855 kHz and 25 070–25 210 kHz by the maritime mobile service shall be subject to the provisions of Appendix 13, and Chapters VII and IX of the Radio Regulations.

IND 7 The use of the bands 5 950–6 200 kHz, 7 100–7 300 kHz, 9 500– 9 900 kHz, 11 650–12 050 kHz, 13 600–13 800 kHz, 15 100– 15 600 kHz, 17 550–17 900 kHz, 21 450–21 850 kHz and 25 670– 26 100 kHz by the broadcasting service shall be in accordance with the provisions of Articles 11 and 12 of the Radio Regulations.

IND 8 The use of the band 8 100–8 195 kHz by the maritime mobile service shall be subject to the provisions of No. 52.220 and Appendix 17 of the Radio Regulations.

IND 9 The use of the frequency band 54-68 MHz by the broadcasting service will continue until existing stations of that service are transferred to other broadcasting bands. New assignments to the broadcasting service will not be made in this band.

IND 10 The use of the frequency band 47-68 MHz by wind profiler radars in the radiolocation service is permitted on case-to-case basis. The operation of wind profiler radars shall be in accordance with Resolution **217 (WRC-97).**

IND 11 Between the band 100-103.8 MHz band, the assignments shall exclusively be limited to the public broadcaster(s).

IND 12 The use of the frequency bands 74.8-75.2 MHz, 108-117.975 MHz, 328.6-335.4 MHz, 960-1 215 MHz and 5 000-5 250 MHz by the aeronautical radio navigation service and of the bands 108-117.975 MHz and 117.975-137 MHz by the aeronautical mobile (R) service is subject to the provisions of Annex 10 to the Convention on International Civil Aviation and the Standards and Recommended Practices of the International Civil Aviation Organisation (ICAO).

IND 13 The facility use for radio astronomy service at Pune needs to be protected from any radio emissions which may fall within the frequency bands allocated to radio astronomy service. The assignments to the frequency bands listed in **No. 5.149** need to specifically take into account the protection aspect to the facility use for radio astronomy service at Pune.

IND 14 The use of sub bands 448–450 MHz and 1 270–1 295 MHz by wind profiler radars is subject to Resolution **217 (WRC-97).**

IND 15 **While** considering assignments in 2290-2310 MHz band, the protection aspects to Deep space facility at Bylalu, Bangalore need to be taken into account.

IND 16 The following frequency bands, or parts thereof, have been identified for implementation of International Mobile Telecommunications **(IMT)**:

Sl. No.	Band as mentioned in RR	Relevant RR Footnotes
1	450-455 MHz	5.286AA
2	455-456 MHz	
3	456-459 MHz	
4	459-460 MHz	
5	460-470 MHz	
6	470-585 MHz*	5.296A
7	585-610 MHz*	
8	610-890 MHz	5.313A, 5.317A
9	890-942 MHz	
10	942-960 MHz	
11	1427-1429 MHz	5.341C, 5.346A
12	1429-1452 MHz	
13	1452-1492 MHz	
14	1492-1518 MHz	

15	1710-1930 MHz	5.384A, 5.388
16	1930-1970 MHz	
17	1970-1980 MHz	
18	1980-2010 MHz	
19	2010-2025 MHz	
20	2025-2110 MHz	5.388
21	2110-2120 MHz	
22	2120-2160 MHz	
23	2160-2170 MHz	
24	2170-2200 MHz	
25	2300-2450 MHz	5.384A
26	2500-2520 MHz	5.384A
27	2520-2535 MHz	
28	2535-2655 MHz	
29	2655-2670 MHz	
30	2670-2690 MHz	
31	3300-3400 MHz	5.429F
32	3400-3500 MHz	5.432A, 5.432B, 5.433A
33	3500-3600	

* Part of the band 470-698 MHz would be made available for IMT once the current and future usage of the band 470-698 MHz by the broadcasting service is finalized.

