सत्यमेव जयते

भारत सरकार

GOVERNMENT OF INDIA

राष्ट्रीय आवृत्ति नियतन योजना

NATIONAL FREQUENCY ALLOCATION PLAN

NFAP 2025

Government of India
Ministry of Communications
Department of Telecommunications

National Frequency Allocation Plan - 2025

Wireless Planning and Coordination Wing

Government of India
Ministry of Communications
Department of Telecommunications
Wireless Planning and Coordination Wing
O/o Wireless Adviser, Room No. 601, 6th Floor, DoT, Sanchar Bhawan, New Delhi-01

ज्योतिरादित्य मा. सिंधिया
JYOTIRADITYA M. SCINDIA

सत्यमेव जयते

संचार एवं उत्तर पूर्वी क्षेत्र विकास मंत्री
भारत सरकार
Minister of Communications and
Development of North Eastern Region
Government of India

MESSAGE

India's digital metamorphosis has been truly remarkable. From bustling cities to remote villages, digital access has empowered citizens, connected communities, and positioned our country as a global pioneer in affordable and inclusive technology.

In this era of rapid innovation, Spectrum is one of our most valuable national assets. It is the artery of the connected age that carries our calls, videos, music, and internet. With mobile networks, satellites, smart devices, and new and emerging technologies- all vying for this digital current, it is vital that we use it wisely, fairly, and efficiently so it can serve everyone, today and for generations to come.

The National Frequency Allocation Plan 2025 (NFAP-2025) is our roadmap for achieving exactly that. It strikes a perfect balance of the current spectrum demands with future technological advancements, facilitating optimal spectrum utilization, enabling seamless technology adoption, fostering innovation, and streamlining regulatory processes to promote ease of doing business within the telecommunications industry. By balancing today's requirements with tomorrow's possibilities, it gives clarity and confidence to industry, innovators, and everyday users alike. Guided by the leadership of Prime Minister Shri Narendra Modi ji, as we move from this Amrit Kaal to Shatabdi Kaal, the NFAP-2025 also strengthens the advancement of Aatmanirbhar Bharat. It reflects our belief that robust, inclusive telecom infrastructure will shape the next chapter of India's growth story, uplifting every section of society, and ensuring our nation leads the world in this digital century.

I commend the entire Department of Telecommunications team for creating this forward-looking blueprint, which will fuel indigenous innovation, foster research and development in telecommunications, and carry forward India's journey towards a self-reliant, digitally empowered future.

Best wishes,

(Jyotiraditya M. Scindia)

Ministry of Communications : Room No. 105, Sanchar Bhawan, 20, Ashoka Road, New Delhi - 110 001
Phone : 011-23739191, 23372177 Fax : 011-23372428

डॉ. पेम्मासानी चंद्र शेखर
Dr. Pemmasani Chandra Sekhar

सत्यमेव जयते

राज्य मंत्री
संचार एवं ग्रामीण विकास मंत्रालय
भारत सरकार
Minister of State for Communications
and Rural Development
Government of India

MESSAGE

The National Frequency Allocation Plan 2025 (NFAP-2025) reflects our commitment to creating a robust and transparent framework for spectrum management. This framework will be pivotal to the success of initiatives like Digital India and the Make in India program.

By identifying and allocating suitable spectrum resources for emerging wireless applications, the NFAP lays the foundation for the development and deployment of next-generation technologies. The clear and predictable path for radio spectrum use empowers our domestic industries to innovate, compete, and contribute to the global technology landscape. This will be instrumental in establishing India as a leader in the design and development of telecommunication systems.

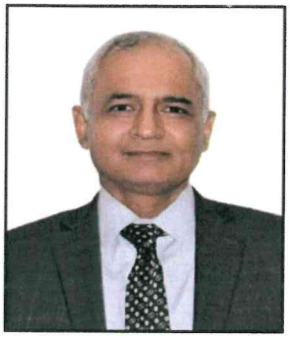
The collaborative spirit in formulating the NFAP-2025, which involved experts from the Wireless Planning & Coordination (WPC) Wing, Department of Telecommunications, industry, academia, and various other government departments, is key to its success. I am confident that NFAP-2025 will accelerate the pace of our digital growth, ensuring that the benefits of connectivity reach every citizen and every corner of our country, thereby bridging the digital divide and building a truly inclusive society.

I extend my sincere congratulations to the entire Department of Telecommunications team for their dedicated work in formulating this forward-looking national plan.

(Dr. Pemmasani Chandra Sekhar)

Office : Room No. 102, Sanchar Bhawan, 20, Ashoka Road,New Delhi - 110 001
Tel. : (O) +91-11-23372414, 23342565
Room No. 301, Dak Bhawan, Sansad Marg, New Delhi-110 001
Tel. : (O) +91-11-23096269, 23096270 E-mail : mosc-office@gov.in

डॉ. नीरज मित्तल, भा.प्र.से.
सचिव
DR. NEERAJ MITTAL, IAS
Secretary



सत्यमेव जयते
आज़ादी का अमृत महोत्सव

भारत सरकार
संचार मंत्रालय
दूरसंचार विभाग
Government of India
Ministry of Communications
Department of Telecommunications

MESSAGE

India is witnessing remarkable strides in connectivity, digital inclusion, technological advancements, and regulatory reforms that have furthered the government's vision of a Digital India. From the expansion of 5G services to the launch of new policies aimed at enhancing telecom infrastructure and user experience, Department of Telecommunications' efforts have been instrumental in boosting economic growth and empowering citizens through seamless communication.

The success of India's digital transformation is deeply tied to how we manage and utilize radio spectrum—a limited natural resource which is increasingly in demand from a large and growing number of services e.g. mobile, fixed, fixed-satellite, radionavigation satellite etc. Whether it's the mobile network that connects people, the satellite links bridging remote geographies, or intelligent traffic systems that support smart mobility, spectrum is a key enabler across sectors.

The central role of NFAP is to formalize the allocation of radio-frequency spectrum to different radiocommunication services. NFAP provide allocations for various radiocommunication services in the frequency range 8.3 KHz to 3000 GHz. It is an important policy document for spectrum managers, wireless users and telecom equipment manufacturers in country.

NFAP-2025 introduces several forward-looking revisions to address the growing spectrum demands for next-generation technologies. The identification of the 6425–7125 MHz band for International Mobile Telecommunications (IMT) marks a major step in expanding mid-band capacity, essential for 5G, 5G Advanced and future 6G networks. The Ka, Q & V band for satellite based services will be important for Geo-Stationary Orbit (GSO) high-throughput satellites and large non-GSO satellite constellations. The Plan also identifies additional spectrum for In-Flight and Maritime Connectivity (IFMC) to enable seamless broadband access in air and at sea. These strategic updates ensure that India's spectrum framework remains responsive, high-capacity, and globally harmonized.

These strategic updates will not only support cutting-edge technology but also drive economic productivity and social empowerment. The collaborative contributions of all involved in shaping the NFAP-2025 are deeply appreciated, and I am confident that this framework will enable India to fully embrace the next-generation of radiocommunication technologies.

Date: 14.08.2025
Place: New Delhi

(Dr. Neeraj Mittal)

कमरा नं. 210, संचार भवन, 20, अशोक रोड, नई दिल्ली-110001 / Room No. 210, Sanchar Bhawan, 20, Ashoka Road, New Delhi - 110001
Ph. : +91-11-23719898, Fax : +91-11-23711514, E-mail : secy-telecom@gov.in

रूद्र नारायण पलाई
सदस्य (प्रौद्योगिकी)
Rudra Narayan Palai
Member (Technology)

सत्यमेव जयते

भारत सरकार
संचार मंत्रालय
दूरसंचार विभाग
डिजिटल संचार आयोग
Government of India
Ministry of Communications
Department of Telecommunications
Digital Communications Commission

September 11, 2025

FOREWORD

The radio frequency spectrum is one of most valuable and finite resources. Its effective management is essential to realizing India's vision of becoming a digitally empowered society and knowledge economy. The National Frequency Allocation Plan 2025 (NFAP-2025) reflects commitment of the Department to ensure that this critical resource is utilized in the most efficient, inclusive, and future-ready manner.

NFAP-2025 lays the foundation for the seamless deployment of next-generation wireless technologies, including 5G Advanced and the upcoming 6G/IMT-2030. It supports not only the ongoing evolution of mobile broadband, but also the rapid advancement of emerging technology of Vehicle-to-Everything (V2X) communications, LEO/MEO satellite services, and In-Flight and Maritime Connectivity (IFMC). Through strategic spectrum planning, this document will help in creating robust wireless ecosystem capable of powering innovation and expansion across diverse sectors.

The Wireless Planning & Coordination (WPC) Wing of the Department of Telecommunications has played a vital role in enabling the fast-paced rollout of mobile services in India. By identifying, allocating, and harmonizing mid-band and millimeter wave spectrum, the WPC has ensured that the momentum of digital growth continues unabated.

As technologies like IMT and satellite communications become more integral to our daily lives, their impact will be felt far beyond the ICT sector. Education, healthcare, agriculture, manufacturing, and other critical areas stand to benefit immensely, creating new opportunities and delivering tangible socio-economic outcomes for the users and citizens. I appreciate efforts of WPC Wing in formulating the NFAP-2025.

NFAP-2025 also aims to provide a transparent, predictable, and forward-looking framework for spectrum utilization, encouraging private investment, nurturing domestic R&D, and strengthening India's telecom equipment manufacturing capabilities.

(Rudra Narayan Palai)

2nd Floor, Sanchar Bhawan, 20, Ashoka Road, New Delhi-110001
Ph.: +91-11-23372307 E-mail : membert-dot@nic.in

वी. जे. क्रिस्टोफर
भारत सरकार के बेतार सलाहकार
V. J. Christopher
Wireless Adviser to the Government of India
Tel. : 23755444
Fax : 23372141
E-mail : wawpc@nic.in

सत्यमेव जयते

भारत सरकार
संचार मंत्रालय
दूरसंचार विभाग
बेतार आयोजना एवं समन्वय स्कन्ध
संचार भवन, 20, अशोका रोड़, नई दिल्ली-110 001
Government of India
Ministry of Communications
Department of Telecommunications
Wireless Planning & Co-ordination Wing
Sanchar Bhavan, 20 Ashoka Road, New Delhi-110 001

PREFACE

The dynamic landscape of wireless communications in India calls for a futuristic and adaptable approach to spectrum management. The National Frequency Allocation Plan reflects this commitment by providing a comprehensive framework to allocate and utilize the nation's radio frequencies efficiently. This initiative is rooted in the understanding that spectrum is a finite and valuable resource, essential for fostering innovation, economic growth, and national security.

As technology rapidly evolves—integrating 5G, the Internet of Things, and new satellite systems—the National Frequency Allocation Plan 2025 (NFAP-2025) addresses current needs while anticipating future developments. NFAP-2025 provides a clear and updated framework for how radio frequencies are used in the country and proactively addressing the evolving demands of a dynamic technological landscape.

NFAP-2025 is designed to align with the outcomes of the World Radiocommunication Conference (WRC-23) while ensuring transparency, predictability, and regulatory certainty for stakeholders in the telecommunications, broadcasting, and space sectors. It also reinforces India's commitment to fostering innovation, supporting emerging technologies, and advancing national digital priorities. By harmonizing our national allocations with international standards, we are fostering seamless interoperability, enabling global partnerships, and creating a favorable ecosystem for domestic innovation.

The NFAP-2025 incorporates Government decisions regarding the use of specific frequency bands for diverse services such as satellite communications, IMT, In-Flight and Maritime Connectivity (IFMC), and Intelligent Transport Systems/Vehicle-to-Everything (ITS/V2X). It serves as a critical policy document for spectrum managers, wireless users, telecom service providers, and telecom equipment manufacturers across the country.

NFAP-2025 introduces several revisions to address the growing spectrum demands of next-generation technologies. The identification of the 6425–7125 MHz band for IMT holds enormous potential to accelerate 5G & 5G Advanced and pave the way toward future 6G, supporting a new wave of applications—from smart cities, immersive augmented/virtual reality, and precision agriculture, to autonomous transport and real-

time industrial automation. The Ka-band (27.5–31 GHz and 17.7–21.2 GHz) along with 40.0–42.5 GHz, 47.7–50.2 GHz and 50.4–51.4 GHz have been earmarked for satellite based services that will support both GSO high-throughput satellites and non-GSO large constellations. Additional spectrum for In-Flight and Maritime Connectivity (IFMC) in band 12.2–12.5 GHz, 17.7–18.7 GHz, and 27.5–28.5 GHz will enable seamless broadband access in air and at sea.

As the national body responsible for spectrum management, the Wireless Planning & Coordination Wing is focused on ensuring rational, equitable and efficient use of the radio spectrum. We continue to work with industry, academia, and other partners to support innovation and ensure that spectrum is used responsibly and effectively.

NFAP-2025 is a result of extensive consultation with a diverse range of stakeholders, including government ministries, industry leaders, academic institutions, and defense organizations. Their invaluable insights and recommendations have been instrumental in creating a balanced plan that addresses the varied and often competing needs of different sectors. NFAP-2025 is a testament to our collective vision for a connected and prosperous India. I thank everyone who contributed to this important work and look forward to its successful implementation.

We are confident that the NFAP-2025 will serve as a guiding document for all stakeholders, enabling India to harness the full potential of its radio spectrum for sustained progress, digital empowerment, and a brighter future.

(V.J. Christopher)

Table of Contents

Chapter 1

National Frequency Allocation Plan 2025: An Overview

Section A — Introduction

1.1 The *National Frequency Allocation Plan-2025* 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 2024) is the foundational text used for drawing up the National Frequency Allocation Plan 2025 (NFAP-2025).

1.3 The central theme of NFAP-2025 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-2025 covers the frequency range up to 3000 GHz.

1.4 NFAP-2025, though governing the use of spectrum in India, does not by itself provide the right to use the spectrum. To use any part of the spectrum in India, a frequency assignment 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-2025 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.

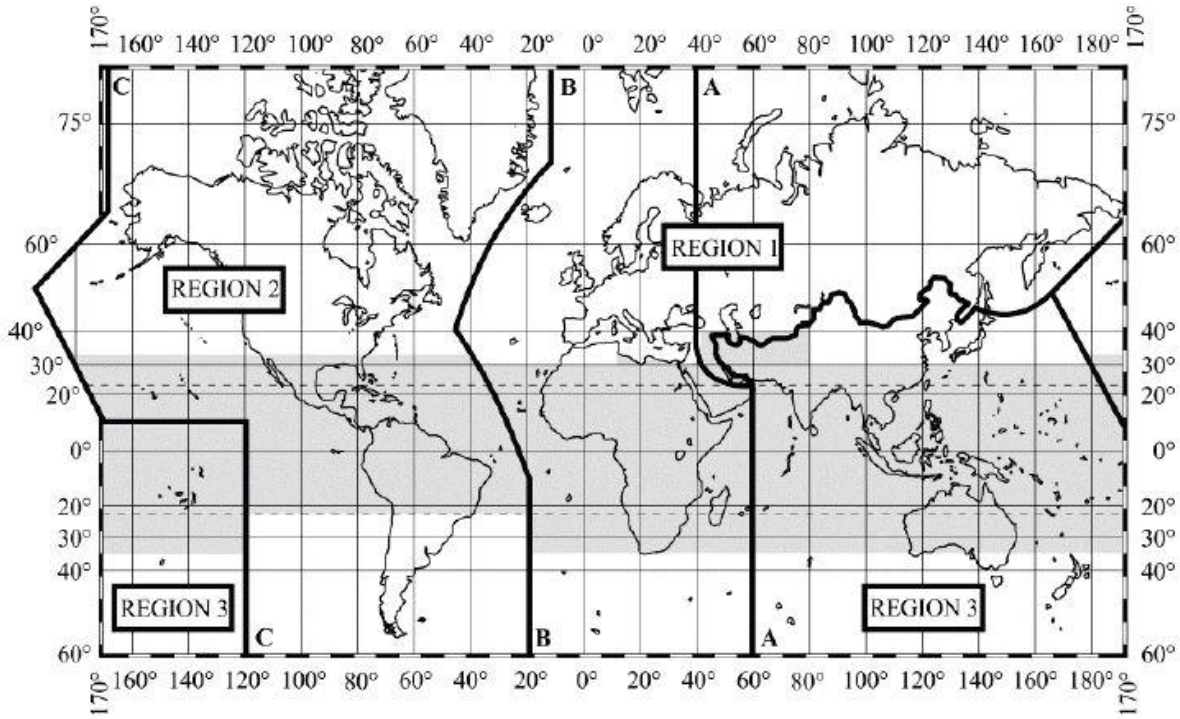
Section B — Frequency Allocations and NFAP-2025

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 Regulations[1]



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, 5G and to be introduced 6G), Wi-Fi, radio trunking, radio paging, walkie-talkies and several others come under the "mobile' service. As another example, broadcasting 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-2025 doesn't list the various applications of any radiocommunication service.

[1] 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.

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-2025 doesn't address the licensing aspects of the use of the spectrum-orbital resources.

1.12 The growth and adoption of IMT (specifically IMT-2020 or 5G services with its enhanced capabilities) will continue to expand in coming years across various industry verticals. New frequency band has been identified in the NFAP-2025 for use by IMT. This would provide additional spectrum for 5G services.

1.13 In addition, the NFAP took cognizance of the requirements for Programme Making & Special Events, without constraining the use of the bands by other services and applications; the importance of harmonized V2X technology; aligning the spectrum for trunking services and PPDR; and requirements for satellite based services.

1.14 Satellite services and domestic manufacturing in new areas such as high throughput satellites and broadband proliferation are encouraged in NFAP 2025. New applications such as use of High Altitude Platform Stations (HAPS) and High Altitude Platform Stations as IMT Base Stations (HIBS) are providing prospects to connect even the remotest areas and have promising use cases.

1.15 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. For ready reference, Annexure - 1 presents the list of applications which have been declared 'license-exempt' by the WPC Wing. Annexure - 2 lists the commonly used frequencies for specific uses.

1.16 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."

1.17 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 provided in Section D of Chapter 3.

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 any messages, by wire, radio, optical or other electro-magnetic systems, whether or not such messages have been subjected to rearrangement, computation or other processes by any means in the course of their transmission, emission or reception

Message means any sign, signal, writing, text, image, sound, video, data stream, intelligence or information sent through telecommunication.

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

2.5 *radio waves or hertzian waves*: Electromagnetic waves of frequencies propagated in space without any 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): Permission 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

Below 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	**112-117.6** RADIONAVIGATION 5.60
115-117.6 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.66		Fixed Maritime mobile 5.64 5.65	Fixed Maritime mobile 5.64
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 rowspan="2">137.8-160
FIXED
MARITIME MOBILE

5.64</td><td rowspan="2">137.8-160
FIXED
MARITIME MOBILE
RADIONAVIGATION
5.64</td><td rowspan="2">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></tr>
<tr><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>
<tr><td rowspan="2">255-283.5
BROADCASTING
AERONAUTICAL
RADIONAVIGATION
5.70</td><td>200-275
AERONAUTICAL
RADIONAVIGATION
Aeronautical mobile</td><td>200-285
AERONAUTICAL
RADIONAVIGATION
Aeronautical mobile</td><td>200-285
AERONAUTICAL
RADIONAVIGATION IND 1
Aeronautical mobile</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

275-415 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></td><td rowspan="2">275-285
AERONAUTICAL
RADIONAVIGATION
Aeronautical mobile
Maritime radionavigation
(radiobeacons)</td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td>283.5-315
AERONAUTICAL
RADIONAVIGATION
MARITIME
RADIONAVIGATION
(radiobeacons) 5.73

5.74</td></tr>
<tr><td></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
Aeronautical mobile</td><td>405-415
RADIONAVIGATION 5.76
Aeronautical mobile</td></tr>
</table>

415-526.5 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
415-435 MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION **435-472** MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 5.82	**415-472** MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 5.78 5.80 5.82		**415-472** MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION 5.77 **IND 1** 5.82
472-479	MARITIME MOBILE 5.79 Amateur 5.80A Aeronautical radionavigation 5.77 5.80 5.80B 5.82		**472-479** MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION 5.77 **IND 1** Amateur 5.80A 5.80B 5.82
479-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77 5.82	**479-495** MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77 5.80 5.82		**479-495** MARITIME MOBILE 5.79 5.79A AERONAUTICAL RADIONAVIGATION 5.77 **IND 1** 5.82
495-505	MARITIME MOBILE 5.82C 5.82D		**495-505** MARITIME MOBILE 5.82C 5.82D
505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	**505-510** MARITIME MOBILE 5 .79 **510-525** MARITIME MOBILE 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	**505-526.5** MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Land mobile	**505-526.5** MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION **IND 1** Aeronautical mobile Land mobile

525-1 800 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></td><td>525-535
BROADCASTING 5.86
AERONAUTICAL
RADIONAVIGATION</td><td></td><td></td></tr>
<tr><td>526.5-1 606.5
BROADCASTING

5.87 5.87A</td><td>535-1 605
BROADCASTING</td><td>526.5-535
BROADCASTING
Mobile
5.88

535-1 606.5
BROADCASTING</td><td>526.5-535
BROADCASTING IND 3
Mobile

535-1 606.5
BROADCASTING IND 3</td></tr>
<tr><td>1 606.5-1 625
FIXED
MARITIME MOBILE 5.90
LAND MOBILE
5.92</td><td>1 605-1 625
BROADCASTING 5.89

5.90</td><td>1 606.5-1 800
FIXED
MOBILE
RADIOLOCATION
RADIONAVIGATION</td><td>1 606.5-1 800
FIXED
MOBILE
RADIOLOCATION
RADIONAVIGATION IND 2</td></tr>
<tr><td>1 625-1 635
RADIOLOCATION
5.93</td><td>1 625-1 705
FIXED
MOBILE
BROADCASTING 5.89
Radiolocation
5.90</td><td></td><td></td></tr>
<tr><td>1 635-1 800
FIXED
MARITIME MOBILE 5.90
LAND MOBILE

5.92 5.96</td><td>1 705-1 800
FIXED
MOBILE
RADIOLOCATION
AERONAUTICAL
RADIONAVIGATION</td><td>5.91</td><td></td></tr>
</table>

1 800-2 065 kHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
1 800-1 810 RADIOLOCATION 5.93	**1 800-1 850** AMATEUR	**1 800-2 000** AMATEUR FIXED MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation	**1 800-1 825** AMATEUR
1 810-1 850 AMATEUR 5.98 5.99 5.100			**1 825-2 000** FIXED MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation
1 850-2 000 FIXED MOBILE except aeronautical mobile 5.92 5.96 5.103	**1 850-2 000** AMATEUR FIXED MOBILE except aeronautical mobile RADIOLOCATION RADIONAVIGATION 5.102	5.97	5.97
2 000-2 025 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	**2 000-2 065** FIXED MOBILE		**2 000-2 065** FIXED MOBILE
2 025-2 045 FIXED MOBILE except aeronautical mobile (R) Meteorological aids 5.104 5.92 5.103			

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	**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

<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></td><td colspan="2" rowspan="2">2 495-2 501
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="2">2 501-2 502
STANDARD FREQUENCY AND TIME SIGNAL
Space Research</td><td colspan="2">2 501-2 502
STANDARD FREQUENCY AND TIME SIGNAL
Space Research</td></tr>
<tr><td rowspan="2">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 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="2">2 850-3 025
AERONAUTICAL MOBILE (R)
5.111 5.115</td><td colspan="2">2 850-3 025
AERONAUTICAL MOBILE (R) IND 4
5.111 5.115</td></tr>
<tr><td colspan="2">3 025-3 155
AERONAUTICAL MOBILE (OR)</td><td colspan="2">3 025-3 155
AERONAUTICAL MOBILE (OR) IND 5</td></tr>
</table>

3 155- 3900 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">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>
<tr><td colspan="3"></td><td></td></tr>
</table>

3 750-4 488 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></td><td rowspan="3">3 750-4 000
AMATEUR
FIXED
MOBILE except aeronautical mobile (R)</td><td></td><td></td></tr>
<tr><td>3 800-3 900
FIXED
AERONAUTICAL MOBILE (OR)
LAND MOBILE</td><td></td><td>3 890-3 900
AMATEUR</td></tr>
<tr><td>3 900-3 950
AERONAUTICAL MOBILE (OR)

5.123</td><td>3 900-3 950
AERONAUTICAL MOBILE
BROADCASTING</td><td>3 900-3 950
AERONAUTICAL MOBILE
BROADCASTING</td></tr>
<tr><td>3 950-4 000
FIXED
BROADCASTING</td><td>5.122 5.125</td><td>3 950-4 000
FIXED
BROADCASTING
5.126</td><td>3 950-4 000
FIXED
BROADCASTING
5.126</td></tr>
<tr><td colspan="2">4 000-4 063
FIXED
MARITIME MOBILE 5.127
5.126</td><td></td><td>4 000-4 063
FIXED
MARITIME MOBILE 5.127
5.126</td></tr>
<tr><td colspan="2">4 063-4 438
MARITIME MOBILE 5.79A 5.82D 5.109 5.110 5.130 5.131 5.132
5.128</td><td></td><td>4 063-4 438
MARITIME MOBILE 5.79A 5.82D 5.109 5.110 5.130 5.131 5.132 IND 6
5.128</td></tr>
<tr><td>4 438-4 488
FIXED
MOBILE except aeronautical mobile (R)
Radiolocation 5.132A
5.132B</td><td>4 438-4 488
FIXED
MOBILE except aeronautical mobile (R)
RADIOLOCATION 5.132A</td><td>4 438-4 488
FIXED
MOBILE except aeronautical mobile
Radiolocation 5.132A</td><td>4 438-4 488
FIXED
MOBILE except aeronautical mobile
Radiolocation 5.132A</td></tr>
</table>

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 5.133		Mobile except aeronautical mobile 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)
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 5.137A 5.137			**6 200-6 525** MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137A **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		
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 5.137A 5.145		MARITIME MOBILE 5.109 5.110 5.132 5.137A 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

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
9 040-9 305 FIXED	**9 040-9 400** FIXED	**9 040-9 305** FIXED	**9 040-9 305** FIXED
9 305-9 355 FIXED Radiolocation 5.145A 5.145B		**9 305-9 355** FIXED Radiolocation 5.145A	**9 305-9 355** FIXED Radiolocation 5.145A
9 355-9 400 FIXED		**9 355-9 400** FIXED	**9 355-9 400** FIXED
9 400-9 500 BROADCASTING 5.134 5.146			**9 400-9 500** BROADCASTING 5.134 5.146
9 500-9 900 BROADCASTING 5.147			**9 500-9 900** BROADCASTING **IND 7** 5.147
9 900-9 995 FIXED			**9 900-9 995** FIXED
9 995-10 003 STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) 5.111			**9 995-10 003** STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) 5.111
10 003-10 005 STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111			**10 003-10 005** STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111
10 005-10 100 AERONAUTICAL MOBILE (R) 5.111			**10 005-10 100** AERONAUTICAL MOBILE (R) **IND 4** 5.111

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
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 5.137A 5.145		MARITIME MOBILE 5.109 5.110 5.132 5.137A 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 5.137A 5.145			**16 360-17 410** MARITIME MOBILE 5.109 5.110 5.132 5.137A 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			**21 450-21 850**
	BROADCASTING		BROADCASTING **IND 7**
21 850-21 870			**21 850-21 870**
	FIXED 5.155A		FIXED
	5.155		
21 870-21 924			**21 870-21 924**
	FIXED 5.155B		FIXED 5.155B
21 924-22 000			**21 924-22 000**
	AERONAUTICAL MOBILE (R)		AERONAUTICAL MOBILE (R) **IND 4**
22 000-22 855			**22 000-22 855**
	MARITIME MOBILE 5.132 5.137A		MARITIME MOBILE 5.132 5.137A **IND 6**
	5.156		
22 855-23 000			**22 855-23 000**
	FIXED		FIXED
	5.156		
23 000-23 200			**23 000-23 200**
	FIXED		FIXED
	Mobile except aeronautical mobile (R)		Mobile except aeronautical mobile (R)
	5.156		
23 200-23 350			**23 200-23 350**
	FIXED 5.156A		FIXED 5.156A
	AERONAUTICAL MOBILE (OR)		AERONAUTICAL MOBILE (OR)
23 350-24 000			**23 350-24 000**
	FIXED		FIXED
	MOBILE except aeronautical mobile 5.157		MOBILE except aeronautical mobile 5.157
24 000-24 450			**24 000-24 450**
	FIXED		FIXED
	LAND MOBILE		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>24 600-24 890
FIXED
LAND MOBILE</td><td>24 600-24 890
FIXED
LAND MOBILE</td><td>24 600-24 890
FIXED
LAND MOBILE</td></tr>
<tr><td colspan="2">24 890-24 990
AMATEUR
AMATEUR-SATELLITE</td><td colspan="2">24 890-24 990
AMATEUR
AMATEUR-SATELLITE</td></tr>
<tr><td colspan="2">24 990-25 005
STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)</td><td colspan="2">24 990-25 005
STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)</td></tr>
<tr><td colspan="2">25 005-25 010
STANDARD FREQUENCY AND TIME SIGNAL
Space research</td><td colspan="2">25 005-25 010
STANDARD FREQUENCY AND TIME SIGNAL
Space research</td></tr>
<tr><td colspan="2">25 010-25 070
FIXED
MOBILE except aeronautical mobile</td><td colspan="2">25 010-25 070
FIXED
MOBILE except aeronautical mobile</td></tr>
<tr><td colspan="2">25 070-25 210
MARITIME MOBILE</td><td colspan="2">25 070-25 210
MARITIME MOBILE IND 6</td></tr>
<tr><td colspan="2">25 210-25 550
FIXED
MOBILE except aeronautical mobile</td><td colspan="2">25 210-25 550
FIXED
MOBILE except aeronautical mobile</td></tr>
<tr><td colspan="2">25 550-25 670
RADIO ASTRONOMY
5.149</td><td colspan="2">25 550-25 670
RADIO ASTRONOMY
5.149</td></tr>
</table>

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 IND 6</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</td><td>26 350-27 500
FIXED
MOBILE except aeronautical mobile</td></tr>
<tr><td></td><td>26 420-27 500
FIXED
MOBILE except aeronautical mobile
5.150</td><td>5.150</td><td>5.150</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

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
39-39.5 FIXED MOBILE Radiolocation 5.132A 5.159			
39.5-39.986 FIXED MOBILE		**39.5-39.986** FIXED MOBILE RADIOLOCATION 5.132A	**39.5-39.986** FIXED MOBILE RADIOLOCATION 5.132A
39.986-40 FIXED MOBILE Space research		**39.986-40** FIXED MOBILE RADIOLOCATION 5.132A Space research	**39.986-40** FIXED MOBILE RADIOLOCATION 5.132A Space research
40-40.02 FIXED MOBILE Earth exploration-satellite (active) 5.159A Space research		**40-40.02** FIXED MOBILE Earth exploration-satellite (active) 5.159A Space research	**40-40.02** FIXED MOBILE Space research
40.02-40.98 FIXED MOBILE Earth exploration-satellite (active) 5.159A 5.150			**40.02-40.98** FIXED MOBILE 5.150
40.98-41.015 FIXED MOBILE Earth exploration-satellite (active) 5.159A Space research 5.160 5.161			**40.98-41.015** FIXED MOBILE Space research

41.015-47 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">41.015-42
FIXED
MOBILE
Earth exploration-satellite (active) 5.159A
5.160 5.161 5.161A</td><td>41.015-42
FIXED
MOBILE</td></tr>
<tr><td>42-42.5
FIXED
MOBILE
Earth exploration-satellite (active) 5.159A
Radiolocation 5.132A
5.160 5.161B</td><td colspan="2">42-42.5
FIXED
MOBILE
Earth exploration-satellite (active) 5.159A
5.161</td><td>42-42.5
FIXED
MOBILE</td></tr>
<tr><td colspan="3">42.5-44
FIXED
MOBILE
Earth exploration-satellite (active) 5.159A
5.160 5.161 5.161A</td><td>42.5-44
FIXED
MOBILE</td></tr>
<tr><td colspan="3">44-47
FIXED
MOBILE
Earth exploration-satellite (active) 5.159A
5.162 5.162A</td><td>44-47
FIXED
MOBILE</td></tr>
</table>

47-68 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
47- 50 BROADCASTING Earth exploration-satellite (active) 5.159A 5.162A 5.163 5.164 5.165	**47-50** FIXED MOBILE Earth exploration-satellite (active) 5.159A	**47-50** FIXED MOBILE BROADCASTING Earth exploration-satellite (active) 5.159A 5.162A	**47-50** FIXED MOBILE BROADCASTING **IND 10**
50-52 BROADCASTING Amateur 5.166B 5.166C 5.166D 5.166E 5.169B 5.162A 5.164 5.165 5.166A 5.169 5.169A	**50-54** AMATEUR 5.162A 5.167 5.167A 5.168 5.170		**50-54** FIXED MOBILE BROADCASTING Amateur 5.167 **IND 10 IND 13**
52-68 BROADCASTING 5.162A 5.163 5.164 5.165 5.169 5.169A 5.169B 5.171	**54-68** BROADCASTING Fixed Mobile 5.172	**54-68** FIXED MOBILE BROADCASTING 5.162A	**54-68** FIXED MOBILE BROADCASTING **IND 9** **IND 10 IND 13**

68-75.2 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>68-74.8
FIXED

MOBILE except aeronautical

mobile

5.149 5.175 5.177 5.179</td><td>68-72
BROADCASTING

Fixed

Mobile
5.173
72-73
FIXED
MOBILE
73-74.6
RADIO ASTRONOMY
5.178
74.6-74.8
FIXED
MOBILE</td><td>68-74.8
FIXED

MOBILE

5.149 5.176 5.179</td><td>68-74.8
FIXED
MOBILE

5.149 IND 13</td></tr>
<tr><td colspan="2">74.8-75.2
AERONAUTICAL RADIONAVIGATION
5.180 5.181</td><td colspan="2">74.8-75.2
AERONAUTICAL RADIONAVIGATION IND 12
5.180 IND 13</td></tr>
</table>

75.2-137 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">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
IND 13</td></tr>
<tr><td>75.4-76
FIXED
MOBILE</td><td>75.4-87
FIXED
MOBILE
5.182 5.183 5.188</td><td>75.4-87
FIXED
MOBILE
IND 13</td></tr>
<tr><td rowspan="2">76-88
BROADCASTING
Fixed
Mobile
5.185</td><td rowspan="2">87-100
FIXED
MOBILE
BROADCASTING</td><td rowspan="2">87-100
BROADCASTING
Fixed
Mobile

IND 13</td></tr>
<tr><td>87.5-100
BROADCASTING

5.190</td><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
IND 13</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 IND 13</td></tr>
<tr><td>117.975-137</td><td colspan="2">AERONAUTICAL MOBILE (R)
AERONAUTICAL MOBILE-SATELLITE (R) 5.198A 5.198B

5.111 5.200 5.201 5.202</td><td>117.975-137
AERONAUTICAL MOBILE (R)
AERONAUTICAL MOBILE-SATELLITE (R) 5.198A 5.198B
5.111 5.200 IND 12 IND 13</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) 5.203C		SPACE OPERATION (space-to-Earth) 5.203C
	METEOROLOGICAL-SATELLITE (space-to-Earth)		METEOROLOGICAL-SATELLITE (space-to-Earth)
	MOBILE-SATELLITE (space-to-Earth) 5.208 5.208A 5.208B 5.209		MOBILE-SATELLITE (space-to-Earth)
	SPACE RESEARCH (space-to-Earth)		5.208 5.208A 5.208B 5.209
	Fixed		SPACE RESEARCH (space-to-Earth)
	Mobile except aeronautical mobile (R) 5.206		FIXED
			MOBILE except aeronautical mobile (R)
	5.204 5.205 5.207		5.204 **IND 13**
137.025-137.175			**137.025-137.175**
	SPACE OPERATION (space-to-Earth) 5.203C		SPACE OPERATION (space-to-Earth) 5.203C
	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) 5.206		MOBILE except aeronautical mobile (R)
	Mobile-satellite (space-to-Earth) 5.208 5.208A 5.208B 5.209		Mobile-satellite (space-to-Earth) 5.208 5.208A 5.208B 5.209
	5.204 5.205 5.207		5.204 **IND 13**
137.175-137.825			**137.175-137.825**
	SPACE OPERATION (space-to-Earth) 5.203C 5.209A		SPACE OPERATION (space-to-Earth) 5.203C 5.209A
	METEOROLOGICAL-SATELLITE (space-to-Earth)		METEOROLOGICAL-SATELLITE (space-to-Earth)
	MOBILE-SATELLITE (space-to-Earth) 5.208 5.208A 5.208B 5.209		MOBILE-SATELLITE (space-to-Earth)
	SPACE RESEARCH (space-to-Earth)		5.208 5.208A 5.208B 5.209
	Fixed		FIXED
	Mobile except aeronautical mobile (R) 5.206		MOBILE except aeronautical mobile (R)
	5.204 5.205 5.207		5.204 **IND 13**

137.825-146 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
137.825-138	SPACE OPERATION (space-to-Earth) 5.203C METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.206 Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 5.204 5.205 5.207		**137.825-138** SPACE OPERATION (space-to-Earth) 5.203C METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) FIXED MOBILE except aeronautical mobile (R) Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 5.204 **IND 13**
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) **IND 13**
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) **IND 13**
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) **IND 13**
144-146	AMATEUR AMATEUR-SATELLITE 5.216		**144-146** AMATEUR AMATEUR-SATELLITE **IND 13**

146-154 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
146-148 FIXED MOBILE except aeronautical mobile (R) 5.217	**146-148** AMATEUR 5.217	**146-148** AMATEUR FIXED MOBILE 5.217	**146-148** FIXED MOBILE Amateur 5.217 **IND 13**
148-149.9 FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.218A 5.219 5.221	**148-149.9** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.218A 5.219 5.221		**148-149.9** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.218A 5.219 5.221 **IND 13**
149.9-150.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.220			**149.9-150.05** MOBILE-SATELLITE (Earth-to-space) 5.209 5.220 **IND 13**
150.05-153 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	**150.05-154** FIXED MOBILE		**150.05-153** FIXED MOBILE RADIO ASTRONOMY 5.225 **IND 13**
153-154 FIXED MOBILE except aeronautical mobile (R) Meteorological aids	5.225		**153-154** FIXED MOBILE **IND 13**

154-156.8375 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
154-156.4875 FIXED MOBILE except aeronautical mobile (R) 5.225A 5.226	**154-156.4875** FIXED MOBILE 5.226	**154-156.4875** FIXED MOBILE 5.225A 5.226	**154-156.4875** FIXED MOBILE 5.225A 5.226 **IND 13**
156.4875-156.5625 MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227			**156.4875-156.5625** MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227 **IND 13**
156.5625-156.7625 FIXED MOBILE except aeronautical mobile (R) 5.226	**156.5625-156.7625** FIXED MOBILE 5.226		**156.5625-156.7625** FIXED MOBILE 5.226 **IND 13**
156.7625-156.7875 MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	**156.7625-156.7875** MARITIME MOBILE MOBILE-SATELLITE (Earth-to-space) 5.111 5.226 5.228	**156.7625-156.7875** MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	**156.7625-156.7875** MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228 **IND 13**
156.7875-156.8125 MARITIME MOBILE (distress and calling) 5.111 5.226			**156.7875-156.8125** MARITIME MOBILE (distress and calling) 5.111 5.226 **IND 13**
156.8125-156.8375 MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	**156.8125-156.8375** MARITIME MOBILE MOBILE-SATELLITE (Earth-to-space) 5.111 5.226 5.228	**156.8125-156.8375** MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	**156.8125-156.8375** MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228 **IND 13**

156.8375-161.9375 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
156.8375-157.1875 FIXED MOBILE except aeronautical mobile 5.226	**156.8375-157.1875** FIXED MOBILE 5.226		**156.8375-157.1875** FIXED MOBILE 5.226 **IND 13**
157.1875-157.3375 FIXED MOBILE except aeronautical mobile Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC 5.226	**157.1875-157.3375** FIXED MOBILE Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC 5.226		**157.1875-157.3375** FIXED MOBILE Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC 5.226 **IND 13**
157.3375 161.7875 FIXED MOBILE except aeronautical mobile 5.226	**157.3375-161.7875** FIXED MOBILE 5.226		**157.3375-161.7875** FIXED MOBILE 5.226 **IND 13**
161.7875-161.9375 FIXED MOBILE except aeronautical mobile Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC 5.226	**161.7875-161.9375** FIXED MOBILE Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC 5.226		**161.7875-161.9375** FIXED MOBILE Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC 5.226 **IND 13**

161.9375-162.0125 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
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 **IND 13**
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 **IND 13**
161.9875-162.0125 FIXED MOBILE except aeronautical 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		**161.9875-162.0125** FIXED MOBILE Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226 **IND 13**

162.0125-223 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>162.0125-162.0375
FIXED
MOBILE except aeronautical mobile
Mobile-satellite (Earth-to-space) 5.228F
5.226 5.228A 5.228B</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 IND 13</td></tr>
<tr><td>162.0375-174
FIXED
MOBILE except aeronautical mobile
5.226</td><td colspan="2">162.0375-174
FIXED
MOBILE
5.226 5.230 5.231</td><td>162.0375-174
FIXED
MOBILE
5.226 5.231 IND 13</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
IND 13 IND 20 IND 23A</td></tr>
<tr><td></td><td>200-216
FIXED
MOBILE
BROADCASTING
AERONAUTICAL RADIONAVIGATION
5.238 IND 13 IND 20 IND 21 IND 23A</td></tr>
</table>

216-267 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
	216-220 FIXED MARITIME MOBILE Radiolocation 5.241 5.242		**216-223** FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation 5.240 **IND 13 IND 20 IND 21 IND 23A**
223-230 BROADCASTING Fixed Mobile 5.243 5.246 5.247	**220-225** AMATEUR FIXED MOBILE Radiolocation 5.241 **225-235** FIXED MOBILE	**223-230** FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation 5.250	**223-230** FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation **IND 13 IND 20 IND 23A**
230-235 FIXED MOBILE 5.247 5.251 5.252		**230-235** FIXED MOBILE AERONAUTICAL RADIONAVIGATION 5.250	**230-235** FIXED MOBILE AERONAUTICAL RADIONAVIGATION **IND 13**
235-267 FIXED MOBILE 5.111 5.252 5.254 5.256 5.256A			**235-267** FIXED MOBILE 5.111 5.254 5.256 5.256A **IND 13**