IND 17 The *bands* 14-14.5 GHz (Earth to space), 29.5-30 GHz (Earth to space), 10.7-11.7 GHz (space-to-Earth), 12.5-12.75 GHz (space-to-Earth) and 19.7-20.2 GHz (space-to-Earth) may be used for earth-stations on land transportations, ships and aircrafts, as per the applicable provisions of the Radio Regulations and or its Resolutions. The use these bands or part thereof and the associated s*atellite-orbit* shall be taken together as a *resource* and the number of such resources shall be limited to the minimum essential to satisfy the needs of earth-stations on land transportations, ships and aircrafts. The use of these bands shall be limited to satellites coordinated with India.

IND 18 In Region 3, the frequency ranges 406.1-430 MHz, 440-470 MHz, and 4 940-4 990 MHz are harmonized for Public Protection and Disaster Relief (PPDR) applications. In Region 1, the frequency range 380-470 MHz is harmonized for PPDR applications. Additionally, parts of the frequency range 694-894 MHz may also be considered for PPDR applications. See **Resolution 646 (Rev. WRC-15).**

The band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) (see No. 5.286AA). The band 406.1-410 MHz is also allocated to radio astronomy service.

Trunked radio systems are operational in the frequency ranges 336-340 MHz paired with 346-350 MHz, 351-358 MHz paired with 361-368 MHz, 380-389.9 MHz paired with 390-399.9 MHz, 410-420 MHz paired with 420-430 MHz, and 806-819 MHz paired with 851-864 MHz. The preferred use of these frequency ranges is as under.

Sl. No.	Frequency (MHz)	Paired Frequency (MHz)	Proposed Applications/ paired frequency (MHz)	
1	336-338	346-348	PMRT	
2	338-340	348-350	PMRT	
3	351-356	361-366	CMRT	
4	356-358	366-368	CMRT	
5	380-389.9	390-399.9	380-387.5 (PPDR)	390- 397.5 (PPDR)
			387.5-390 (CMRT)	397.5- 400 (CMRT)
6	410-420	420-430	410-417.5 (PPDR)	420- 427.5 (PPDR)
			417.5-420 (CMRT)	427.5- 430 (CMRT)
7	440-470	-	Part of 440-470 MHz may be considered for PPDR.	
8	806-811	851-856	PPDR	
9	811-814	856-859	PMRT	
10	814-819	859-864	PMRT	
11	819-824	864-869	PMRT	
12	4940-4990	-	PPDR	

Abbreviations
PMRT: Public Mobile Radio Trunking
CMRT: Captive Mobile Radio Trunking
PPDR: Public Protection and Disaster Relief

Existing radio trunking systems, not in conformity with the above table, will continue to operate until the end of their lifetime. New systems or expansion of existing systems are encouraged to conform to the above table.

Wideband and broadband PPDR applications shall be in accordance with the channel arrangements that promote harmonization to the greatest extent possible. The harmonization shall also be encouraged for the radio trunking systems in general and, in particular, those operating in conformity with the table above.

Broadband PPDR application will be encouraged in the Frequency Band 410-420 MHz paired with 420-430 MHz

IND 19 To satisfy the requirements of localized communications at sites of incidents or in areas not covered by trunked radio systems, the frequency ranges 380.0 - 380.15 MHz and 390.0 - 390.15 MHz may be used for direct mode operation (DMO), independently of and in addition to their use in trunked mode operation (TMO).