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 **IND 13**
272-273			**272-273**
	SPACE OPERATION (space-to-Earth)		SPACE OPERATION (space-to-Earth)
	FIXED		FIXED
	MOBILE		MOBILE
	5.254		5.254 **IND 13**
273-312			**273-312**
	FIXED		FIXED
	MOBILE		MOBILE
	5.254		5.254 **IND 13**
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 **IND 13**
315-322			**315-322**
	FIXED		FIXED
	MOBILE		MOBILE
	5.254		5.254 **IND 13**
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			**328.6-335.4**
	AERONAUTICAL RADIONAVIGATION 5.258		AERONAUTICAL RADIONAVIGATION 5.258 **IND 12**
	5.259		**IND 13**
335.4-387			**335.4-387**
	FIXED		FIXED
	MOBILE		MOBILE **IND 18 IND 19**
	5.254		5.254 **IND 13 IND 22**
387-390			**387-390**
	FIXED		FIXED
	MOBILE		MOBILE **IND 18**
	Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255		Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255
			IND 13
390-399.9			**390-399.9**
	FIXED		FIXED
	MOBILE		MOBILE **IND 18 IND 19**
	5.254		5.254 **IND 13**
399.9-400.05			**399.9-400.05**
	MOBILE-SATELLITE (Earth-to-space) 5.209 5.220 5.260A 5.260B		MOBILE-SATELLITE (Earth-to-space) 5.209 5.220 5.260A 5.260B
			IND 13
400.05-400.15			**400.05-400.15**
	STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz)		STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz)
	5.261 5.262		5.261 **IND 13**

400.15-406 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 **IND 13**
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
	5.264A 5.264B		5.264A 5.264B **IND 13**
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
	5.264A 5.264B		5.264A 5.264B **IND 13**
403-406			**403-406**
	METEOROLOGICAL AIDS		METEOROLOGICAL AIDS
	Fixed		Fixed
	Mobile except aeronautical mobile		Mobile except aeronautical mobile
	5.265		5.265 **IND 13**

406-432 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
406-406.1	MOBILE-SATELLITE (Earth-to-space) 5.265 5.266 5.267		**406-406.1** MOBILE-SATELLITE (Earth-to-space) 5.265 5.266 5.267 **IND 13**
406.1-410	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.265		**406.1-410** FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.265 **IND 13 IND 23**
410-420	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268		**410-420** FIXED MOBILE except aeronautical mobile **IND 18** SPACE RESEARCH (space-to-space) 5.268 **IND 13 IND 23**
420-430	FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271		**420-430** FIXED MOBILE except aeronautical mobile **IND 18** RADIOLOCATION 5.269 Aeronautical radionavigation 5.271 **IND 13 IND 23**
430-432 AMATEUR RADIOLOCATION 5.271 5.274 5.275 5.276 5.277	**430-432** RADIOLOCATION Amateur 5.278 5.271 5.276 5.279		**430-432** RADIOLOCATION FIXED MOBILE except aeronautical mobile Aeronautical radionavigation Amateur 5.271 5.276 **IND 13 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 5.278 Earth exploration-satellite (active) 5.279A 5.271 5.276 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 13 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 13 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 13 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 13 IND 23**
438-440 AMATEUR RADIOLOCATION 5.271 5.274 5.275 5.276 5.277 5.283	**438-440** RADIOLOCATION Amateur 5.278 5.271 5.276 5.279		**438-440** RADIOLOCATION FIXED MOBILE except aeronautical mobile Aeronautical radionavigation Amateur 5.271 5.276 **IND 13 IND 23**
440-450	FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.285 5.270 5.271 5.284 5.286		**440-450** FIXED MOBILE except aeronautical mobile **IND 18** RADIOLOCATION 5.269 **IND 14** Aeronautical radionavigation 5.271 5.286 **IND 13 IND 23**
450-455	FIXED MOBILE 5.286AA 5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E		**450-455** FIXED MOBILE 5.286AA Aeronautical radionavigation 5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286E **IND 13**

455-470 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
455-456 FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	**455-456** FIXED MOBILE 5.286AA MOBILE-SATELLITE (Earth-to-space) 5.209 5.286A 5.286B 5.286C	**455-456** FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	**455-456** FIXED MOBILE 5.286AA Aeronautical radionavigation 5.209 5.271 5.286A 5.286B 5.286C 5.286E **IND 13**
456-459			**456-459**
	FIXED MOBILE 5.286AA 5.287 5.288 5.271		FIXED MOBILE 5.286AA Aeronautical radionavigation 5.271 5.287 **IND 13**
459-460 FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	**459-460** FIXED MOBILE 5.286AA MOBILE-SATELLITE (Earth-to-space) 5.209 5.286A 5.286B 5.286C	**459-460** FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	**459-460** FIXED MOBILE 5.286AA Aeronautical radionavigation 5.209 5.271 5.286A 5.286B 5.286C 5.286E **IND 13**
460-470			**460-470**
	FIXED MOBILE 5.286AA 5.287 5.288 Meteorological-satellite (space-to-Earth) 5.290 5.289		FIXED MOBILE 5.286AA Meteorological-satellite (space-to-Earth) 5.287 5.289 **IND 13**

470-890 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
470-694 BROADCASTING 5.149 5.291A 5.294 5.295A 5.296 5.300 5.304 5.306 5.307A 5.307B 5.312	**470-512** BROADCASTING Fixed Mobile 5.292 5.293 5.295	**470-585** FIXED MOBILE 5.296A BROADCASTING 5.291 5.298	**470-585** FIXED MOBILE 5.296A **IND 16** BROADCASTING Space operation (space-to-Earth) 5.298 **IND 13 IND 23A**
	512-608 BROADCASTING 5.295 5.297	**585-610** FIXED MOBILE 5.296A BROADCASTING RADIONAVIGATION	**585-608** FIXED MOBILE 5.296A **IND 16** BROADCASTING RADIONAVIGATION 5.149 **IND 13 IND 23A**
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)		**608-610** FIXED MOBILE 5.296A **IND 16** BROADCASTING RADIONAVIGATION RADIO ASTRONOMY 5.149 5.307 **IND 13 IND 23A**
	614-698 BROADCASTING Fixed 5.309 Mobile 5.308 5.293 5.308A	**610-890** FIXED MOBILE 5.296A 5.313A 5.314A 5.317A BROADCASTING 5.149 5.305 5.306 5.307 5.320	**610-614** FIXED MOBILE 5.296A 5.313A 5.317A **IND 16** BROADCASTING RADIO ASTRONOMY 5.149 5.307 5.320 **IND 13 IND 23A**

614-942 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
			614-890
694-790			FIXED
MOBILE except aeronautical mobile 5.312A 5.312B 5.317A			MOBILE 5.296A 5.313A 5.314A 5.317A **IND 16** **IND 18**
BROADCASTING			BROADCASTING
5.300 5.312	**698-806**		
790-862	MOBILE 5.312B 5.317A		
FIXED	BROADCASTING		
MOBILE except aeronautical mobile 5.312B 5.316B 5.317A	Fixed 5.309		
BROADCASTING	5.293		
5.312 5.319	**806-890**		
862-890	FIXED		
FIXED	MOBILE 5.312B 5.317A		
MOBILE except aeronautical mobile 5.312B 5.317A	BROADCASTING		
BROADCASTING 5.322			
5.319 5.323	5.317 5.318		5.149 5.320 **IND 13**
890-942	**890-902**	**890-942**	**890-942**
FIXED	FIXED	FIXED	FIXED
MOBILE except aeronautical mobile 5.312B 5.317A	MOBILE except aeronautical mobile 5.312B 5.317A	MOBILE 5.314A 5.317A	MOBILE 5.314A 5.317A **IND 16** **IND 25**
BROADCASTING 5.322	Radiolocation 5.325	BROADCASTING	BROADCASTING
Radiolocation	5.318	Radiolocation 5.327	Radiolocation
5.323			**IND 13**

902-1 215 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
	902-928 FIXED Amateur Mobile except aeronautical mobile 5.312B 5.325A 5.326 Radiolocation 5.325 5.150		
	928-942 FIXED MOBILE except aeronautical mobile 5.312B 5.317A Radiolocation 5.325		
942-960 FIXED MOBILE except aeronautical mobile 5.312B 5.317A BROADCASTING 5.322 5.323	**942-960** FIXED MOBILE 5.312B 5.317A	**942-960** FIXED MOBILE 5.314A 5.317A BROADCASTING 5.320	**942-960** FIXED MOBILE 5.314A 5.317A **IND 16 IND 25** BROADCASTING 5.320 **IND 13**
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 **IND 13**
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 **IND 13**

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 **IND 13**
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 5.332A 5.335 5.335A		5.282 5.330 5.331 5.332 5.332A 5.335A **IND 13**
1 300-1 350			**1 300-1 350**
	RADIOLOCATION		RADIOLOCATION
	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 **IND 13**

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 **IND 13**
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 **IND 13 IND 24**
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 **IND 13**
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 **IND 13**
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 **IND 13**

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 **IND 13**
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) 5.369 5.341 5.355 5.359 5.364 5.366 5.367 5.368 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) 5.369 5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 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

1 613.8-1 626.5 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
1 613.8- 1621.35 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 5.372A	**1 613.8-1621.35** 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 5.372A	**1 613.8-1621.35** MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B Radiodetermination-satellite (Earth-to-space) 5.369 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.372 5.372A	**1 613.8-1621.35** MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B RADIODETERMINATION-SATELLITE (Earth-to-space) 5.341 5.364 5.365 5.366 5.367 5.368 5.369 5.372 5.372A
1621.35-1626.5 MARITIME MOBILE SATELLITE (space-to-Earth) 5.373 5.373A MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) except maritime mobile satellite (space-to-Earth) 5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372	**1621.35-1626.5** MARITIME MOBILE SATELLITE (space-to-Earth) 5.373 5.373A MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION SATELLITE (Earth-to-space) Mobile-satellite(space-to-Earth) except maritime mobile satellite (space-to-Earth) 5.208B 5.341 5.364 5.365 5.366 5.367 5.368 5.370 5.372	**1621.35-1626.5** MARITIME MOBILE SATELLITE (space-to-Earth) 5.373 5.373A MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) except maritime mobile satellite (space-to-Earth) Radiodetermination-satellite (Earth-to-space) 5.369 5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.372	**1621.35-1626.5** MARITIME MOBILE-SATELLITE (space-to-Earth) 5.373 5.373A MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) except maritime mobile satellite (space-to-Earth) 5.208B 5.341 5.364 5.365 5.366 5.367 5.368 5.369 5.372

1 626.5-1 668 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
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 5.379 5.149 5.341 5.379A

1 668-1 675 MHz

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

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>
</table>

1 710-2 010 MHz

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

2 010-2 170 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>2 010-2 025
FIXED
MOBILE 5.388 5.388A</td><td>2 010-2 025
FIXED
MOBILE 5.388
MOBILE-SATELLITE
(Earth-to-space)
5.389C 5.389E</td><td>2 010-2 025
FIXED
MOBILE 5.388 5.388A</td><td>2 010-2 025
FIXED
MOBILE 5.388 5.388A IND 16</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
SPACE RESEARCH (Earth-to-space) (space-to-space)
5.392</td></tr>
<tr><td>2 110-2 120</td><td colspan="2">FIXED
MOBILE 5.388 5.388A
SPACE RESEARCH (deep space) (Earth-to-space)</td><td>2 110-2 120
FIXED
MOBILE 5.388 5.388A IND 16
SPACE RESEARCH (deep space) (Earth-to-space)</td></tr>
<tr><td>2 120-2 160
FIXED
MOBILE 5.388 5.388A</td><td>2 120-2 160
FIXED
MOBILE 5.388 5.388A
Mobile-satellite (space-to-Earth)</td><td>2 120-2 160
FIXED
MOBILE 5.388 5.388A</td><td rowspan="2">2 120-2 170
FIXED
MOBILE 5.388 5.388A IND 16</td></tr>
<tr><td colspan="3"></td></tr>
</table>

2 160-2 300 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
2 160-2 170 FIXED MOBILE 5.388 5.388A	**2 160-2 170** FIXED MOBILE 5.388 MOBILE-SATELLITE (space-to-Earth) 5.389C 5.389E	**2 160-2 170** FIXED MOBILE 5.388 5.388A	
2 170-2 200	FIXED MOBILE 5.388 MOBILE-SATELLITE (space-to-Earth) 5.351A 5.389A 5.389F		**2 170-2 200** FIXED MOBILE 5.388 **IND 16** MOBILE-SATELLITE (space-to-Earth) 5.351A 5.389A
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		**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 **IND 15**
2 290-2 300	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)		**2 290-2 300** FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth) **IND 15**

2 300-2 483.5 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
2 300-2 450 FIXED MOBILE 5.384A Amateur Radiolocation	**2 300-2 450** FIXED MOBILE 5.384A RADIOLOCATION Amateur		**2 300-2 310** FIXED MOBILE 5.384A **IND 16** RADIOLOCATION Amateur 5.150 5.282
			2 310-2 360 FIXED MOBILE 5.384A **IND 16** BROADCASTING-SATELLITE (sound) BROADCASTING RADIOLOCATION Amateur 5.150 5.282 5.393
			2 360-2 450 FIXED MOBILE 5.384A **IND 16** RADIOLOCATION Amateur
5.150 5.282 5.395	5.150 5.282 5.393 5.394		5.150 5.282 **IND 28**
2 450-2 483.5 FIXED MOBILE Radiolocation 5.150	**2 450-2 483.5** FIXED MOBILE RADIOLOCATION 5.150		**2 450-2 483.5** FIXED MOBILE RADIOLOCATION 5.150 **IND 28**

2 483.5-2 520 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 5.368 5.372A 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 5.368 5.372A 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 5.368 5.372A 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 5.368 5.372A 5.401 5.402
2 500-2 520 FIXED 5.410 MOBILE except aeronautical mobile 5.384A 5.409A 5.412	**2 500-2 520** FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronauticalmobile 5.384A 5.409A	**2 500-2 520** FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A 5.409A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A 5.404	**2 500-2 516.5** FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A 5.409A **IND 16** MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A RADIODETERMINATION- SATELLITE (space-to-Earth) 5.404 **2 516.5-2 520** FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A 5.409A **IND 16** MOBILE-SATELLITE (space-to- Earth) 5.351A 5.407 5.414 5.414A

2520-2 655 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 5.409A 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 5.409A 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 5.409A 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 5.409A **IND 16** BROADCASTING-SATELLITE 5.413 5.416 AERONAUTICAL MOBILE-SATELLITE (space-to-Earth) 5.415A 5.403 5.414A
		2 535-2 655 FIXED 5.410 MOBILE except aeronautical mobile 5.384A 5.409A BROADCASTING-SATELLITE 5.413 5.416	**2 535-2 655** FIXED 5.410 MOBILE except aeronautical mobile 5.384A 5.409A **IND 16** BROADCASTING-SATELLITE 5.413 5.416
5.339 5.412 5.418B 5.418C	5.339 5.418B 5.418C	5.339 5.418 5.418A 5.418B 5.418C	5.339 5.418 5.418A 5.418B 5.418C

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 5.409A 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 5.409A 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 5.409A 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 5.409A 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 **IND 24**
2 700-2 900			**2 700-2 900**
	AERONAUTICAL RADIONAVIGATION 5.337		AERONAUTICAL RADIONAVIGATION 5.337
	Radiolocation		Radiolocation
	5.423 5.424		5.423
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	MOBILE except aeronautical mobile	RADIOLOCATION	FIXED
	5.429G	Amateur	MOBILE **IND 16**
	RADIOLOCATION		RADIOLOCATION
	Amateur		Amateur
	Fixed		
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- 3 800
FIXED
FIXED-SATELLITE (space to-Earth)
MOBILE except aeronautical mobile 5.433B 5.434A 5.434B
5.435A</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 IND 16
Radiolocation</td></tr>
<tr><td rowspan="2">3 800-4 200
FIXED
FIXED-SATELLITE (space-to-Earth)
Mobile</td><td colspan="2" rowspan="2">3 700-4 200
FIXED
FIXED-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile 5.435B</td><td rowspan="2">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
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
4 800-4 990			**4 800-4 990**
	FIXED		FIXED
	MOBILE 5.440A 5.441A 5.441B 5.442		MOBILE 5.442
	Radio astronomy 5.443		Radio astronomy
	5.149 5.339		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 5.446D 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 28** 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 28** 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 5.447E EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F **IND 28** RADIOLOCATION SPACE RESEARCH 5.447D 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 5.447E EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F **IND 28** RADIOLOCATION SPACE RESEARCH (active) 5.448A

5 350-5 650 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
5 350-5 460			**5 350-5 460**
	EARTH EXPLORATION-SATELLITE (active) 5.448B		EARTH EXPLORATION-SATELLITE (active) 5.448B
	RADIOLOCATION 5.448D		RADIOLOCATION 5.448D
	AERONAUTICAL RADIONAVIGATION 5.449		AERONAUTICAL RADIONAVIGATION 5.449
	SPACE RESEARCH (active) 5.448C		SPACE RESEARCH (active) 5.448C
5 460-5 470			**5 460-5 470**
	EARTH EXPLORATION-SATELLITE (active)		EARTH EXPLORATION-SATELLITE (active)
	RADIOLOCATION 5.448D		RADIOLOCATION 5.448D
	RADIONAVIGATION 5.449		RADIONAVIGATION 5.449
	SPACE RESEARCH (active)		SPACE RESEARCH (active)
	5.448B		5.448B
5 470-5 570			**5 470-5 570**
	EARTH EXPLORATION-SATELLITE (active)		EARTH EXPLORATION-SATELLITE (active)
	MOBILE except aeronautical mobile 5.446A 5.450A		MOBILE except aeronautical mobile 5.446A 5.450A
			IND 28
	RADIOLOCATION 5.450B		RADIOLOCATION 5.450B
	MARITIME RADIONAVIGATION		MARITIME RADIONAVIGATION
	SPACE RESEARCH (active)		SPACE RESEARCH (active)
	5.448B 5.450 5.451		5.448B
5 570-5 650			**5 570-5 650**
	MOBILE except aeronautical mobile 5.446A 5.450A		MOBILE except aeronautical mobile 5.446A 5.450A
			IND 28
	RADIOLOCATION 5.450B		RADIOLOCATION 5.450B
	MARITIME RADIONAVIGATION		MARITIME RADIONAVIGATION
	5.450 5.451 5.452		5.452

5 650-5 925 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
5 650-5 725 MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION Amateur Space research (deep space) 5.454 5.282 5.451 5.453 5.455			**5 650-5 725** FIXED MOBILE except aeronautical mobile 5.446A 5.450A **IND 28** RADIOLOCATION Amateur Space research (deep space) 5.282 5.453
5 725-5 830 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur 5.150 5.451 5.453 5.455	**5725-5 830** RADIOLOCATION Amateur 5.150 5.453 5.455		**5725-5 830** FIXED MOBILE **IND 28** RADIOLOCATION Amateur 5.150 5.453
5 830-5 850 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.451 5.453 5.455	**5 830-5 850** RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.453 5.455		**5 830-5 850** FIXED MOBILE **IND 28** RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.453
5 850-5 925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.150	**5 850-5 925** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Amateur Radiolocation 5.150	**5 850-5 925** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Radiolocation 5.150	**5 850-5 925** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE **IND 28 IND 29** Radiolocation 5.150

5 925-7 235 MHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
5 925-6 700	FIXED 5.457 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B MOBILE 5.457C 5.457D 5.457E 5.457F 5.149 5.440 5.458		**5 925-6 700** FIXED FIXED-SATELLITE (Earth-to-space) 5.457A MOBILE 5.457D **IND 16** 5.149 5.440 5.458
6 700-7 075	FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE 5.457D 5.457E 5.457F 5.458 5.458A 5.458B		**6 700-7 075** FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE 5.457D 5.457E **IND 16** 5.458 5.458A 5.458B
7 075-7 145	FIXED MOBILE 5.457E 5.457F 5.458 5.459		**7 075-7 145** FIXED MOBILE 5.457E **IND 16** 5.458
7 145-7 190	FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) 5.458 5.459		**7 145-7 190** FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) 5.458
7 190-7 235	EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A 5.460B FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458 5.459		**7 190-7 235** EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A 5.460B FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458

7 235-7 450 MHz

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

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 5.461AC		5.461A 5.461AC
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
	5.461AC		5.461AC
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			**8 550-8 650**
	EARTH EXPLORATION-SATELLITE (active)		EARTH EXPLORATION-SATELLITE (active)
	RADIOLOCATION		RADIOLOCATION
	SPACE RESEARCH (active)		SPACE RESEARCH (active)
	5.468 5.469 5.469A		5.469A
8 650-8 750			**8 650-8 750**
	RADIOLOCATION		RADIOLOCATION
	5.468 5.469		
8 750-8 850			**8 750-8 850**
	RADIOLOCATION		RADIOLOCATION
	AERONAUTICAL RADIONAVIGATION 5.470		AERONAUTICAL RADIONAVIGATION 5.470
	5.471		
8 850-9 000			**8 850-9 000**
	RADIOLOCATION		RADIOLOCATION
	MARITIME RADIONAVIGATION 5.472		MARITIME RADIONAVIGATION 5.472
	5.473		
9 000-9 200			**9 000-9 200**
	RADIOLOCATION		RADIOLOCATION
	AERONAUTICAL RADIONAVIGATION 5.337		AERONAUTICAL RADIONAVIGATION 5.337
	5.471 5.473A		5.473A
9 200-9 300			**9 200-9 300**
	EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C		EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C
	RADIOLOCATION		RADIOLOCATION
	MARITIME RADIONAVIGATION 5.472		MARITIME RADIONAVIGATION 5.472
	5.473 5.474 5.474D		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 5.475		RADIONAVIGATION 5.475
	SPACE RESEARCH (active)		SPACE RESEARCH (active)
	5.427 5.474 5.475A 5.475B 5.476A		5.427 5.474 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 5.477		Earth exploration-satellite (active)
	Space research (active)		Space research (active)
	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 5.477		RADIOLOCATION
	5.474D 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 5.480A	**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 5.480A	**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 5.480A 5.481	**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			**10.6-10.68**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	FIXED		FIXED
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	Radiolocation		Radiolocation
	5.149 5.482 5.482A		5.149 5.482 5.482A
10.68-10.7			**10.68-10.7**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340 5.483		5.340 **IND 24**
10.7-10.95	**10.7-10.95**		**10.7-10.95**
FIXED	FIXED		FIXED
FIXED-SATELLITE	FIXED-SATELLITE (space-to-Earth) 5.441		FIXED-SATELLITE (space-to-Earth) 5.441 **IND 17**
(space-to-Earth) 5.441	MOBILE except aeronautical mobile		**IND 30**
(Earth-to-space) 5.484			MOBILE except aeronautical mobile
MOBILE except aeronautical mobile			
10.95-11.2	**10.95-11.2**		**10.95-11.2**
FIXED	FIXED		FIXED
FIXED-SATELLITE	FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B		FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B
(space-to-Earth) 5.484A 5.484B	MOBILE except aeronautical mobile		**IND 17 IND 30**
(Earth-to-space) 5.484			MOBILE except aeronautical mobile
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
IND 30
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 30
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 IND 30

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>
</table>

12.2-13.4 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></td><td>12.2-12.7
FIXED
MOBILE except aeronautical mobile
BROADCASTING
BROADCASTING-SATELLITE 5.492

5.487A 5.488 5.490</td><td>12.2-12.5
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B
MOBILE except aeronautical mobile
BROADCASTING

5.487</td><td>12.2-12.5
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B
IND 17 IND 30
MOBILE except aeronautical mobile
BROADCASTING

5.487</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>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 30
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 5.496A
MOBILE
Space research (deep space) (space-to-Earth)</td><td>12.75-13.25
FIXED
FIXED-SATELLITE (Earth-to-space) 5.441 5.496A
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) 5.499E 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

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
14-14.25	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research 5.504A 5.505		**14-14.25** 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
14.25-14.3	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508		**14.25-14.3** 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
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	**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	**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	**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

14.4-14.8 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
14.4-14.47			**14.4-14.47**
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B		FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B **IND 17**
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A		Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A
	Space research (space-to-Earth)		Space research (space-to-Earth)
	5.504A		5.504A
14.47-14.5			**14.47-14.5**
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B		FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B **IND 17**
	MOBILE except aeronautical mobile		MOBILE except aeronautical mobile
	Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A		Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A
	Radio astronomy		Radio astronomy
	5.149 5.504A		5.149 5.504A
14.5-14.75			**14.5-14.8**
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space) 5.509B 5.509C 5.509D 5.509E 5.509F 5.510		FIXED-SATELLITE (Earth-to-space) 5.509B 5.509C 5.509D 5.509E 5.509F 5.510
	MOBILE		MOBILE
	Space research 5.509G		Space research 5.509G
14.75-14.8		**14.75-14.8**	
FIXED		FIXED	
FIXED-SATELLITE (Earth-to-space) 5.510		FIXED-SATELLITE (Earth-to space) 5.509B 5.509C 5.509D 5.509E 5.509F 5.510	
MOBILE		MOBILE	
Space research 5.509G		Space research 5.509G	

14.8-15.7 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 5.510A		Space research 5.510A
	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 **IND 24**
15.4-15.41			**15.4-15.41**
	RADIOLOCATION 5.511E 5.511F		RADIOLOCATION 5.511E 5.511F
	AERONAUTICAL RADIONAVIGATION		AERONAUTICAL RADIONAVIGATION
15.41-15.43	**15.41-15.43**	**15.41-15.43**	**15.41-15.43**
RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION
Aeronautical mobile (OR) 5.511G		5.511H	
15.43-15.63	**15.43-15.63**	**15.43-15.63**	**15.43-15.63**
FIXED-SATELLITE (Earth-to-space) 5.511A	FIXED-SATELLITE (Earth-to-space) 5.511A	FIXED-SATELLITE (Earth-to-space) 5.511A	FIXED-SATELLITE (Earth-to-space) 5.511A
RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION
Aeronautical mobile (OR) 5.511G			
5.511C	5.511C	5.511C 5.511H	5.511C
15.63-15.7	**15.63-15.7**	**15.63-15.7**	**15.63-15.7**
RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION
Aeronautical mobile (OR) 5.511G		5.511H	

15.7-17.7 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
15.7-16.6 RADIOLOCATION 5.512 5.513			**15.7-16.6** FIXED MOBILE RADIOLOCATION 5.512
16.6-17.1 RADIOLOCATION Space research (deep space) (Earth-to-space) 5.512 5.513			**16.6-17.1** FIXED MOBILE RADIOLOCATION Space research (deep space) (Earth-to-space) 5.512
17.1-17.2 RADIOLOCATION 5.512 5.513			**17.1-17.2** FIXED MOBILE RADIOLOCATION 5.512
17.2-17.3 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513 5.513A			**17.2-17.3** FIXED MOBILE EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513A
17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) 5.516A 5.516B Radiolocation 5.514	**17.3-17.7** FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) 5.484A 5.515A 5.515B 5.517 BROADCASTING-SATELLITE Radiolocation 5.514 5.515	**17.3-17.7** FIXED-SATELLITE (Earth-to-space) 5.516 Radiolocation 5.514	**17.3-17.7** FIXED-SATELLITE (Earth-to-space) 5.516 Radiolocation Fixed Mobile 5.514

17.7-18.4 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 rowspan="2">17.7-18.1
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.484A
5.517A 5.517B
(Earth-to-space) 5.516
MOBILE</td><td>17.7-17.8
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.517
5.517A 5.517B
(Earth-to-space) 5.516
BROADCASTING-SATELLITE
Mobile
5.515</td><td rowspan="2">17.7-18.1
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.484A
5.517A 5.517B
(Earth-to-space) 5.516
MOBILE</td><td rowspan="2">17.7-18.1
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.517A
5.517B IND 17 IND 32A
(Earth-to-space) 5.516
MOBILE</td></tr>
<tr><td>17.8-18.1
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.484A
5.517A 5.517B
(Earth-to-space) 5.516
MOBILE
5.519</td></tr>
<tr><td>18.1-18.4</td><td colspan="2">FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B 5.517A 5.517B
(Earth-to-space) 5.520
INTER-SATELLITE 5.521A
MOBILE

5.519 5.521</td><td>18.1-18.4
FIXED
FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B
5.517A 5.517B IND 17 IND 32A
(Earth-to-space) 5.520
INTER-SATELLITE 5.521A
MOBILE
5.519</td></tr>
</table>

18.4-19.7 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
18.4-18.6			**18.4-18.6**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B 5.517A 5.517B		FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B 5.517A 5.517B **IND 17 IND 32A**
	INTER-SATELLITE 5.521A		INTER-SATELLITE 5.521A
	MOBILE		MOBILE
18.6-18.8	**18.6-18.8**	**18.6-18.8**	**18.6-18.8**
EARTH EXPLORATION SATELLITE (passive)	EARTH EXPLORATION SATELLITE (passive)	EARTH EXPLORATION SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive) **IND 31**
FIXED	FIXED	FIXED	FIXED
FIXED-SATELLITE (space-to-Earth) 5.517A 5.522B	FIXED-SATELLITE (space-to-Earth) 5.516B 5.517A 5.522B	FIXED-SATELLITE (space-to-Earth) 5.517A 5.522B	FIXED-SATELLITE (space-to-Earth) 5.517A 5.522B **IND 17 IND 32A**
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	MOBILE except aeronautical mobile
Space research (passive)	SPACE RESEARCH (passive)	Space research (passive)	Space research (passive)
5.522A 5.522C	5.522A	5.522A	5.522A
18.8-19.3			**18.8-19.3**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth) 5.516B 5.517A 5.517B 5.523A		FIXED-SATELLITE (space-to-Earth) 5.516B 5.517A 5.517B 5.523A **IND 17 IND 32A**
	INTER-SATELLITE 5.521A		INTER-SATELLITE 5.521A
	MOBILE		MOBILE
19.3-19.7			**19.3-19.7**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.517A 5.523B 5.523C 5.523D 5.523E		FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.517A 5.523B 5.523C 5.523D 5.523E **IND 17 IND 32A**
	INTER-SATELLITE 5.521A 5.523DA		INTER-SATELLITE 5.521A 5.523DA
	MOBILE		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 5.517B 5.527A INTER-SATELLITE 5.521A Mobile-satellite (space-to-Earth) 5.524	**19.7-20.1** FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.517B 5.527A INTER-SATELLITE 5.521A 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 5.517B 5.527A INTER-SATELLITE 5.521A Mobile-satellite (space-to-Earth) 5.524	**19.7-20.1** FIXED MOBILE FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.517B 5.527A **IND 17 IND 32** INTER-SATELLITE 5.521A Mobile-satellite (space-to-Earth) 5.524
20.1-20.2	FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.517B 5.527A INTER-SATELLITE 5.521A 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 5.517B 5.527A **IND 17** INTER-SATELLITE 5.521A MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 **IND 32**
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 5.529A		**20.2-21.2** FIXED MOBILE FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) 5.524 5.529A **IND 32**
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)

21.4-22.55 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>21.4-22
FIXED
MOBILE
BROADCASTING-SATELLITE
5.208B
5.530A 5.530B</td><td>21.4-22
FIXED 5.530E
MOBILE

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

5.530A 5.530B</td></tr>
<tr><td>22-22.2
FIXED
MOBILE except aeronautical mobile (R) 5.531A 5.531B 5.531C 5.531D 5.531F
5.149</td><td>22-22.2
FIXED
MOBILE except aeronautical mobile

5.149</td><td>22-22.2
FIXED
MOBILE except aeronautical mobile 5.531E

5.149</td><td rowspan="2">22-22.21
FIXED
MOBILE except aeronautical mobile

5.149</td></tr>
<tr><td>22.2 -22.21</td><td colspan="2">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>
</table>

22.55-24.25 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
22.55-23.15			**22.55-23.15**
	FIXED		FIXED
	INTER-SATELLITE 5.338A		INTER-SATELLITE 5.338A
	MOBILE		MOBILE
	SPACE RESEARCH (Earth-to- space) 5.532A		SPACE RESEARCH (Earth-to- space) 5.532A
	5.149		5.149
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 **IND 24**
24-24.05			**24-24.05**
	AMATEUR		AMATEUR
	AMATEUR-SATELLITE		AMATEUR-SATELLITE
	5.150		5.150 **IND 33**
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 33**

24.25-25.5 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
24.25-24.45 FIXED MOBILE except aeronauticalmobile 5.338A 5.532AB	**24.25-24.45** FIXED 5.532AA MOBILE except aeronautical mobile 5.338A 5.532AB RADIONAVIGATION	**24.25-24.45** FIXED MOBILE 5.338A 5.532AB RADIONAVIGATION	**24.25-24.45** FIXED MOBILE 5.338A 5.532AB **IND 16** RADIONAVIGATION
24.45-24.65 FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.338A 5.532AB	**24.45-24.65** FIXED 5.532AA INTER-SATELLITE MOBILE except aeronautical mobile 5.338A 5.532AB RADIONAVIGATION 5.533	**24.45-24.65** FIXED INTER-SATELLITE MOBILE 5.338A 5.532AB RADIONAVIGATION 5.533	**24.45-24.65** FIXED INTER-SATELLITE MOBILE 5.338A 5.532AB **IND 16** RADIONAVIGATION 5.533
24.65-24.75 FIXED FIXED-SATELLITE (Earth-to space) 5.532B INTER-SATELLITE MOBILE except aeronautical mobile 5.338A 5.532AB	**24.65-24.75** FIXED 5.532AA INTER-SATELLITE MOBILE except aeronautical mobile 5.338A 5.532AB RADIOLOCATION-SATELLITE (Earth-to-space)	**24.65-24.75** FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE 5.338A 5.532AB	**24.65-24.75** FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE 5.338A 5.532AB **IND 16**
24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B MOBILE except aeronautical mobile 5.338A 5.532AB	**24.75-25.25** FIXED 5.532AA FIXED SATELLITE (Earth-to-space) 5.535 MOBILE except aeronautical mobile 5.338A 5.532AB	**24.75-25.25** FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE 5.338A 5.532AB	**24.75-25.25** FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE 5.338A 5.532AB **IND 16**
25.25-25.5	FIXED 5.534A INTER-SATELLITE 5.536 MOBILE 5.338A 5.532AB Standard frequency and time signal-satellite(Earth-to-space)		**25.25-25.5** FIXED 5.534A INTER-SATELLITE 5.536 MOBILE 5.338A 5.532AB **IND 16** 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 5.534A INTER-SATELLITE 5.536 MOBILE 5.338A 5.532AB SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536A			**25.5-27** EARTH EXPLORATION-SATELLITE (space-to Earth) 5.536B FIXED 5.534A INTER-SATELLITE 5.536 MOBILE 5.338A 5.532AB SPACE RESEARCH (space-to-Earth) Standard frequency and time signal-satellite (Earth-to-space) 5.536A **IND 16**
27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE 5.338A 5.532AB	**27-27.5** FIXED 5.534A FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE 5.338A 5.532AB		**27-27.5** FIXED 5.534A FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE 5.338A 5.532AB **IND 16**
27.5-28.5 FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.517B 5.539 INTER-SATELLITE 5.521A MOBILE 5.538 5.540			**27.5-28.5** FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.517B 5.539 **IND 17 IND 32A** INTER-SATELLITE 5.521A MOBILE 5.538 5.540
28.5-29.1 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.517B 5.523A 5.539 INTER-SATELLITE 5.521A 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 5.517A 5.517B 5.523A 5.539 **IND 17 IND 32A** INTER-SATELLITE 5.521A 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	FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.517A 5.523C 5.523E 5.535A 5.539 5.541A INTER-SATELLITE 5.521A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540		**29.1-29.5** FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.517A 5.523C 5.523E 5.535A 5.539 5.541A **IND 17 IND 32A** INTER-SATELLITE 5.521A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540
29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.517B 5.527A 5.539 INTER-SATELLITE 5.521A Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	**29.5-29.9** FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.517B 5.527A 5.539 INTER-SATELLITE 5.521A MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.525 5.526 5.527 5.529 5.540	**29.5-29.9** FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.517B 5.527A 5.539 INTER-SATELLITE 5.521A Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	**29.5-29.9** FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.517B 5.527A 5.539 **IND 17 IND 32** INTER-SATELLITE 5.521A Fixed Mobile Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542
29.9-30	FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.517B 5.527A 5.539 INTER-SATELLITE 5.521A MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542		**29.9-30** FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.517B 5.527A 5.539 **IND 17** INTER-SATELLITE 5.521A MOBILE-SATELLITE (Earth-to-space) Fixed Mobile Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542 **IND 32**

30-31.8 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
30-31			**30-31**
	FIXED-SATELLITE (Earth-to-space) 5.338A		FIXED-SATELLITE (Earth-to-space) 5.338A
	MOBILE-SATELLITE (Earth-to-space)		MOBILE-SATELLITE (Earth-to-space)
	Standard frequency and time signal-satellite (space-to-Earth)		Fixed
			Mobile
	5.529A 5.542		Standard frequency and time signal-satellite (space-to-Earth)
			5.529A 5.542 **IND 32**
31-31.3			**31-31.3**
	FIXED 5.338A 5.543B		FIXED 5.338A 5.543B
	MOBILE		MOBILE
	Standard frequency and time signal-satellite (space-to-Earth)		Standard frequency and time signal-satellite (space-to-Earth)
	Space research 5.544 5.545		Space research 5.544
	5.149		5.149
31.3-31.5			**31.3-31.5**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.340		5.340 **IND 24**
31.5-31.8	**31.5-31.8**	**31.5-31.8**	**31.5-31.8**
EARTH EXPLORATION SATELLITE (passive)	EARTH EXPLORATION SATELLITE (passive)	EARTH EXPLORATION SATELLITE (passive)	EARTH EXPLORATION- SATELLITE (passive)
RADIO ASTRONOMY	RADIO ASTRONOMY	RADIO ASTRONOMY	RADIO ASTRONOMY
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)	SPACE RESEARCH (passive)	SPACE RESEARCH (passive)
Fixed		Fixed	Fixed
Mobile except aeronautical mobile		Mobile except aeronautical mobile	Mobile except aeronautical mobile
5.149 5.546	5.340	5.149 5.546	5.149

31.8-34.7 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
31.8-32 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547B 5.548			**31.8-32.3** FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth)
32-32.3 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547C 5.548			5.547 5.548
32.3-33 FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.547D 5.548			**32.3-33** FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.548
33-33.4 FIXED 5.547A RADIONAVIGATION 5.547 5.547E			**33-33.4** FIXED 5.547A RADIONAVIGATION 5.547
33.4-34.2 RADIOLOCATION 5.549			**33.4-34.2** RADIOLOCATION
34.2-34.7 RADIOLOCATION SPACE RESEARCH (deep space)(Earth-to-space) 5.549			**34.2-34.7** RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space)

34.7-37.5 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
34.7-35.2			**34.7-35.2**
	RADIOLOCATION		RADIOLOCATION
	Space research 5.550		Space research
	5.549		
35.2-35.5			**35.2-35.5**
	METEOROLOGICAL AIDS		METEOROLOGICAL AIDS
	RADIOLOCATION		RADIOLOCATION
	5.549		
35.5-36			**35.5-36**
	METEOROLOGICAL AIDS		METEOROLOGICAL AIDS
	EARTH EXPLORATION-SATELLITE (active)		EARTH EXPLORATION-SATELLITE (active)
	RADIOLOCATION		RADIOLOCATION
	SPACE RESEARCH (active)		SPACE RESEARCH (active)
	5.549 5.549A		5.549A
36-37			**36-37**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	FIXED		FIXED
	MOBILE		MOBILE
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.149 5.550A		5.149 5.550A
37-37.5			**37-37.5**
	FIXED		FIXED
	MOBILE except aeronautical mobile 5.550B		MOBILE except aeronautical mobile 5.550B **IND 16**
	SPACE RESEARCH (space-to-Earth)		SPACE RESEARCH (space-to-Earth)
	5.547		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) 5.550C 5.550CA		FIXED-SATELLITE (space-to-Earth) 5.550C 5.550CA
	MOBILE except aeronautical mobile 5.550B		MOBILE except aeronautical mobile 5.550B
	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 **IND 16**
38-39.5			**38-39.5**
	FIXED 5.550D		FIXED 5.550D
	FIXED-SATELLITE (space-to-Earth) 5.550C		FIXED-SATELLITE (space-to-Earth) 5.550C
	MOBILE 5.550B		MOBILE 5.550B
	Earth exploration-satellite (space-to-Earth)		Earth exploration-satellite (space-to-Earth)
	5.547		5.547 **IND 16**
39.5-40			**39.5-40**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C		FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C
	MOBILE 5.550B		MOBILE 5.550B
	MOBILE-SATELLITE (space-to-Earth)		MOBILE-SATELLITE (space-to-Earth)
	Earth exploration-satellite (space-to-Earth)		Earth exploration-satellite (space-to-Earth)
	5.547 5.550E		5.547 5.550E **IND 16**
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 5.550C		FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C
	MOBILE 5.550B		**IND 36**
	MOBILE-SATELLITE (space-to-Earth)		MOBILE 5.550B
	SPACE RESEARCH (Earth-to-space)		MOBILE-SATELLITE (space-to-Earth)
	Earth exploration-satellite (space-to-Earth)		SPACE RESEARCH (Earth-to-space)
	5.550E		Earth exploration-satellite (space-to-Earth)
			5.550E

40.5-42.5 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) 5.550C LAND MOBILE 5.550B BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile 5.547	**40.5-41** FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C LAND MOBILE 5.550B BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile Mobile-satellite (space-to-Earth) 5.547	**40.5-41** FIXED FIXED-SATELLITE (space-to-Earth) 5.550C LAND MOBILE 5.550B BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile 5.547	**40.5-41** FIXED FIXED-SATELLITE (space-to-Earth) 5.550C **IND 36** LAND MOBILE 5.550B BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile 5.547
41-42.5 5.547 5.551F 5.551H 5.551I	FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C LAND MOBILE 5.550B BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile		**41-42.5** FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C **IND 36** LAND MOBILE 5.550B BROADCASTING BROADCASTING-SATELLITE Aeronautical mobile Maritime mobile 5.547 5.551H 5.551I