The centre frequencies of channels in the frequency ranges 380.0 - 380.15 MHz and 390.0 - 390.15 MHz are as follows.

i. Frequency range 380.0 - 380.15 MHz; channel spacing: 12.5 kHz
Centre frequencies (MHz): 380.00625, 380.01875, 380.03125, 380.04375, 380.05625, 380.06875, 380.08125, 380.09375, 380.10625, 380.11875, 380.13125, 380.14375

ii. Frequency range 380.0 - 380.15 MHz; channel spacing: 25 kHz
Centre frequencies (MHz): 380.0125, 380.0375, 380.0625, 380.0875, 380.1125, 380.1375

iii. Frequency range 390.0 - 390.15 MHz; channel spacing: 12.5 kHz
Centre frequencies (MHz): 390.00625, 390.01875, 390.03125, 390.04375, 390.05625, 390.06875, 390.08125, 390.09375, 390.10625, 390.11875, 390.13125, 390.14375

iv. Frequency range 390.0 - 390.15 MHz; channel spacing: 25 kHz
Centre frequencies (MHz): 390.0125, 390.0375, 390.0625, 390.0875, 390.1125, 390.1375

IND 20 Subject to not constraining the deployment of the services to which the band 174-230 MHz has been allocated, requirement of fixed and mobile services including those of wireless telemetry seismic systems may also be considered in the band.

IND 21 Subject to coordination, the requirements of wind profiler radars may be considered in 200-220 MHz coordination.

IND 22 Subject to coordination, the requirements of rural communications may be considered in 368-380 MHz band.

IND 23 Subject to not constraining the deployment of the services to which the band 406.1-450 MHz has been allocated, requirements of digital seismic telemetry up to 1.5 MHz bandwidth may also be considered in the band.

IND 24 Subject to not constraining the deployment of the services by which the bands 470-520 MHz and 520-585 MHz may primarily be used, the requirements of fixed and mobile services may also be considered in these bands.

IND 25 Subject to coordination and not constraining the deployment of the services by which the band 585-698 MHz may primarily be used, the requirements of Digital Broadcasting services, including Mobile TV, may also be considered in the band.

IND 26 In addition to the services by which the bands 902.5-915 MHz and 947.5-960 may primarily be used, certain frequency spots may also be considered for train control & mobile train radio systems at specified locations.

IND 27 INSAT system uses the frequency band 2535-2655 MHZ for Broadcasting Satellite Service (BSS) downlink providing applications like Radio Networking, Cyclone Warning Dissemination, Meteorological Data Dissemination, Satellite Time and Frequency Dissemination and is planned to provide advanced application like Digital Multimedia.

Requirements of IMT may also be considered in the band subject to coordination.

IND 28 Subject to ensuring protection to Aeronautical radionavigation service and Radio location service, the band 2700-2900 MHz may also be used for Microwave Multipoint Distribution System (MMDS), including broadband applications. International recognition for such purpose is not affordable.

IND 29 Use of frequency bands 5150-5250 MHz, 5250-5350 MHz, 5470-5725 MHz and 5725-5875 MHz for Wireless access services (WAS) and Radio Local Area networks (RLANs) have been exempted from licensing requirement as per conditions notified vide GSR No. G.S.R. 1048(E) dated 18.10.2018 .

IND 30 Subject to not constraining the use of the frequency band **5 875** to 5 925 GHz by the services to which it has been allocated in the RR, the band may also be considered for Dedicated Short Range Communications (DSRC) for Intelligent Transport Networks.

IND 31 Frequency bands 10.95-11.2 GHz, 11.45-11.7 GHz and 12.2-12.75 GHz may predominantly be used for fixed satellite service (down links).

IND 32 It may be borne in mind that the frequency band 18.6-18.8 GHz is exclusively earmarked for Earth Exploration Satellite Service (EESS-passive) in IRS Satellite system.

IND 33 The frequency bands 19.7-21.2 GHz and 29.5-31.0 GHz may be considered predominantly for the use of FSS.

IND 34 Subject to not constraining the deployment of the services to which the band 24.0 –24.25 GHz has been allocated, the low power telecom systems and devices including Radio Local Area Networks (RLAN) and traffic safety applications in the frequency band 24.0 –24.25 GHz using a maximum Effective Isotropic Radiated Power of 2Watts with spectrum spread of 50 MHz or higher may also be permitted on non-interference, non-protection and non- exclusive basis.