42.5-47 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
42.5-43.5			**42.5-43.5**
	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile 5.550B RADIO ASTRONOMY 5.149 5.547		FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile 5.550B RADIO ASTRONOMY 5.149 5.547 **IND 16**
43.5-47			**43.5-47**
	MOBILE 5.553 5.553A MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554		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) 5.550C 5.552 MOBILE 5.553B 5.552A			**47.2-47.5** FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE 5.553B 5.552A
47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 (space-to-Earth) 5.516B 5.554A MOBILE 5.553B	**47.5-47.9** FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE 5.553B		**47.5-47.9** FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 **IND 36** MOBILE 5.553B
47.9-48.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE 5.553B 5.552A			**47.9-48.2** FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 **IND 36** MOBILE 5.553B 5.552A

48.2-50.4 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
48.2-48.54 FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	**48.2-50.2** FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.516B 5.550C 5.552 MOBILE		**48.2-50.2** FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.516B 5.550C 5.552 **IND 36** MOBILE
48.54-49.44 FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE 5.149 5.340 5.555			
49.44-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.550C 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	5.149 5.340 5.555		5.149 5.340 5.555 **IND 24***
50.2-50.4	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340		**50.2-50.4** EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 **IND 24**

* All emissions are prohibited in the band 48.94 – 49.04 GHz from airborne stations

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 5.550C		FIXED-SATELLITE (Earth-to-space) 5.338A 5.550C
	MOBILE		MOBILE
	Mobile-satellite (Earth-to-space)		Mobile-satellite (Earth-to-space)
51.4- 52.4			**51.4-52.4**
	FIXED		FIXED
	FIXED-SATELLITE (Earth-to-space) 5.555C		FIXED-SATELLITE (Earth-to-space) 5.555C
	MOBILE		MOBILE
	5.338A 5.547 5.556		5.338A 5.547 5.556
52.4-52.6			**52.4-52.6**
	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 **IND 24**
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
	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 **IND 35**
58.2-59			**58.2-59**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	FIXED		FIXED
	MOBILE		MOBILE
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.547 5.556		5.547 5.556 **IND 35**
59-59.3			**59-59.3**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	FIXED		FIXED
	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)
			IND 35

59.3-71 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
59.3-64			**59.3-64**
	FIXED		FIXED
	INTER-SATELLITE		INTER-SATELLITE
	MOBILE 5.558		MOBILE 5.558
	RADIOLOCATION 5.559		RADIOLOCATION 5.559
	5.138		5.138 **IND 35**
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 **IND 35**
	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 5.559AA		MOBILE 5.553 5.558 5.559AA **IND 16**
	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 34
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 34**
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 34**
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 34**

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 **IND 24**
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 **IND 24**
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 **IND 24**

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 **IND 24**
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 **IND 24**
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**
	FIXED		FIXED
	MOBILE		MOBILE
	RADIO ASTRONOMY		RADIO ASTRONOMY
	5.149		5.149
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 **IND 24**
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 **IND 24**
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 **IND 24**
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 **IND 24**
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 **IND 24**
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) 5.563AA		EARTH EXPLORATION-SATELLITE (passive) 5.563AA
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	MOBILE		MOBILE
	SPACE RESEARCH (passive)		SPACE RESEARCH (passive)
	5.563A 5.563B		5.563A 5.563B

238-242.2 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
238-239.2			**238-239.2**
	FIXED		FIXED
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	MOBILE		MOBILE
	RADIOLOCATION		RADIOLOCATION
	RADIONAVIGATION		RADIONAVIGATION
	RADIONAVIGATION-SATELLITE		RADIONAVIGATION-SATELLITE
239.2-240			**239.2-240**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	FIXED-SATELLITE (space-to-Earth)		FIXED-SATELLITE (space-to-Earth)
	RADIOLOCATION		RADIOLOCATION
	RADIONAVIGATION		RADIONAVIGATION
	RADIONAVIGATION-SATELLITE		RADIONAVIGATION-SATELLITE
240-241			**240-241**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIOLOCATION		RADIOLOCATION
241-242.2			**241-242.2**
	EARTH EXPLORATION-SATELLITE (passive)		EARTH EXPLORATION-SATELLITE (passive)
	RADIO ASTRONOMY		RADIO ASTRONOMY
	RADIOLOCATION		RADIOLOCATION
	Amateur		Amateur
	Amateur-satellite		Amateur-satellite
	5.149		5.149

242.2-250 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
242.2-244.2 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149			**242.2–244.2** RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149
244.2-247.2 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149			**244.2-247.2** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149
247.2-248 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149			**247.2-248** RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149
248-250 AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149			**248-250** AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149

250-3 000 GHz

Allocation to Radiocommunication Services			
Region 1	**Region 2**	**Region 3**	**India**
250-252	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A		**250-252** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A **IND 24**
252-265	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554		**252-265** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554
265-275	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.563A		**265-275** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.563A
275-3 000	(Not allocated) 5.564A 5.565		**275-3 000** (Not allocated) 5.564A 5.565

Section C
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 frequency bands 14-19.95 kHz and 20.05-70 kHz and in Region 1 also the frequency 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, Kyrgyzstan, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC-23)

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, Kyrgyzstan, Tajikistan and Turkmenistan, the frequency band 67-70 kHz is also allocated to the radionavigation service on a primary basis. (WRC-23)

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 Kyrgyzstan and Turkmenistan, the frequency 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-19)

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 frequency band 135.7-137.8 kHz in Algeria, Egypt, 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 frequency band 135.7-137.8 kHz, and this should be taken into account by the countries authorizing such use. (WRC-19)

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), Eswatini, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, the Dem. Rep. of the Congo, South Africa, Tanzania, Chad, Zambia and Zimbabwe, the frequency band 200-283.5 kHz is allocated to the aeronautical radionavigation service on a primary basis. (WRC-19)

5.71 (SUP - WRC-19)

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 radionavigation service. The other radionavigation services to which the band 405-415 kHz is allocated shall not cause harmful interference to radio direction-finding in the band 406.5-413.5 kHz.

5.77 *Different category of service:* in Australia, China, the French overseas communities of Region 3, Korea (Rep. of), India, Iran (Islamic Republic of), Japan, Pakistan, Papua New Guinea, the Dem. People's Rep. of Korea 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-19)

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 In the maritime mobile service, the frequency bands 415-495 kHz and 505-526.5 kHz are limited to radiotelegraphy and may also be used for the NAVDAT system in accordance with the most recent version of Recommendation ITU-R M.2010, subject to agreement between interested and affected administrations. NAVDAT transmitting stations are limited to coast stations. (WRC-19)

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)

5.82C The frequency band 495-505 kHz is used for the international NAVDAT system as described in the most recent version of Recommendation ITU-R M.2010. NAVDAT transmitting stations are limited to coast stations. (WRC-19)

5.82D When establishing coast stations in the NAVDAT system on the frequencies 500 kHz and 4 226 kHz, the conditions for the use of the frequencies 500 kHz and 4 226 kHz are prescribed in Articles **31** and **52**. Administrations are strongly recommended to coordinate the NAVDAT systems operating characteristics in accordance with the procedures of the International Maritime Organization (IMO) (see Resolution **364 (WRC-23)**). (WRC-23)

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, Eswatini, Lesotho, Malawi, Mozambique, Namibia and Niger, the frequency band 526.5-535 kHz is also allocated to the mobile service on a secondary basis. (WRC-19)

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)

5.94 Not used.

5.95 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, Eritrea, Spain, Ethiopia, the Russian Federation, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, the Syrian Arab Republic, Türkiye, Kyrgyzstan, Somalia, Tajikistan, Tunisia and Turkmenistan, the frequency band 1 810-1 830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-23)

5.99 *Additional allocation:* in Saudi Arabia, Austria, Egypt, Iraq, Libya, Uzbekistan, Romania, Slovakia, Slovenia, Chad, and Togo, the frequency band 1 810-1 830 kHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-23)

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, Eswatini, Ethiopia, Iraq, Libya and Somalia, the frequency band 2 160-2 170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of stations in these services shall not exceed 50 W. (WRC-19)

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

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

5.110 The frequencies 2 174.5 kHz, 4 177.5 kHz, 6 268 kHz, 8 376.5 kHz, 12 520 kHz and 16 695 kHz are used for the automatic connection system (ACS), as described in the most recent version of Recommendation ITU-R M.541. (WRC-23)

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 Sri Lanka, the frequency band 2 194-2 300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

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 Iraq, the frequency band 2 502-2 625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

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 Liberia, Sri Lanka and Togo, the frequency band 3 155-3 200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-23)

5.118 *Additional allocation:* in the United States, Mexico and Peru, the frequency band 3 230-3 400 kHz is also allocated to the radiolocation service on a secondary basis. (WRC-19)

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, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe, the frequency 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**. (WRC-19)

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 frequency 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, 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 frequency 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-19)

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 Appendices **15** and **17**). (WRC-23)

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 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-19)

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 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-19)

5.133B Stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 15 W (e.i.r.p.). However, in Region 2 in Mexico, stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 20 W (e.i.r.p.). In the following Region 2 countries: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Dominica, El Salvador, Ecuador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela, as well as the overseas countries and territories within the Kingdom of the Netherlands in Region 2, stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 25 W (e.i.r.p.). (WRC-19)

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

5.135 (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.

5.137A The frequencies 6 337.5 kHz, 8 443 kHz, 12 663.5 kHz, 16 909.5 kHz and 22 450.5 kHz are the regional frequencies for the transmission of maritime safety information (MSI) by means of the NAVDAT system (see Appendices **15** and **17**). (WRC-23)

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, the Dem. People's Rep. of Korea, Singapore, Sudan, South Sudan, Tunisia, Viet Nam and Yemen, the frequency band 7 100-7 200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis. (WRC-19)

5.141C (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)

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 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-19)

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 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-19)

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, Moldova, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the frequency band 21 850-21 870 kHz is also allocated to the aeronautical mobile (R) service on a primary basis. (WRC-23)

5.155A In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Moldova, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the use of the frequency band 21 850-21 870 kHz by the fixed service is limited to provision of services related to aircraft flight safety. (WRC-23)

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 and Kyrgyzstan, the frequency band 24 450-24 600 kHz is allocated to the fixed and land mobile services on a primary basis. (WRC-19)

5.159 *Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency band 39-39.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-19)

5.159A The use of the frequency band 40-50 MHz by the Earth exploration-satellite service (active) shall be in accordance with the geographical area restrictions and the operational and technical conditions defined in Resolution **677 (WRC-23)**. 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-23)

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), the United States and Mexico, 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-19)

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, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malta, Moldova, Monaco, Montenegro, Norway,

Uzbekistan, Netherlands, Portugal, Türkiye, Kyrgyzstan, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Slovenia, Sweden, Switzerland and Ukraine, the frequency band 42-42.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-23)

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, Australia, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Korea (Rep. of), Denmark, Spain, Estonia, the Russian Federation, Finland, France, Indonesia, Ireland, Iceland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Monaco, Montenegro, Norway, the Netherlands, Poland, Portugal, the Dem. People's Rep. of Korea, the Czech Rep., the United Kingdom, Serbia, Slovenia, Sweden and Switzerland, the frequency 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 (Rev.WRC-23)**. (WRC-23)

5.163 *Additional allocation:* in Armenia, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency 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-19)

5.164 *Additional allocation:* in Albania, Algeria, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Croatia, Denmark, Spain, Estonia, Eswatini, Finland, France, Gabon, Greece, Hungary, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Türkiye, Slovakia, Czech Rep., Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Chad, Togo and Tunisia, the frequency band 47-68 MHz, in South Africa the frequency band 47-50 MHz, and in Latvia the frequency bands 48.5-56.5 MHz and 58-68 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-23)

5.165 *Additional allocation:* in Angola, Cameroon, Congo (Rep. of the), Egypt, Madagascar, Mozambique, Niger, Somalia, Sudan, South Sudan, Tanzania and Chad, the frequency band 47-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

5.166 (SUP - WRC-15)

5.166A *Different category of service:* in Austria, Cyprus, the Vatican, Croatia, Denmark, Spain, Finland, Hungary, Latvia, the Netherlands, the Czech Republic, the United Kingdom, Slovakia and Slovenia, the frequency band 50.0-50.5 MHz is allocated to the amateur service on a primary basis. Stations in the amateur service in these countries shall not cause harmful interference to, or claim protection from, stations of the broadcasting, fixed and mobile services operating in accordance with the Radio Regulations in the frequency band 50.0-50.5 MHz in the countries not listed in this provision. For a station of these services, the protection criteria in No. **5.169B** shall also apply. In Region 1, with the exception of those countries listed in No. **5.169**, wind profiler radars operating in the radiolocation service under No. **5.162A** are authorized to operate on the basis of equality with stations in the amateur service in the frequency band 50.0-50.5 MHz. (WRC-19)

5.166B In Region 1, stations in the amateur service operating on a secondary basis shall not cause harmful interference to, or claim protection from, stations of the broadcasting service. The field strength generated by an amateur station in Region 1 in the frequency band 50-52 MHz shall not exceed a calculated value of +6 dB(μV/m) at a height of 10 m above ground for more than 10% of time along the border of a country with operational analogue broadcasting stations in Region 1 and of neighbouring countries with broadcasting stations in Region 3 listed in Nos. **5.167** and **5.168**. (WRC-19)

5.166C In Region 1, stations in the amateur service in the frequency band 50-52 MHz, with the exception of those countries listed in No. **5.169**, shall not cause harmful interference to, or claim protection from, wind profiler radars operating in the radiolocation service under No. **5.162A**. (WRC-19)

5.166D *Different category of service:* in Lebanon, the frequency band 50-52 MHz is allocated to the amateur service on a primary basis. Stations in the amateur service in Lebanon shall not cause harmful interference to, or claim protection from, stations of the broadcasting, fixed and mobile services operating in accordance with the Radio Regulations in the frequency band 50-52 MHz in the countries not listed in this provision. (WRC-19)

5.166E In the Russian Federation, only the frequency band 50.080-50.280 MHz is allocated to the amateur service on a secondary basis. The protection criteria for the other services in the countries not listed in this provision are specified in Nos. **5.166B** and **5.169B**. (WRC-19)

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, Eswatini, Lesotho, Malawi, Namibia, Rwanda, South Africa, Zambia and Zimbabwe, the frequency band 50-54 MHz is allocated to the amateur service on a primary basis. In Senegal, the frequency band 50-51 MHz is allocated to the amateur service on a primary basis. (WRC-19)

5.169A *Alternative allocation:* in the following countries in Region 1: Angola, Saudi Arabia, Bahrain, Burkina Faso, Burundi, the United Arab Emirates, Gambia, Jordan, Kenya, Kuwait, Mauritius, Mozambique, Oman, Uganda, Qatar, South Sudan and Tanzania, the frequency band 50-54 MHz is allocated to the amateur service on a primary basis. In Guinea-Bissau, the frequency band 50.0-50.5 MHz is allocated to the amateur service on a primary basis. In Djibouti, the frequency band 50-52 MHz is allocated to the amateur service on a primary basis. With the exception of those countries listed in No. **5.169**, stations in the amateur service operating in Region 1 under this footnote, in all or part of the frequency band 50-54 MHz, shall not cause harmful interference to, or claim protection from, stations of other services operating in accordance with the Radio Regulations in Algeria, Egypt, Iran (Islamic Republic of), Iraq, Israel, Libya, Palestine[*], the Syrian Arab Republic, the Dem. People's Republic of Korea, Sudan and Tunisia. The field strength generated by an amateur station in the frequency band 50-54 MHz shall not exceed a value of +6 dB(μV/m) at a height of 10 m above ground for more than 10% of time along the borders of listed countries requiring protection. (WRC-19)

5.169B Except countries listed under No. **5.169**, stations in the amateur service used in Region 1, in all or part of the 50-54 MHz frequency band, shall not cause harmful interference to, or claim protection from, stations of other services used in accordance with the Radio Regulations in Algeria, Armenia, Azerbaijan, Belarus, Egypt, Russian Federation, Iran (Islamic Republic of), Iraq, Kazakhstan, Kyrgyzstan, Libya, Uzbekistan, Palestine*, the Syrian Arab Republic, Sudan, Tunisia and Ukraine. The field strength generated by an amateur station in the frequency band 50-54 MHz shall not exceed a value of +6 dB(μV/m) at a height of 10 m above ground for more than 10% of time along the borders of the countries listed in this provision. (WRC-19)

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, Eswatini, Lesotho, Malawi, Mali, Namibia, Dem. Rep. of the Congo, Rwanda, South Africa, Zambia and Zimbabwe, the frequency band 54-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)

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)

---

[*] Pursuant to Resolution 99 (Rev. Dubai, 2018) and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

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, Belarus, the Russian Federation, Kazakhstan, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency bands 68-73 MHz and 76-87.5 MHz are allocated to the broadcasting service on a primary basis. In Latvia and Lithuania, the frequency bands 68-73 MHz and 76-87.5 MHz are allocated to the broadcasting and mobile, except aeronautical mobile, services on a primary basis. In Mongolia, the frequency band 76-87.5 MHz is allocated to the broadcasting service on a primary basis; the stations of the broadcasting service shall not cause harmful interference to, or claim protection from, existing or planned fixed and mobile stations in the neighbouring countries. The services to which these frequency 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-23)

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, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 73-74 MHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-23)

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 guardband to stations of other services which, because of their power or geographical position, might cause harmful interference or otherwise place a constraint on marker beacons.

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

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

5.182 *Additional allocation:* in Samoa, the band 75.4-87 MHz is also allocated to the broadcasting service on a primary basis. (WRC-23)

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 and Guyana, 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-23)

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 Kyrgyzstan, Somalia and Turkmenistan, the frequency band 104-108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a secondary basis. (WRC-19)

5.195 Not used.

5.196 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 frequency 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-23)**. The use of the frequency 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-23)

5.198 (SUP - WRC-07)

5.198A The use of the frequency band 117.975-137 MHz by the aeronautical mobile-satellite (R) service is subject to coordination under No. **9.11A**. No. **9.16** does not apply. Such use shall be limited to non-geostationary-satellite systems operated in accordance with international aeronautical standards. Resolution **406 (WRC-23)** applies. (WRC-23)

5.198B The use of the frequency band 117.975-137 MHz by the aeronautical mobile (R) service shall have priority over use by the aeronautical mobile-satellite (R) service. (WRC-23)

5.199 (SUP - WRC-07)

5.200 In the frequency 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 and the aeronautical mobile-satellite service. (WRC-23)

5.201 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Egypt, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq (Republic of), Japan, Kazakhstan, Mali, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Qatar, Kyrgyzstan, Romania, Senegal, Somalia, Tajikistan and Turkmenistan, 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-23)

5.202 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Mali, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, Senegal, Tajikistan and Turkmenistan, 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-23)

5.203 (SUP - WRC-07)

5.203A (SUP - WRC-07)

5.203B (SUP - WRC-07)

5.203C The use of the space operation service (space-to-Earth) with non-geostationary satellite short-duration mission systems in the frequency band 137-138 MHz is subject to Resolution **660 (WRC-19)**. Resolution **32 (WRC-19)*** applies. These systems shall not cause harmful interference to, or claim protection from, the existing services to which the frequency band is allocated on a primary basis. (WRC-19)

5.204 *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Kuwait, Montenegro, Oman, Pakistan, the Philippines, Qatar, Singapore, Thailand and Yemen, the frequency band 137-138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. **5.33**). (WRC-19)

5.205 *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 frequency bands 137-138 MHz, 387-390 MHz and 400.15-401 MHz and in the maritime mobile-satellite service (space-to-Earth) in the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the frequency bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions as shown in the most recent version of Recommendation ITU-R RA.769. (WRC-19)

* Note by the Secretariat: This Resolution was revised by WRC-23.

5.208B* In the frequency bands:

137-138 MHz,
157.1875-157.3375 MHz,
161.7875-161.9375 MHz,
387-390 MHz,
400.15-401 MHz,
1 452-1 492 MHz,
1 525-1 610 MHz,
1 613.8-1 626.5 MHz,
2 655-2 690 MHz,
21.4-22 GHz,

Resolution **739 (Rev.WRC-19)** applies. (WRC-19)

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

5.209A The use of the frequency band 137.175-137.825 MHz by non-geostationary-satellite systems in the space operation service identified as short-duration mission in accordance with Appendix **4** is not subject to No. **9.11A**. (WRC-19)

5.210 *Additional allocation:* in Italy and the United Kingdom, the frequency 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-23)

5.211 *Additional allocation:* in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Guinea, Ireland, Israel, Kenya, Kuwait, Lebanon, Liechtenstein, Luxembourg, North Macedonia, Mali, Malta, Montenegro, Norway, the Netherlands, Qatar, Türkiye, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sweden, Switzerland, Tanzania and Tunisia, the frequency band 138-144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis. (WRC-23)

5.212 *Alternative allocation:* in Angola, Botswana, Cameroon, the Central African Rep., Congo (Rep. of the), Eswatini, 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, Chad, Togo, Zambia and Zimbabwe, the frequency band 138-144 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-19)

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, North Macedonia, Montenegro, Serbia, Somalia, Sudan, South Sudan and Tanzania, the frequency band 138-144 MHz is also allocated to the fixed service on a primary basis. (WRC-19)

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.