IND 35 While considering assignments in the frequency band 25.5.-27.0 GHz, the protection to facilities in EESS (Earth Exploration Satellite Service) at a few locations shall be taken into account.

IND 36 The band 71-76 GHz and 81-86 GHz may be used for high-density point to point / multipoint links in Fixed Service (FS) also taking care of FSS service.

IND 37 The band 57-64 GHz may be used for high-density point to point / multipoint links and other access applications also taking care of other services identified as Primary in band.

Annex 1

Wireless equipments exempted from licensing

S. No.	Frequency Range (MHz)	Title of the Rule	GSR No.
1	**2**	**3**	**4**
1	0.009 - 0.05 MHz	Use of very low power Radio Frequency devices or equipments including the Radio Frequency Identification Devices, (Exemption from Licensing Requirement) Rules, 2014	GSR No. 83(E) dated 11-Feb-2014 , and subsequent amendments, if any.
2	0.05 - 0.2 MHz	Use of very low power Radio Frequency devices or equipments including the Radio Frequency Identification Devices, (Exemption from Licensing Requirement) Rules, 2009	GSR No. 90(E) dated 10-Feb-2009 , and subsequent amendments, if any.
3	0.302 - 0.351 MHz	Use of very low power radio frequency devices or equipments for Inductive Applications (Exemption from Licensing Requirement) Rules, 2015	GSR No. 697(E) dated 16-Sep-2015 , and subsequent amendments, if any.
4	302-435kHz 855-1050kHz 1.89-2.31MHz	Use of Very Low Power Radio Frequency Devices or Equipments for Inductive Applications (Exemption from Licensing Requirements)Amendment Rules, 2018	GSR No. 996(E) dated 05-Oct-2018 , and subsequent amendments, if any.
5	13.553 - 13.567 MHz	Use of very low power radio frequency devices for indoor applications (Exemption from Licensing Requirement) Rules, 2010	GSR No. 884(E) dated 04-Nov-2010 , and subsequent amendments, if any.
6	26.957 - 27.283 MHz	Use of Low Power Equipment in the Citizen band 26.957 - 27.283 MHz (Exemption from Licensing Requirement) Rules, 2005	GSR No. 533(E) dated 12-Aug-2005 , and subsequent amendments, if any.
7	36 - 38 MHz	Use of very low power radio frequency devices or equipments for Wireless Microphones (Exemption from Licensing Requirement) Rules, 2015	GSR No. 696 (E) dated 16-Sep-2015 , and subsequent amendments, if any.
8	335.7 - 335.85 MHz	Use of Low Power Equipment in the 335 MHz band for remote control of cranes (Exemption from Licensing Requirement) Rules, 2005	GSR No. 532(E) dated 12-Aug-2005 , and subsequent amendments, if any.
9	402 - 405 MHz	Use of very low power cardiac monitoring radio frequency wireless medical devices, medical implant communication systems (MICS) .... (405 - 405 MHz) (Exemption from Licensing Requirement) Rules, 2008	GSR No. 673(E) dated 23-Sep-2008 , and subsequent amendments, if any.
10	433 - 434 MHz	Use of low power devices or equipments for indoor applications in the 433 to 434 MHz frequency range (Exemption from Licensing Requirement) Rules, 2012	GSR No. 680(E) dated 12-Sep-2012 , and subsequent amendments, if any.