---

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

5.218A The frequency band 148-149.9 MHz in the space operation service (Earth-to-space) may be used by non-geostationary-satellite systems with short-duration missions. Non-geostationary-satellite systems in the space operation service used for a short-duration mission in accordance with Resolution **32 (WRC-19)*** of the Radio Regulations are not subject to agreement under No. **9.21**. At the stage of coordination, the provisions of Nos. **9.17** and **9.18** also apply. In the frequency band 148-149.9 MHz, non-geostationary-satellite systems with short-duration missions shall not cause unacceptable interference to, or claim protection from, existing primary services within this frequency band, or impose additional constraints on the space operation and mobile-satellite services. In addition, earth stations in non-geostationary-satellite systems in the space operation service with short-duration missions in the frequency band 148-149.9 MHz shall ensure that the power flux-density does not exceed −149 dB(W/(m^2 · 4 kHz)) for more than 1% of time at the border of the territory of the following countries: Armenia, Azerbaijan, Belarus, China, Korea (Rep. of), Cuba, Russian Federation, India, Iran (Islamic Republic of), Japan, Kazakhstan, Malaysia, Uzbekistan, Kyrgyzstan, Thailand and Viet Nam. In case this power flux-density limit is exceeded, agreement under No. **9.21** is required to be obtained from countries mentioned in this footnote. (WRC-19)

5.219 The use of the frequency band 148-149.9 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the frequency band 148-149.9 MHz. The use of the frequency band 148-149.9 MHz by non-geostationary-satellite systems in the space operation service identified as short-duration mission is not subject to No. **9.11A**. (WRC-19)

5.220 The use of the 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 Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Djibouti, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Eswatini, Ethiopia, the Russian Federation, Finland, France, Gabon, Georgia, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Türkiye, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Somalia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Tanzania, Chad, Togo, Tonga, Trinidad and Tobago, Tunisia, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-23)

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

* Note by the Secretariat: This Resolution was revised by WRC-23.

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**.

In the bands 156-156.4875 MHz, 156.5625-156.7625 MHz, 156.8375-157.45 MHz, 160.6-160.975 MHz and 161.475-162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles **31** and **52**, and Appendix **18**).

Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.

However, the frequencies 156.8 MHz and 156.525 MHz and the frequency bands in which priority is given to the maritime mobile service may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations and taking into account current frequency usage and existing agreements. (WRC-07)

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

5.227A (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)

5.228AB The use of the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz by the maritime mobile-satellite service (Earth-to-space) is limited to non-geostationary-satellite systems operating in accordance with Appendix **18**. (WRC-19)

5.228AC The use of the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz by the maritime mobile-satellite service (space-to-Earth) is limited to non-geostationary-satellite systems operating in accordance with Appendix **18**. Such use is subject to agreement obtained under No. **9.21** with respect to the terrestrial services in Azerbaijan, Belarus, China, Korea (Rep. of), Cuba, the Russian Federation, the Syrian Arab Republic, the Dem. People’s Rep. of Korea, South Africa and Viet Nam. (WRC-19)

5.228A 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), including AIS search and rescue transmitters (AIS-SART) and satellite emergency position indicating radio beacons with AIS (EPIRB-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, AIS-SART and EPIRB-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-23)

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 (SUP - WRC-23)

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 and Mexico, the frequency band 216-220 MHz is also allocated to the land mobile service on a primary basis. (WRC-19)

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

5.244 (SUP - WRC-97)

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

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

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

5.248 Not used.

5.249 Not used.

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

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

5.252 *Alternative allocation:* in Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe, the frequency 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**. (WRC-19)

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)

5.260A In the frequency band 399.9-400.05 MHz, the maximum e.i.r.p. of any emission of earth stations in the mobile-satellite service shall not exceed 5 dBW in any 4 kHz band and the maximum e.i.r.p. of each earth station in the mobile-satellite service shall not exceed 5 dBW in the whole 399.9-400.05 MHz frequency band. Until 22 November 2022, this limit shall not apply to satellite systems for which complete notification information has been received by the Radiocommunication Bureau by 22 November 2019 and that have been brought into use by that date. After 22 November 2022, these limits shall apply to all systems within the mobile-satellite service operating in this frequency band.

In the frequency band 399.99-400.02 MHz, the e.i.r.p. limits as specified above shall apply after 22 November 2022 to all systems within the mobile-satellite service. Administrations are requested that their mobile-satellite service satellite links in the 399.99-400.02 MHz frequency band comply with the e.i.r.p. limits as specified above, after 22 November 2019. (WRC-19)

5.260B In the frequency band 400.02-400.05 MHz, the provisions of No. **5.260A** are not applicable for telecommand uplinks within the mobile-satellite service. (WRC-19)

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

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

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

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

5.264A In the frequency band 401-403 MHz, the maximum e.i.r.p. of any emission of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 22 dBW in any 4 kHz band for geostationary-satellite systems and non-geostationary-satellite systems with an orbit of apogee equal or greater than 35 786 km.

The maximum e.i.r.p. of any emission of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 7 dBW in any 4 kHz band for non-geostationary-satellite systems with an orbit of apogee lower than 35 786 km.

The maximum e.i.r.p. of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 22 dBW for geostationary-satellite systems and non-geostationary-satellite systems with an orbit of apogee equal or greater than 35 786 km in the whole 401-403 MHz frequency band. The maximum e.i.r.p. of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 7 dBW for non-geostationary-satellite systems with an orbit of apogee lower than 35 786 km in the whole 401-403 MHz frequency band.

Until 22 November 2029, these limits shall not apply to satellite systems for which complete notification information has been received by the Radiocommunication Bureau by 22 November 2019 and that have been brought into use by that date. After 22 November 2029, these limits shall apply to all systems within the meteorological-satellite service and the Earth exploration-satellite service operating in this frequency band. (WRC-19)

5.264B Non-geostationary-satellite systems in the meteorological-satellite service and the Earth exploration-satellite service for which complete notification information has been received by the Radiocommunication Bureau no later than 28 April 2007 are exempt from provisions of No. **5.264A** and may continue to operate in the frequency band 401.898-402.522 MHz on a primary basis without exceeding a maximum e.i.r.p. level of 12 dBW. (WRC-23)

5.265 In the frequency band 403-410 MHz, Resolution **205 (Rev.WRC-19)** applies. (WRC-19)

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

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

5.268 Use of the 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 $0° \leq \delta \leq 5°$, $-153 + 0.077\ (\delta - 5)$ dB(W/m^2) for $5° \leq \delta \leq 70°$ and -148 dB(W/m^2) for $70° \leq \delta \leq 90°$, 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, Brazil, the United States, India, Japan and the United Kingdom, the allocation of the frequency bands 420-430 MHz and 440-450 MHz to the radiolocation service is on a primary basis (see No. **5.33**). (WRC-23)

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, North 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-19)

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, Türkiye, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Switzerland, Thailand, Togo 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-23)

5.277 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo (Rep. of the), Djibouti, the Russian Federation, Georgia, Hungary, Israel, Kazakhstan, Mali, Uzbekistan, Poland, the Dem. Rep. of the Congo, Kyrgyzstan, Slovakia, Romania, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the frequency band 430-440 MHz is also allocated to the fixed service on a primary basis. (WRC-19)

5.278 *Different category of service:* in Argentina, Brazil, Colombia, Costa Rica, Cuba, Guyana, Honduras, Panama, Paraguay, Uruguay and Venezuela, the allocation of the frequency band 430-440 MHz to the amateur service is on a primary basis (see No. **5.33**). (WRC-19)

5.279 *Additional allocation:* in Mexico, the frequency bands 430-435 MHz and 438-440 MHz are also allocated on a primary basis to the mobile, except aeronautical mobile, service, and on a secondary basis to the fixed service, subject to agreement obtained under No. **9.21**. (WRC-19)

5.279A The use of the frequency band 432-438 MHz by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU-R RS.1260-2. Additionally, the Earth exploration-satellite service (active) in the frequency band 432-438 MHz shall not cause harmful interference to the aeronautical radionavigation service in China. The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. **5.29** and **5.30**. (WRC-19)

5.280 In Germany, Austria, Bosnia and Herzegovina, Croatia, Liechtenstein, North Macedonia, Montenegro, Portugal, Serbia, Slovenia and Switzerland, the frequency 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 frequency band must accept harmful interference which may be caused by these applications. ISM equipment operating in this frequency band is subject to the provisions of No. **15.13**. (WRC-19)

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-19)**[*]. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-19)

5.286B 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 Cabo 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-23)

5.287 Use of the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz by the maritime mobile service is limited to on-board communication stations. The characteristics of the equipment and the channelling arrangement shall be in accordance with Recommendation ITU-R M.1174-4. The use of these frequency bands in territorial waters is subject to the national regulations of the administration concerned. (WRC-19)

5.288 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.1174-4. (WRC-19)

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

5.290 *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.

---

[*] Note by the Secretariat: This Resolution was revised by WRC-23.

5.291A *Additional allocation:* in Germany, Austria, Denmark, Estonia, Liechtenstein, 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 (Rev.WRC-23)**. (WRC-23)

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 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-23)

5.294 *Additional allocation:* in Saudi Arabia, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Israel, Libya, Palestine[*], 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-23)

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-19)**[†]. 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. (WRC-19)

5.295A *Additional allocation:* in Albania, Germany, Andorra, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Cyprus, Vatican, Croatia, Denmark, Estonia, Finland, France, Georgia, Greece, Hungary, Ireland, Iceland, Latvia, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malta, Moldova, Monaco, Montenegro, Norway, Uzbekistan, Kingdom of the Netherlands, Poland, Portugal, Türkiye, Slovakia, the Czech Republic, Romania, the United Kingdom, San Marino, Serbia, Slovenia, Sweden, Switzerland and Ukraine, the frequency band 470-694 MHz is allocated to the mobile, except aeronautical mobile, service on a secondary basis, subject to agreement obtained under No. **9.21**. For the protection of the broadcasting service, stations in the mobile service shall not create a field strength for more than 1% of the time at the highest of the clutter height or 10 m above ground level at the border of the territory of any other administration that exceeds the field strength value as calculated using § 4.1.3.2 of Annex 2 to the GE06 Agreement with regard to allowance for multiple interference, Table A.1.10 and the methodology given in the GE06 Agreement. These limits may be exceeded on the territory of any country whose administration has so agreed. This allocation shall in no way adversely affect the broadcast development or undermine new entries of the broadcasting service to the GE06 Plan. (WRC-23)

5.296 *Additional allocation:* in Albania, Algeria, Germany, Angola, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Vatican, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Djibouti, Egypt, United Arab Emirates, Spain, Estonia, Eswatini, Finland, France, Gabon, Gambia, Georgia, Ghana, Hungary, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malawi, Mali, Malta, Morocco, Mauritius, Mauritania, Moldova, Monaco, Mozambique, Namibia, Niger, Nigeria, Norway, Oman, Uganda, Palestine*, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Türkiye, Slovakia, the Czech Republic, Romania, the United Kingdom, Rwanda, San Marino, Senegal, Serbia, Sudan, South Africa, Sweden, Switzerland, Tanzania, Chad, Togo, Tunisia, 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

[*] Pursuant to Resolution 99 (Rev. Dubai, 2018) of the Plenipotentiary Conference and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

[†] Note by the Secretariat: This Resolution was revised by WRC-23.

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-23)

5.296A In Micronesia, the Solomon Islands, Tuvalu and Vanuatu, the frequency band 470-698 MHz, or portions thereof, and in Bangladesh, Lao P.D.R., Maldives, New Zealand and Viet Nam, 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-23)**. 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-23)

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**. In Mexico, the frequency band 512-608 MHz is also allocated on a secondary basis to the fixed service (see No. **5.32**). (WRC-19)

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, the United Arab Emirates, Iraq, Israel, Jordan, Libya, Oman, Palestine*, 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-23)

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, except in China and India, the band 608-614 MHz is also allocated to the radio astronomy service on a secondary basis. (WRC-23)

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

5.307A *Additional allocation*: in Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, Iraq, Jordan, Kuwait, Oman, Palestine*, Qatar and the Syrian Arab Republic, the frequency band 614-694 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis and identified for International Mobile Telecommunications (IMT) – see Resolution **224 (Rev.WRC-23)** subject to the agreement obtained under No. **9.21.** Stations in the mobile service shall not create a field strength for more than 1% of the time at the highest of the clutter height or 10 m above ground level at the border of the territory of any other administration that exceeds the field strength value as calculated using § 4.1.3.2 of Annex 2 to the GE06 Agreement with regard to allowance for multiple interference, Table A.1.10

* Pursuant to Resolution 99 (Rev. Dubai, 2018) of the Plenipotentiary Conference, and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

and the methodology given in the GE06 Agreement. Stations in the mobile service of the countries listed in this footnote shall not cause harmful interference to, or claim protection from the existing and future broadcasting stations of the neighbouring countries operating in accordance with the GE06 Plan. 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 and shall in no way adversely affect the development of the existing and future broadcasting service in accordance with the GE06 Agreement. For countries party to the GE06 Agreement, the use of stations in the mobile service is also subject to the successful application of the procedures of that Agreement. This allocation does not establish priority in the Radio Regulations and shall allow the implementation and development of the broadcasting service in accordance with the GE06 Agreement. The countries listed in this footnote and located in the African Broadcasting Area should ensure protection of the radio astronomy service within the frequency band 606-614 MHz, as allocated in No. **5.304**, consistent with the most recent version of Recommendation ITU-R RA.769. The countries listed in this footnote, which are neighbouring to the countries listed in No. **5.312**, should ensure the protection of the aeronautical radionavigation service in the frequency band 645-862 MHz. (WRC-23)

5.307B *Additional allocation:* in Gambia, Mauritania, Namibia, Nigeria, Senegal, Somalia, Tanzania and Chad, the frequency band 614-694 MHz is allocated to the mobile service on a secondary basis. For the protection of the broadcasting service, stations in the mobile service shall not create a field strength for more than 1% of the time at the highest of the clutter height or 10 m above ground level at the border of the territory of any other administration that exceeds the field strength value as calculated using § 4.1.3.2 of Annex 2 to the GE06 Agreement with regard to allowance for multiple interference, Table A.1.10 and the methodology given in the GE06 Agreement. This allocation shall in no way adversely affect the broadcast development or undermine new entries of the broadcasting service to the GE06 Plan. Additional measures shall be used by administrations implementing stations in the mobile services to protect stations in the broadcasting service of neighbouring administrations such as a distance limitation from the border of a neighbouring country. (WRC-23)

5.308 *Different category of service:* in Belize, Colombia, El Salvador and Guatemala, the frequency band 614-698 MHz is 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-23)

5.308A In the Bahamas, Barbados, Belize, Canada, Colombia, El Salvador, the United States, Guatemala, Jamaica and Mexico, the frequency band 614-698 MHz, or portions thereof, is identified for International Mobile Telecommunications (IMT) – see Resolution **224 (Rev.WRC-23)**. 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. (WRC-23)

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 (SUP - WRC-19)

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, and in Bulgaria the frequency bands 726-753 MHz, 778-811 MHz and 822-852 MHz, are also allocated to the aeronautical radionavigation service on a primary basis. (WRC-23)

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 (Rev.WRC-23)**. See also Resolution **224 (Rev.WRC-23)**. (WRC-23)

5.312B The frequency band 698-960 MHz, or portions thereof, in Region 2, and the frequency band 694-960 MHz, or portions thereof, in Region 1, are identified for use by high-altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). 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. Resolution **213 (WRC-23)** shall apply. HIBS shall not claim protection from existing primary services. No. **5.43A** does not apply, see *resolves* 2 of Resolution **213 (WRC-23)**. Such use of HIBS in the frequency bands 694-728 MHz, 830-835 MHz and 805.3-806.9 MHz is limited to reception by HIBS. (WRC-23)

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, the Dem. People's Rep. of Korea, 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. (WRC-19)

5.313B (SUP - WRC-15)

5.314 (SUP - WRC-15)

5.314A The frequency band 698-960 MHz, or portions thereof, in Australia, Maldives, Micronesia, Papua New Guinea, Tonga and Vanuatu, and the frequency bands 703-733 MHz, 758-788 MHz, 890-915 MHz and 935-960 MHz, or portions thereof, in China, India, Indonesia, Japan, Korea (Rep. of), Malaysia, the Philippines and Thailand are identified for use by high-altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). 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. Resolution **213 (WRC-23)** shall apply. HIBS shall not claim protection from existing primary services. No. **5.43A** does not apply, see *resolves* 2 of Resolution **213 (WRC-23)**. Such use of HIBS in the frequency bands 698-728 MHz and 830-835 MHz is limited to reception by HIBS. (WRC-23)

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-23)** and **749 (Rev.WRC-23)** shall apply, as appropriate. (WRC-23)

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-23)**, **760 (Rev.WRC-23)** and **749 (Rev.WRC-23)**, 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-23)

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 frequency 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, Djibouti, Egypt, Spain, Lesotho, Libya, Morocco, Malawi, Namibia, Nigeria, South Africa, Tanzania, Zimbabwe and Zambia, subject to agreement obtained under No. **9.21**. (WRC-23)

5.323 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 862-960 MHz, in Bulgaria the frequency bands 862-880 MHz and 915-925 MHz, and in Romania the frequency 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-19)

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, Paraguay, Uruguay and Venezuela, the frequency band 902-928 MHz is allocated to the land mobile service on a primary basis. In Mexico, the frequency band 902-928 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. In Colombia, the frequency band 902-915 MHz is allocated to the land mobile service on a primary basis. (WRC-23)

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 (Rev.WRC-19)** shall apply. (WRC-19)

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

5.329 Use of the radionavigation-satellite service in the frequency 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 frequency band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. No. **5.43** shall not apply in respect of the radiolocation service. Resolution **608 (Rev.WRC-19)** shall apply. (WRC-19)

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

5.330 *Additional allocation:* in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Nepal, Oman, Pakistan, Palestine†, the Philippines, Qatar, the Syrian Arab Republic, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 1 215-1 300 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-23)

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, Djibouti, 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, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, Pakistan, Palestine†, the Kingdom of the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Türkiye, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sudan, South Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Venezuela and Viet Nam, the frequency band 1 215-1 300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the frequency band 1 240-1 300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service. (WRC-23)

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)

5.332A Administrations authorizing operation of the amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz, or portions thereof, shall ensure that the amateur and amateur-satellite services do not cause harmful

---

* Note by the Secretariat: This Resolution was revised by WRC-19.

† Pursuant to Resolution 99 (Rev. Dubai, 2018) of the Plenipotentiary Conference and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

interference to radionavigation-satellite service (space-to-Earth) receivers in accordance with No. **5.29** (see the most recent version of Recommendation ITU-R M.2164). The authorizing administration, upon receipt of a report of harmful interference caused by a station of the amateur or amateur-satellite services, shall take all necessary steps to rapidly eliminate such interference. (WRC-23)

5.333 (SUP - WRC-97)

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

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

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

5.336 Not used.

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

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

5.338 In 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, 24.25-27.5 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz, 51.4-52.4 GHz, 52.4-52.6 GHz, 81-86 GHz and 92-94 GHz, Resolution **750 (Rev.WRC-19)** applies. (WRC-19)

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

5.339A (SUP - WRC-07)

5.340 All emissions are prohibited in the following bands:

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

50.2-50.4 GHz[2],

52.6-54.25 GHz,

86-92 GHz,

100-102 GHz,

109.5-111.8 GHz,

114.25-116 GHz,

148.5-151.5 GHz,

164-167 GHz,

182-185 GHz,

190-191.8 GHz,

200-209 GHz,

226-231.5 GHz,

250-252 GHz. (WRC-03)

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

5.341A 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)

---

[2] **5.340.1** The allocation to the Earth exploration-satellite service (passive) and the space research service (passive) in the band 50.2-50.4 GHz should not impose undue constraints on the use of the adjacent bands by the primary allocated services in those bands. (WRC-97)

* Note by the Secretariat: This Resolution was revised by WRC-19 and WRC-23

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 frequency band 1 452-1 492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev.WRC-19)**. (WRC-19)

5.346 In Algeria, Angola, Saudi Arabia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Eswatini, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Kenya, Kuwait, Lesotho, Lebanon, Liberia, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Palestine[**], Qatar, Dem. Rep. of the Congo, Rwanda, Senegal, Seychelles, Somalia, Sudan, South Sudan, South Africa, Tanzania, Chad, Togo, Tunisia, Zambia, and Zimbabwe, the frequency band 1 452-1 492 MHz is identified for use by administrations listed above wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-23)**. 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 (Rev.WRC-19)**. (WRC-23)

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-19)**[***] and Resolution **761 (Rev.WRC-19)**. 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. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-19)

5.347 (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 1 518-1 525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. **9.11A** for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be –150 dB(W/m^2) in any 4 kHz band for all angles of arrival, instead of those given in Table 5-2 of Appendix **5**. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. **5.43A** does not apply. (WRC-03)

[**] 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. Dubai, 2018) of the Plenipotentiary Conference and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

[***] Note by the Secretariat: This Resolution was revised by WRC-23.

[†] 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.

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, Djibouti, Egypt, Iran (Islamic Republic of), Iraq, Israel, Kuwait, Lebanon, North Macedonia, Morocco, Qatar, Syrian Arab Republic, Kyrgyzstan, Turkmenistan and Yemen, the allocation of the frequency band 1 525-1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-23)

5.350 *Additional allocation:* in Kyrgyzstan and Turkmenistan, the frequency band 1 525-1 530 MHz is also allocated to the aeronautical mobile service on a primary basis. (WRC-19)

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

5.351A For the use of the frequency 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-23)** and **225 (Rev.WRC-23)**. (WRC-23)

5.352 (SUP - WRC-97)

5.352A In the frequency band 1 525-1 530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in Algeria, Saudi Arabia, Egypt, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Viet Nam and Yemen notified prior to 1 April 1998. (WRC-19)

5.353 (SUP - WRC-97)

5.353A In applying the procedures of Section II of Article **9** to the mobile-satellite service in the frequency 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 (Rev.WRC-23)** shall apply. (WRC-23)

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-23)** shall apply. (WRC-23)

5.358 (SUP - WRC-97)

5.359 *Additional allocation:* in Germany, Saudi Arabia, Armenia, Azerbaijan, Belarus, Cameroon, the Russian Federation, Georgia, Guinea, Guinea-Bissau, Jordan, Kazakhstan, Kuwait, Lithuania, Mauritania, Uganda, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Tajikistan, Tunisia and Turkmenistan, 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-23)

5.360 (SUP - WRC-97)

5.361 (SUP - WRC-97)

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 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 The provisions of No. **4.10** do not apply with respect to the radiodetermination-satellite and mobile-satellite services in the frequency band 1 610-1 626.5 MHz. However, No. **4.10** applies in the frequency band 1 610-1 626.5 MHz with respect to the aeronautical radionavigation-satellite service when operating in accordance with No. **5.366**, the aeronautical mobile-satellite (R) service when operating in accordance with No. **5.367**, and in the frequency bands 1 614.4225-1 618.725 MHz or 1 616.3-1 620.38 MHz (Earth-to-space) (see *resolves* 5 of Resolution **365 (WRC-23)**) and 1 621.35-1 626.5 MHz with respect to the maritime mobile-satellite service when used for the global maritime distress and safety system (GMDSS). In applying the procedure of Section II of Article **9**, the provisions of No. **4.10** do not apply for the frequency bands 1 614.4225-1 618.725 MHz or 1 616.3-1 620.38 MHz (Earth-to-space) (see *resolves* 5 of Resolution **365 (WRC-23)**) and 2 483.59-2 499.91 MHz (space-to-Earth) for the maritime mobile-satellite service when used for the GMDSS with satellite networks or systems for which complete coordination information has been received by the Radiocommunication Bureau before 20 November 2023. Resolution **365 (WRC-23)** applies. (WRC-23)

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 frequency band 1 610.6-1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. **29.13** applies). The equivalent power flux-density (epfd) produced in the frequency band 1 610.6-1 613.8 MHz by all space stations of a non-geostationary-satellite system in the mobile-satellite service (space-to-Earth) operating in frequency band 1 613.8-1 626.5 MHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, using the methodology given in Recommendation ITU-R M.1583-1, and the radio astronomy antenna pattern described in Recommendation ITU-R RA.1631-0. (WRC-19)

5.372A The maritime mobile-satellite service in the frequency bands 1 614.4225-1 618.725 MHz or 1 616.3-1 620.38 MHz (Earth-to-space) (see *resolves* 5 of Resolution **365 (WRC-23)**) and 2 483.59-2 499.91 MHz (space-to-Earth) when they are used for the global maritime distress and safety system (GMDSS) is limited to the geostationary-satellite networks identified in Resolution **365 (WRC-23)** and their associated earth stations located within a service area from 75°E to 135°E longitude and from 10°N to 55°N latitude. Resolution **365 (WRC-23)** applies. (WRC-23)

5.373 Maritime mobile earth stations receiving in the frequency band 1 621.35-1 626.5 MHz shall not impose additional constraints on earth stations operating in the maritime mobile-satellite service or maritime earth stations of the radiodetermination-satellite service operating in accordance with the Radio Regulations in the frequency band 1 610-1 621.35 MHz or on earth stations operating in the maritime mobile-satellite service operating in accordance with the Radio Regulations in the frequency band 1 626.5-1 660.5 MHz, unless otherwise agreed between the notifying administrations. (WRC-19)

5.373A Maritime mobile earth stations receiving in the frequency band 1 621.35-1 626.5 MHz shall not impose constraints on the assignments of earth stations of the mobile-satellite service (Earth-to-space) and the radiodetermination-satellite service (Earth-to-space) in the frequency band 1 621.35-1 626.5 MHz in networks for which complete coordination information has been received by the Radiocommunication Bureau before 28 October 2019. (WRC-19)

5.374 Mobile earth stations in the mobile-satellite service operating in the bands 1 631.5-1 634.5 MHz and 1 656.5-1 660 MHz shall not cause harmful interference to stations in the fixed service operating in the countries listed in No. **5.359**. (WRC-97)

5.375 The use of the frequency 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, urgency and safety communications (see Article **31**). (WRC-23)

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 frequency band 1 668-1 675 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-23)

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 frequency band 1 668.4-1 675 MHz between the mobile-satellite service and the fixed and mobile services, Resolution **744 (Rev.WRC-23)** shall apply. (WRC-23)

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, and in the Dem. People's Rep. of Korea the frequency band 1 690-1 700 MHz is also allocated to the fixed service on a primary basis (see No. **5.33**) and to the mobile, except aeronautical mobile, service on a secondary basis. (WRC-23)

5.382 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, North Macedonia, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Turkmenistan, Ukraine and Yemen, the allocation of the frequency band 1 690-1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**). (WRC-23)

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, Kyrgyzstan, Romania, Tajikistan and Turkmenistan, the frequency 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-23)

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-23)** (see also Resolution **223 (Rev.WRC-23)**). (WRC-23)

5.388A The frequency bands 1 710-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and the frequency bands 1 710-1 980 MHz and 2 110-2 160 MHz in Region 2 are identified for the use by high altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). 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. Resolution **221 (Rev.WRC-23)** shall apply. HIBS shall not claim protection from existing primary services. No. **5.43A** does not apply. Such use of HIBS in the frequency bands 1 710-1 785 MHz in Regions 1 and 2, and 1 710-1 815 MHz in Region 3 is limited to reception by HIBS, and in the frequency band 2 110-2 170 MHz is limited to transmission from HIBS. (WRC-23)

5.388B (SUP - WRC-23)

5.389 Not used.

5.389A The use of the frequency 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-23)**. (WRC-23)

5.389B The use of the frequency 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, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay and Venezuela. (WRC-19)

5.389C The use of the frequency 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-23)**. (WRC-23)

---

* Note by the Secretariat: This Resolution was revised by WRC-19 and WRC-23.

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, Cabo Verde, Egypt, Iran (Islamic Republic of), Mali, Syrian Arab Republic and Tunisia, the use of the frequency 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 brought into use prior to 1 January 2005, nor hamper the development of those services, nor shall the former service request protection from the latter services. (WRC-23)

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-19)**, with the exception of *resolves* 3 in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz. Complementary terrestrial sound broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use. (WRC-19)

5.394 In the United States, the use of the frequency band 2 360-2 395 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. In Canada, the use of the frequency band 2 360-2 400 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. (WRC-23)

5.395 In France and Türkiye, 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-23)

5.396 (SUP - WRC-19)

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, Eswatini, Ethiopia, India, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, Dem. Rep. of the Congo, Sudan, 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-19)

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/(m2 · 4 kHz)) in Argentina, unless otherwise agreed by the administrations concerned.

5.408 (SUP - WRC-2000)

5.409 (SUP - WRC-07)

5.409A The frequency band 2 500-2 690 MHz in Regions 1 and 2, and the frequency band 2 500-2 655 MHz in Region 3 are identified for use by high-altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). 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. Resolution **218 (WRC-23)** shall apply. HIBS shall not claim protection from existing primary services. No. **5.43A** does not apply. Such use of HIBS in the frequency bands 2 500-2 510 MHz in Regions 1 and 2, and 2 500-2 535 MHz in Region 3 is limited to reception by HIBS. (WRC-23)

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

5.411 (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 2 520 MHz and 2 670 MHz, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2 690-2 700 MHz. (WRC-23)

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

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

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

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

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

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. Outside this area Table **21-4** of Article **21** shall apply. Furthermore, the coordination thresholds in Table 5-2 of Annex 1 to Appendix **5** of the Radio Regulations (Edition of 2004), in conjunction with the applicable provisions of Articles **9** and **11** associated with No. **9.11A**, shall apply to systems for which complete notification information has been received by the Radiocommunication 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 2 520-2 535 MHz may also be used for the aeronautical mobile-satellite service (space-to-Earth) for operation limited to within their national boundaries. (WRC-23)

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-19)**. 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-19)**. Geostationary broadcasting-satellite service (sound) systems for which complete Appendix **4** coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the frequency band 2 630-2 655 MHz, and for which

complete Appendix **4** coordination information has been received after 1 June 2005, shall not exceed the following limits, for all conditions and for all methods of modulation:

-130 dB(W/(m^2·MHz)) for $0^o \le \theta \le 5^o$

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

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

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-19)

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 The use of the frequency band 2 670-2 690 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-23)

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 Kyrgyzstan and Turkmenistan, the frequency band 3 100-3 300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-19)

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, Djibouti, Egypt, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lao P.D.R., Lebanon, Libya, Malaysia, Mongolia, Myanmar, New Zealand, Oman, Uganda, Pakistan, Palestine*, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Thailand, Viet Nam and Yemen, the frequency band 3 300-3 400 MHz is also allocated to the fixed and mobile services on a primary basis. Mongolia, New Zealand and the countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-23)

5.429A *Additional allocation*: in Angola, Botswana, Burkina Faso, Burundi, Cabo Verde, Central African Republic, Comoros, Djibouti, Eritrea, Eswatini, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, Lesotho, Liberia, Madagascar, Malawi, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Palestine*, the Dem. Rep. of the Congo, Rwanda, Sao Tomé and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Sudan, South Africa, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300-3 400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. Stations in the mobile service operating in the frequency band 3 300-3 400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-23)

5.429B In the following countries of Region 1: Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Comoros, Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, Eritrea, Eswatini, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mauritius, Mauritania, Mongolia, Mozambique, Namibia, Niger, Nigeria, Uganda, the Dem. Rep. of the Congo, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, South Sudan, South Africa, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). The use of this frequency band shall be in accordance with Resolution **223 (Rev.WRC-23)**. 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-23)

* Pursuant to Resolution 99 (Rev. Dubai, 2018) of the Plenipotentiary Conference, and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

5.429C *Different category of service*: in Argentina, Brazil, Cuba, the Dominican Republic, Guatemala, Mexico, Paraguay and Uruguay, the frequency band 3 300-3 400 MHz is allocated to the fixed service on a primary basis. Stations in the fixed 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-23)

5.429D In Region 2, the use of the mobile, except aeronautical mobile, service in 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-23)**. 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-23)

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, Indonesia, Lao P.D.R., Pakistan, the Philippines, Singapore 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-23)**. 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-23)

5.429G Stations in the mobile, except aeronautical mobile, service operating in the frequency band 3 300-3 400 MHz in Region 2 shall not cause harmful interference to, or claim protection from, systems operating in the radiolocation service. (WRC-23)

5.430 *Additional allocation:* in Kyrgyzstan and Turkmenistan, the frequency band 3 300-3 400 MHz is also allocated to the radionavigation service on a primary basis. (WRC-19)

5.430A The allocation of the frequency band 3 400-3 600 MHz to the mobile, except aeronautical mobile, service is subject to agreement obtained under No. **9.21**. This frequency band is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The provisions of Nos. **9.17** and **9.18** shall also apply in the coordination phase. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(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, the frequency band 3 400-3 475 MHz is also allocated to the amateur service on a secondary basis. (WRC-19)

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, Pakistan and the Dem. People's Rep. of Korea, the allocation of the frequency band 3 400-3 500 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-19)

5.432A In Korea (Rep. of), Japan, Pakistan and the Dem. People's Rep. of Korea, the frequency band 3 400-3 500 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 3 400-3 500 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-19)

5.432B *Different category of service:* in Australia, Bangladesh, Brunei Darussalam, China, French overseas communities of Region 3, India, Indonesia, Iran (Islamic Republic of), Malaysia, New Zealand, the Philippines, Singapore and Thailand, 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-19)

5.433 In Regions 2 and 3, in the band 3 400-3 600 MHz the radiolocation service is allocated on a primary basis. However, all administrations operating radiolocation systems in this band are urged to cease operations by 1985.

Thereafter, administrations shall take all practicable steps to protect the fixed-satellite service and coordination requirements shall not be imposed on the fixed-satellite service.

5.433A In Australia, Bangladesh, Brunei Darussalam, China, French overseas communities of Region 3, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, New Zealand, Pakistan, the Philippines, the Dem. People's Rep. of Korea and Singapore, 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-23)

5.433B In Angola, Botswana, Guinea, Lesotho, Malawi and South Sudan, the frequency band 3 600-3 700 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of the frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The conditions of No. **5.434A** shall apply. (WRC-23)

5.434 In Region 2, the frequency band 3 600-3 700 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. Administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to ensure the protection of the fixed-satellite service (space-to-Earth). (WRC-23)

5.434A The use of the frequency band 3 600-3 800 MHz by the mobile, except aeronautical mobile, service on a primary basis in Region 1 is subject to agreement obtained under No. **9.21** if the power flux-density (pfd) limit below is exceeded. The provisions of Nos. **9.17** and **9.18** shall also apply in the coordination phase. Before an administration in Region 1 brings into use a station in the mobile service in the frequency band 3 600-3 800 MHz, for the protection of stations in the fixed and fixed-satellite services, it shall ensure that the pfd produced at 3 m above ground does not exceed −154.5 dB(W/(m^2 · 4 kHz)) for more than 20% of the time at the border of the territory of any other administration. Stations in the mobile service operating in the frequency band 3 600-3 800 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations. (WRC-23)

5.434B In Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, Benin, Burkina Faso, Burundi, Cameroon, Central African Rep., Comoros, Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Eswatini, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Kazakhstan, Kenya, Kuwait, Lebanon, Liberia, Libya, Madagascar, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Uzbekistan, Palestine[*], Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, Sudan, South Africa, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, the frequency band 3 600-3 800 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of the frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The conditions of No. **5.434A** shall apply. (WRC-23)

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

5.435A *Different category of service:* In Angola, Botswana, Guinea, Lesotho, Malawi and South Sudan, the frequency band 3 700-3 800 MHz is allocated to the mobile service on a secondary basis. (WRC-23)

---

[*] Pursuant to Resolution 99 (Rev. Dubai, 2018) of the Plenipotentiary Conference, and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

5.435B In the Bahamas, Belize, Brazil, Canada, Colombia, Costa Rica, United States, Guatemala, the French overseas departments and communities in Region 2, Greenland, the overseas countries and territories within the Kingdom of the Netherlands in Region 2, Paraguay, Peru, Trinidad and Tobago and Uruguay, the frequency band 3 700-3 800 MHz is identified for use by any of 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. Administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to ensure the protection of the fixed-satellite service (space-to-Earth). (WRC-23)

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 (Rev.WRC-23)**. (WRC-23)

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 Brazil, Paraguay and 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-19)**[*]. (WRC-19)

5.441B In Angola, Argentina, Armenia, Azerbaijan, Benin, Botswana, Brazil, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Chile, China, Colombia, Congo (Rep. of the), Côte d'Ivoire, Djibouti, Eswatini, Russian Federation, Gabon, Ghana, Guinea, Iran (Islamic Republic of), Iraq, Kazakhstan, Lao P.D.R., Lesotho, Liberia, Madagascar, Malawi, Mali, Mongolia, Namibia, Niger, Uganda, Uzbekistan, the Dem. Rep. of the Congo, Kyrgyzstan, the Dem. People's Rep. of Korea, South Sudan, South Africa, Chad, Togo, Viet Nam, Zambia and Zimbabwe, 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 IMT stations 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 (pfd) 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. Resolution **223 (Rev.WRC-23)** applies. (WRC-23)

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)

---

[*] Note by the Secretariat: This Resolution was revised by WRC-23.

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-19)**;

- aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **418 (Rev.WRC-19)**. (WRC-19)

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 frequency 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-23)**. (WRC-23)

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

5.446C *Additional allocation:* in Region 1 (except in Algeria, Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan, South Sudan and Tunisia), the frequency band 5 150-5 250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations (see No. **1.83**), in accordance with Resolution **418 (Rev.WRC-19)**. These stations shall not claim protection from other stations operating in accordance with Article **5**. No. **5.43A** does not apply. (WRC-19)

5.446D *Additional allocation:* 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-19**). (WRC-19)

5.447 *Additional allocation:* in Côte d'Ivoire, Egypt, Lebanon, the Syrian Arab Republic and Tunisia, the frequency 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-23)** do not apply. (WRC-23)

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

5.447B *Additional allocation*: the band 5 150-5 216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to provisions of No. **9.11A**. The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5 150-5 216 MHz shall in no case exceed –164 dB(W/m^2) in any 4 kHz band for all angles of arrival.

5.447C Administrations responsible for fixed-satellite service networks in the band 5 150-5 250 MHz operated under Nos. **5.447A** and **5.447B** shall coordinate on an equal basis in accordance with No. **9.11A** with administrations responsible for non-geostationary-satellite networks operated under No. **5.446** and brought into use prior to 17 November 1995. Satellite networks operated under No. **5.446** brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. **5.447A** and **5.447B**.

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

5.447E *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). The radiolocation service, the Earth exploration-satellite service (active) and the space research service (active) shall not impose more stringent conditions upon the mobile service than those stipulated in Resolution **229 (Rev.WRC-23)**. (WRC-23)

5.448 *Additional allocation:* in Kyrgyzstan, Romania and Turkmenistan, the frequency band 5 250-5 350 MHz is also allocated to the radionavigation service on a primary basis. (WRC-19)

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

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

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

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

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

5.450 *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. The radiodetermination services shall not impose more stringent conditions upon the mobile service than those stipulated in Resolution **229 (Rev.WRC-23)**. (WRC-23)

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, Eswatini, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Niger, Nigeria, Oman, Uganda, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sri Lanka, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the frequency 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-23**) do not apply. In addition, in Afghanistan, Angola, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Dem. Rep. of the Congo, Fiji, Ghana, Kiribati, Lesotho, Malawi, Maldives, Mauritius, Micronesia, Mongolia, Mozambique, Myanmar, Namibia, Nauru, New Zealand, Papua New Guinea, Rwanda, Solomon Islands, South Sudan, South Africa, Tonga, Vanuatu, Zambia and Zimbabwe, the frequency band 5 725-5 850 MHz is allocated to the fixed service on a primary basis, and stations operating in the fixed service shall not cause harmful interference to and shall not claim protection from other primary services in the frequency band. (WRC-23)

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, Uzbekistan, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the frequency band 5 670-5 850 MHz is also allocated to the fixed service on a primary basis. (WRC-19)

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 (Rev.WRC-23)**. 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 (Rev.WRC-23)** shall apply. (WRC-23)

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 (Rev.WRC-23)** 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 (Rev.WRC-23)**. (WRC-23)

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)

5.457D In Cambodia, Lao P.D.R. and the Maldives, the frequency band 6 425-7 025 MHz is identified for the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution **220 (WRC-23)** applies. (WRC-23)

5.457E The frequency bands 6 425-7 125 MHz in Region 1 and 7 025-7 125 MHz in Region 3 are identified for use by administrations wishing to implement the terrestrial component of 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. Resolution **220 (WRC-23)** applies.

The frequency bands are also used for the implementation of wireless access systems (WAS), including radio local area networks (RLANs). (WRC-23)

5.457F In Brazil and Mexico, the frequency band 6 425-7 125 MHz is identified for the terrestrial component of International Mobile Telecommunications (IMT). The use of this frequency band for the implementation of IMT is subject to seeking agreement under No. **9.21** with neighbouring countries. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution **220 (WRC-23)** applies.