S. No.	Frequency Range (MHz)	Title of the Rule	GSR No.
11	433 - 434.79 MHz	Use of very low power radio frequency devices or equipments including the RFID (Exemption from Licensing Requirement) Rules, 2015	GSR No. 698(E) dated 16-Sep-2015 , and subsequent amendments, if any.
12	865 - 867 MHz	Use of low power Equipment in the frequency band 865 – 867 MHz for (RFID) Radio Frequency Identification Devices (Exemption from Licensing Requirement) Rules, 2005	GSR No. 168(E) dated 11-Mar-2005 , and subsequent amendments, if any.
13	2400 - 2483.5 MHz	Use of Low Power Equipment in the frequency band 2.4 GHz to 2.4835 GHz (Exemption from Licensing Requirement) Rules, 2005	GSR No. 45 (E) dated 28-Jan-2005 , and subsequent amendments, if any.
14	5150 - 5250 MHz 5250 - 5350 MHz 5470-5725 MHz 5725 - 5875 MHz	Use of Wireless Access Systems (WAS) including Radio Local Area Network (RLAN) in 5GHz (Exemption from Licensing Requirement) Rules, 2018	GSR No. 1048(E) dated 18-Oct.2018 and subsequent amendments, if any.
15	76000 - 77000 MHz	Use of very low power radio frequency devices or equipments for Short-range Radar Systems (Exemption from Licensing Requirement) Rules, 2015	GSR No. 699(E) dated 16-Sep-2015 and subsequent amendments, if any.
16	Frequency details as per GSR 1047(E) dated 18.10.2018 (for SRDs Devices)	Use of Low Power and Very Low Power Short Range Radio Frequency Devices (Exemption from Licensing Requirements) Amendment Rules, 2018	GSR No.1047(E) dated 18-Oct.2018 and subsequent amendments, if any
17	Frequency details as per GSR 1046(E) dated 18.10.2018 (for UWB Devices)	Use of Very Low Power Ultra-Wide Band Devices (Exemption from Licensing Requirements) Rules, 2018	GSR No.1046(E)dated 18-Oct.2018 and subsequent amendments, if any

Annex-2

List of Commonly Used Frequencies

The following is the List of frequencies used for the purpose shown against them.

Sl. No.	Frequency	Purpose	Remarks
1	148.5, 148.575, 166.875, 167.725 MHz	Construction and allied industries, including remote control of EOT	Channel bandwidth of 10 KHz. The maximum RF transmitter power for EOT cranes is 1 mW.
2	150.3, 150.9 and 151.07 MHz	Onsite radio paging	In the frequency range 150.05-151.5 MHz
	151.15, 151.55 and 150.6 MHz	Talk back facility for on-site radio paging	
3	150.525, 151.250 and 166.950 MHz	O.B. Vans & film shooting	
4	350.1625, 350.1750, 350.1875, 350.2000, 350.2125, 350.2250, 350.2375, 350.2500, 350.2625, 350.2750, 350.2875, 350.3000, 350.3125, 350.3250, 350.3375, 350.3500, 350.3625, 350.3750, 350.3875, 350.4000, 350.4125, 350.4250, 350.4375, 350.45, 350.4625, 350.4750, 350.4875, 350.5000, 350.5125, 350.5250 and 350.5375 MHz	Short-range radios	
5	**Base unit**: 1610, 1640, 1675, 1690 kHz, 43.720, 43.740, 43.820, 43.840, 43.920, 43.960, 44.120, 44.160, 44.180, 44.200, 44.320, 44.360, 44.400, 44.460, 44.480, 46.610, 46.630, 46.670, 46.675, 46.710, 46.725, 46.730, 46.770, 46.775, 46.825, 46.830, 46.870, 46.930 and 46.970 MHz **Remote Unit**: 26.375, 26.475, 26.575, 26.625, 48.760, 48.840, 48.860, 48.920, 49.020, 49.080, 49.100, 49.160, 49.200, 49.240, 49.280, 49.360, 49.400, 49.460, 49.500,	Cordless Telephones	

	49.670, 49.770, 49.830, 49.845, 49.850, 49.860, 49.875, 49.890, 49.930, 49.970, 49.90, 150.350, 150.750, 150.850 and 150.950 MHz		
6	849.0125/933.0125, 849.0250/933.0250, 849.0375/933.0375, 849.0500/933.0500, 849.0625/933.0625, 849.0750/933.0750, 849.0875/933.0875, 849.1000/933.1000, 849.1125/933.1125, 849.1250/933.1250 MHz	Supervisory control and data acquisition system (SCADA)	Except in a few specific locations

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