The frequency band is also used for the implementation of wireless access systems (WAS), including radio local area networks (RLANs). (WRC-23)

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 frequency 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**, with the exception that No. **9.21** shall not apply to the geostationary-satellite networks in the mobile-satellite service for which complete coordination information is received by the Bureau as of 1 January 2025 with respect to non-geostationary-satellite systems for which complete coordination or notification information, according to the case, is received by the Bureau as of 1 January 2025. Non-geostationary-satellite systems for which complete coordination or notification information, according to the case, is received by the Bureau as of 1 January 2025 shall not cause unacceptable interference to and shall not claim protection from geostationary-satellite networks in the mobile-satellite service operating in accordance with these Regulations. No. **5.43A** does not apply. (WRC-23)

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. (WRC-23)

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)

5.461AC In the frequency band 7 375-7 750 MHz, non-geostationary-satellite systems operating in the fixed-satellite service for which complete coordination or notification information, according to the case, is received by the Bureau as of 1 January 2025 shall not cause unacceptable interference to and shall not claim protection from geostationary-satellite networks in the maritime mobile-satellite service operating in accordance with these Regulations. No. **5.43A** does not apply. (WRC-23)

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 dB(W/m^2) in a 1 MHz band	for	$0 \leq \theta < 5°$
$-135 + 0.5\,(\theta - 5)$ dB(W/m^2) in a 1 MHz band	for	$5 \leq \theta < 25°$
-125 dB(W/m^2) in a 1 MHz band	for	$25 \leq \theta \leq 90°$ (WRC-12)

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

5.464 (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, Eswatini, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Sudan, Chad, Togo, Tunisia and Yemen, the frequency band 8 500-8 750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-19)

5.469 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Lithuania, Uzbekistan, Poland, Kyrgyzstan, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the frequency band 8 500-8 750 MHz is also allocated to the land mobile and radionavigation services on a primary basis. (WRC-23)

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, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the frequency bands 8 850-9 000 MHz and 9 200-9 300 MHz are also allocated to the radionavigation service on a primary basis. (WRC-19)

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, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the frequency band 9 800-10 000 MHz is also allocated to the radionavigation service on a primary basis. (WRC-19)

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, Colombia, Costa Rica, Cuba, the Dominican Republic, El Salvador, Ecuador, Guatemala, Honduras, Jamaica, Mexico, Paraguay, the overseas countries and territories within the Kingdom of the Netherlands in Region 2, Peru, Suriname and Uruguay, the frequency band 10-10.45 GHz is also allocated to the fixed and mobile services on a primary basis. In Venezuela, the frequency band 10-10.45 GHz is also allocated to the fixed service on a primary basis. (WRC-23)

5.480A In the following countries in Region 2: Brazil, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, Guatemala, Jamaica, Mexico, Paraguay, Peru and Uruguay, the frequency band 10-10.5 GHz is identified for the implementation of the terrestrial component of International Mobile Telecommunications (IMT). The implementation of this identification in Mexico is subject to seeking agreement with the United States under No. **9.21**. The use of the frequency band 10-10.5 GHz by IMT stations in the mobile service shall not claim protection from systems in 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. Resolution **219 (WRC-23)** applies. (WRC-23)

5.481 *Additional allocation*: in Algeria, Germany, Angola, Brazil, China, Colombia, Costa Rica, Côte d'Ivoire, Cuba, Djibouti, the Dominican Republic, Egypt, El Salvador, Ecuador, Spain, Guatemala, Hungary, Jamaica, Japan, Kenya, Morocco, Mexico, Nigeria, Oman, Uzbekistan, Pakistan, Palestine*, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania, Somalia, Suriname, Tunisia and Uruguay, the frequency band 10.45-10.5 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-23)

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

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

5.483 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, China, Colombia, Korea (Rep. of), Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, Tajikistan, Turkmenistan and Yemen, the frequency band 10.68-10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-19)

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

5.484A The use of the frequency 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), 17.3-17.7 GHz (space-to-Earth) in Region 2, 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

* Pursuant to Resolution 99 (Rev. Dubai, 2018) of the Plenipotentiary Conference, and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

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. In Region 2, No. **22.2** shall continue to apply in the frequency band 17.3-17.7 GHz. (WRC-23)

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)

* Note by the Secretariat: This Resolution was revised by WRC-19.

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

5.494 *Additional allocation:* in Algeria, 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, Palestine*, 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-23)

5.495 *Additional allocation:* in Greece, Monaco, Montenegro, Uganda 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-19)

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)

5.496A The frequency band 12.75-13.25 GHz (Earth-to-space) may be used by earth stations in motion, limited to earth stations on aircraft and vessels, communicating with geostationary space stations in the fixed-satellite service. Resolution **121 (WRC-23)** shall apply. (WRC-23)

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:

* Pursuant to Resolution 99 (Rev. Dubai, 2018) of the Plenipotentiary Conference, and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

– 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, Djibouti, 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, Somalia, 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-23)

5.501 *Additional allocation:* in Hungary, Japan, Kyrgyzstan, Romania and Turkmenistan, the frequency band 13.4-14 GHz is also allocated to the radionavigation service on a primary basis. (WRC-23)

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, Eswatini, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Chad, Viet Nam and Yemen, the frequency band 14-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-19)

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

5.506A In the frequency band 14-14.5 GHz, ship earth stations with an equivalent isotropically radiated power (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 (Rev.WRC-23)**. 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-23)

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 (Rev.WRC-23)** from these countries. (WRC-23)

5.507 Not used.

5.508 *Additional allocation:* in Germany, Italy, Libya, North Macedonia and the United Kingdom, the frequency band 14.25-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-23)

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, 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-23)

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, 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-23)

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 14.5-14.75 GHz in countries listed in Resolution **163 (WRC-15)** and 14.5-14.8 GHz in countries listed in Resolution **164 (WRC-15)**, 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-23)

5.509F 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)**, 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-23)

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

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

5.510A The allocation of the frequency band 14.8-15.35 GHz to the space research service on a primary basis is limited to satellite systems operating in the space-to-space, space-to-Earth and Earth-to-space directions at distances from the Earth of less than 2×10^6 km in accordance with Resolution **678 (WRC-23)**. Other uses of the frequency band by the space research service are on a secondary basis. The use of the frequency band 14.8-15.35 GHz by the space research service (space-to-Earth) (Earth-to-space) is on a secondary basis with respect to the terrestrial services in Algeria, Saudi Arabia, Bahrain, Korea (Rep. of), Egypt, the United Arab Emirates, the United States, India, Iraq, Japan, Kuwait, Libya, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Tunisia and Yemen. (WRC-23)

5.511 *Additional allocation:* in Saudi Arabia, Bahrain, Cameroon, Djibouti, Egypt, the United Arab Emirates, Guinea, Iran (Islamic Republic of), Iraq, Israel, Kuwait, Lebanon, Oman, Pakistan, Qatar, the Syrian Arab Republic and Somalia, the frequency band 15.35-15.4 GHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-23)

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 percent of the time. (WRC-12)

5.511G Stations in the aeronautical mobile (OR) service operating in the frequency band 15.41-15.7 GHz shall not cause harmful interference to the radio astronomy service operating in the frequency band 15.35-15.4 GHz. The

aggregate power flux-density (pfd) received from stations in the aeronautical mobile (OR) service operating in the frequency band 15.41-15.7 GHz at any radio astronomy station operating in the frequency band 15.35-15.4 GHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, unless specifically agreed by the affected administration(s). (WRC-23)

5.511H *Additional allocation*: in Indonesia, the frequency band 15.41-15.7 GHz is also allocated to the aeronautical mobile (OR) service on a secondary basis. Stations in the aeronautical mobile (OR) service operating in the frequency band 15.41-15.7 GHz shall not cause harmful interference to the radio astronomy service operating in the frequency band 15.35-15.4 GHz. The aggregate power flux-density (pfd) received from stations in the aeronautical mobile (OR) service operating in the frequency band 15.41-15.7 GHz at any radio astronomy station operating in the frequency band 15.35-15.4 GHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, unless specifically agreed by the affected administration(s). (WRC-23)

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, Djibouti, 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, Somalia, 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-23)

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**.

5.515A In addition to the need to comply with the coordination criteria in Annex 4 to Appendix **30A**, under assumed free-space propagation conditions, the power flux-density of an assignment in the fixed-satellite service (space to-Earth) of a geostationary-satellite network in the frequency band 17.3-17.7 GHz in Region 2 shall not exceed the value of -98 dB(W/(m^2 · 27 MHz)) at points in the geostationary-satellite orbit with geocentric orbital separation angles between 152.6° and 162.6°. (WRC-23)

5.515B In the frequency band 17.3-17.7 GHz, the use of the fixed-satellite service (space-to-Earth) by geostationary-satellite space stations in Region 2 shall not cause harmful interference to space station receivers nor claim protection from the broadcasting-satellite service feeder-link earth stations operating under Appendix **30A** in all three Regions, 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. The notifying administration for the fixed-satellite service (space-to-Earth), when submitting Appendix **4** information elements, shall provide a firm, objective, actionable, measurable and enforceable commitment that, in the event of harmful interference being reported to space station receivers in Appendix **30A**, it shall take immediate action to eliminate the interference or reduce it to an acceptable level. (WRC-23)

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 frequency bands by other fixed-satellite service applications or by other services to which these frequency bands are allocated on a co-primary basis and does not establish priority in these Radio Regulations among users of the frequency bands. Administrations should take this into account when considering regulatory provisions in relation to these frequency bands. See Resolution **143 (Rev.WRC-19)**. (WRC-19)

5.517 In Region 2, use of the fixed-satellite (space-to-Earth) service in the frequency band 17.3-17.8 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-23)

5.517A The operation of earth stations in motion communicating with geostationary fixed-satellite service space stations within the frequency bands 17.7-19.7 GHz (space-to-Earth) and 27.5-29.5 GHz (Earth-to-space) shall be subject to the application of Resolution **169 (Rev.WRC-23)**. (WRC-23)

5.517B The operation of aeronautical and maritime earth stations in motion communicating with non-geostationary space stations in the fixed-satellite service in the frequency bands 17.7-18.6 GHz, 18.8-19.3 GHz and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) shall be subject to the application of Resolution **123 (WRC-23)**. (WRC-23)

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, 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-23)

5.521A For use of the frequency bands 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz, or parts thereof, by space stations in the inter-satellite service, Resolution **679 (WRC-23)** shall apply. Such use is limited to space research, space operation and/or Earth exploration-satellite applications, and also transmissions of data originating from industrial and medical activities in space. When using these frequencies, administrations shall ensure that this inter-satellite service is used only for the aforementioned purposes and is not subject to coordination under No. **9.11A**. For use of the frequency bands 18.1-18.6 GHz, 18.8-20.2 GHz, 27.5-29.1 GHz and 29.5-30 GHz by space stations, the allocation is limited to inter-satellite links between non-geostationary satellites or between non-geostationary satellites and geostationary satellites. For use of the frequency band 29.1-29.5 GHz by space stations, the allocation is limited to inter-satellite links between non-geostationary satellites and geostationary satellites. No. **4.10** does not apply. (WRC-23)

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. 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-23)

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

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

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

5.523DA In order to protect feeder links of non-geostationary networks in the mobile-satellite service in the frequency band 19.3-19.7 GHz, the power flux-density values produced at the surface of the Earth for all angles of arrival by a space station in the inter-satellite service operating in this band in accordance with Resolution **679 (WRC-23)** shall not exceed −140 dB(W/m^2) in any 1 MHz within 150 km of any of the above feeder-link earth stations recorded in the Master International Frequency Register. (WRC-23)

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, Djibouti, 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, Palestine*, 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-23)

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 (Rev.WRC-23)**. (WRC-23)

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

* Pursuant to Resolution 99 (Rev. Dubai, 2018) of the Plenipotentiary Conference and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.

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**.

5.529A In the frequency bands 20.2-21.2 GHz and 30-31 GHz, non-geostationary-satellite systems for which complete coordination or notification information, according to the case, is received by the Bureau as of 1 January 2025 shall not cause unacceptable interference to and shall not claim protection from geostationary-satellite networks in the mobile-satellite service operating in accordance with these Regulations. No. **5.43A** does not apply. (WRC-23)

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 (SUP - WRC-19)

5.530E The allocation to the fixed service in the frequency band 21.4-22 GHz is identified for use in Region 2 by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which it is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation by HAPS is limited to the HAPS-to-ground direction, and shall be in accordance with the provisions of Resolution **165 (Rev.WRC-23)**. (WRC-23)

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

5.531A The use of the aeronautical mobile (OR) service in the frequency band 22-22.2 GHz is limited to non-safety applications. (WRC-23)

5.531B Aircraft stations in the aeronautical mobile (OR) service operating in the frequency band 22-22.2 GHz are subject to agreement obtained under No. **9.21** with respect to the fixed service and shall not cause harmful interference to, nor claim protection from, the fixed service. The following power flux-density values shall be used as a threshold for coordination under No. **9.21**:

−110 dB(W/(m^2 · MHz))	for	$0° \le \theta \le 12.6°$
$2.86\,\theta - 146$ dB(W/(m^2 · MHz))	for	$12.6° < \theta \le 15°$
$0.87\,\theta - 116$ dB(W/(m^2 · MHz))	for	$15° < \theta \le 30°$
$0.067\,\theta - 92$ dB(W/(m^2 · MHz))	for	$30° < \theta \le 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees.

This criterion should be applied at the border of the territory of another administration for any aircraft station located at an altitude of up to 15 km above the ground. In conducting the calculations, the most recent version of Recommendation ITU-R P.525 should be used. (WRC-23)

5.531C Stations in the aeronautical mobile (OR) service operating in the frequency band 22-22.2 GHz shall not cause harmful interference to the radio astronomy service operating in the frequency band 22.21-22.5 GHz. The aggregate power flux-density (pfd) received from these stations at any radio astronomy station operating in the frequency band 22.21-22.5 GHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, unless specifically agreed by the affected administration(s). (WRC-23)

5.531D The use of the aeronautical mobile (OR) service in the frequency band 22-22.2 GHz outside national boundaries shall not cause harmful interference to, or claim protection from, services in other countries operating in accordance with the Table of Frequency Allocations. (WRC-23)

5.531E *Alternative allocation*: in Brunei Darussalam, Iran (Islamic Republic of), Malaysia, Singapore and Thailand, the frequency band 22-22.2 GHz is allocated to the mobile, except aeronautical mobile (R), service on a primary basis. The use of the service is limited to non-safety applications within national boundaries. The use of the aeronautical mobile (OR) service in the frequency band 22-22.2 GHz shall not cause harmful interference to, or claim protection from, services in other countries operating in accordance with the Table of Frequency Allocations. Furthermore, stations in the aeronautical mobile (OR) service operating in the frequency band 22-22.2 GHz shall not cause harmful interference to the radio astronomy service operating in the frequency band 22.21-22.5 GHz in other countries in accordance with the Table of Frequency Allocations. The aggregate power flux-density (pfd) received from these stations at any radio astronomy station operating in the frequency band 22.21-22.5 GHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, unless specifically agreed by the affected administration(s). In order to protect stations of the Earth exploration-satellite service (passive) operating in the frequency band 22.21-22.5 GHz, the unwanted equivalent isotropically radiated power (e.i.r.p.) of stations operating in the aeronautical mobile (OR) service shall not exceed −23 dBW in any 100 MHz band in the frequency band 22.21-22.5 GHz.

Aircraft stations in the aeronautical mobile (OR) service operating in the frequency band 22-22.2 GHz are subject to agreement obtained under No. **9.21** with respect to the fixed service and shall not cause harmful interference to, nor claim protection from, the fixed service. The following pfd values shall be used as a threshold for coordination under No. **9.21**:

-110 dB(W/(m^2 · MHz))	for	$0° \le \theta \le 12.6°$
$2.86\,\theta - 146$ dB(W/(m^2 · MHz))	for	$12.6° < \theta \le 15°$
$0.87\,\theta - 116$ dB(W/(m^2 · MHz))	for	$15° < \theta \le 30°$
$0.067\,\theta - 92$ dB(W/(m^2 · MHz))	for	$30° < \theta \le 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees.

This criterion should be applied at the border of the territory of another administration for any aircraft station located at an altitude of up to 15 km above the ground. In conducting the calculations, the most recent version of Recommendation ITU-R P.525 should be used. (WRC-23)

5.531F In order to protect stations of the Earth exploration-satellite service (passive) operating in the frequency band 22.21-22.5 GHz, the unwanted equivalent isotropically radiated power (e.i.r.p.) of stations operating in the aeronautical mobile (OR) service shall not exceed −23 dBW in any 100 MHz band in the frequency band 22.21-22.5 GHz. (WRC-23)

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

5.532A The location of earth stations in the space research service shall maintain a separation distance of at least 54 km from the respective border(s) of neighbouring countries to protect the existing and future deployment of fixed

and mobile services unless a shorter distance is otherwise agreed between the corresponding administrations. Nos. **9.17** and **9.18** do not apply. (WRC-12)

5.532AA The allocation to the fixed service in the frequency band 24.25-25.25 GHz is identified for use in Region 2 by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation by HAPS is limited to the HAPS-to-ground direction and shall be in accordance with the provisions of Resolution **166 (Rev.WRC-23)**. (WRC-23)

5.532AB The frequency band 24.25-27.5 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution **242 (Rev.WRC-23)** applies. (WRC-23)

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)

5.534A The allocation to the fixed service in the frequency band 25.25-27.5 GHz is identified in Region 2 for use by high-altitude platform stations (HAPS) in accordance with the provisions of Resolution **166 (Rev.WRC-23)**. Such use of the fixed-service allocation by HAPS shall be limited to the ground-to-HAPS direction in the frequency band 25.25-27.0 GHz and to the HAPS-to-ground direction in the frequency band 27.0-27.5 GHz. Furthermore, the use of the frequency band 25.5-27.0 GHz by HAPS shall be limited to gateway links. This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this band is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. (WRC-23)

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. Resolution **242 (Rev.WRC-23)** applies. (WRC-23)

5.536B In Algeria, Saudi Arabia, Austria, Bahrain, Belgium, Brazil, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Estonia, Finland, Hungary, India, Iran (Islamic Republic of), Iraq, Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Türkiye, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Slovenia, Somalia, Sudan, Sweden, Tanzania, Viet Nam and Zimbabwe, earth stations

operating in the Earth exploration-satellite service in the frequency band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. Resolution **242 (Rev.WRC-23)** applies. (WRC-23)

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, China, 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 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-19)**. (WRC-19)

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), Djibouti, 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, Palestine*, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, South Sudan, Sri Lanka and Chad, the frequency 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-23)

* Pursuant to Resolution 99 (Rev. Dubai, 2018) of the Plenipotentiary Conference and taking into account the Israeli- Palestinian Interim Agreement of 28 September 1995.

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 (SUP - WRC-19)

5.543B The allocation to the fixed service in the frequency band 31-31.3 GHz is identified for worldwide use by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation by HAPS shall be in accordance with the provisions of Resolution **167 (Rev.WRC-23)**. (WRC-23)

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, Bahrain, Belarus, Djibouti, 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, Türkiye, Kyrgyzstan, Romania, the United Kingdom, Somalia, South Africa, Tajikistan and Turkmenistan, the allocation of the frequency band 31.5-31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**). (WRC-23)

5.547 The frequency 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. Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the frequency 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-23)

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 frequency band 32.3-33 GHz, for the radionavigation service in the frequency band 32-33 GHz, and for the space research service (deep space) in the frequency 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 (Rev.WRC-23)**). (WRC-23)

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)

5.550B The frequency band 37-43.5 GHz, or portions thereof, is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Because of the potential deployment of FSS earth stations within the frequency range 37.5-42.5 GHz and high-density applications in the fixed-satellite service in the frequency bands 39.5-40 GHz in Region 1, 40-40.5 GHz in all Regions and 40.5-42 GHz in Region 2 (see No. **5.516B**), administrations should further take into account potential constraints to IMT in these frequency bands, as appropriate. Resolution **243 (Rev.WRC-23)** applies. (WRC-23)

5.550C The use of the frequency bands 37.5-39.5 GHz (space-to-Earth), 39.5-42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to the application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service but not with non-geostationary-satellite systems in other services. Resolution **770 (WRC-19)*** shall also apply, and No. **22.2** shall continue to apply. (WRC-19)

5.550CA Non-geostationary-satellite systems in the fixed-satellite service operating with an apogee altitude above 407 km and below 2 000 km in the frequency band 37.5-38 GHz shall not exceed an unwanted emission e.i.r.p. density of −21 dB(W/100 MHz) per space station for angles greater than 65.0° from nadir relative to the space station in the fixed-satellite service in the frequency band 36-37 GHz in order to protect the Earth exploration-satellite service (passive) operating in the latter frequency band. (WRC-23)

5.550D The allocation to the fixed service in the frequency band 38-39.5 GHz is identified for worldwide use by administrations wishing to implement high-altitude platform stations (HAPS). In the HAPS-to-ground direction, the HAPS ground station shall not claim protection from stations in the fixed, mobile and fixed-satellite services; and No. **5.43A** does not apply. This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a co-primary basis and does not establish priority in the Radio Regulations. Furthermore, the development of the fixed-satellite, fixed and mobile services shall not be unduly constrained by HAPS. Such use of the fixed-service allocation by HAPS shall be in accordance with the provisions of Resolution **168 (Rev.WRC-23)**. (WRC-23)

5.550E The use of the frequency bands 39.5-40 GHz and 40-40.5 GHz by non-geostationary-satellite systems in the mobile-satellite service (space-to-Earth) and by non-geostationary-satellite systems in the fixed-satellite service (space-to-Earth) is subject to the application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite and mobile-satellite services but not with non-geostationary-satellite systems in other services. No. **22.2** shall continue to apply for non-geostationary-satellite-systems. (WRC-19)

5.551 (SUP - WRC-97)

5.551A (SUP - WRC-03)

5.551AA (SUP - WRC-03)

5.551B (SUP - WRC-2000)

---

* Note by the Secretariat: This Resolution was revised by WRC-23.

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.

These epfd values shall be evaluated using the methodology given in Recommendation ITU-R S.1586-1 and the reference antenna pattern and the maximum gain of an antenna in the radio astronomy service given in Recommendation ITU-R RA.1631-0 and shall apply over the whole sky and for elevation angles higher than the minimum operating angle 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-23)

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 frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz is identified for use by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz by HAPS shall be in accordance with the provisions of Resolution **122 (Rev.WRC-19)**. (WRC-19)

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

5.553A In Algeria, Angola, Bahrain, Belarus, Benin, Botswana, Brazil, Burkina Faso, Cabo Verde, Korea (Rep. of), Côte d'Ivoire, Croatia, Djibouti, Egypt, United Arab Emirates, Estonia, Eswatini, Gabon, Gambia, Ghana, Greece, Guinea, Guinea-Bissau, Hungary, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Lesotho, Latvia, Liberia, Lithuania, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Qatar, Senegal, Seychelles, Sierra Leone, Slovenia, Somalia, Sudan, South Africa, Sweden, Tanzania, Togo, Tunisia, Zambia and Zimbabwe, the frequency band 45.5-47 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT), taking into account No. **5.553**. With respect to the aeronautical mobile service and radionavigation service, the use of this frequency band for the implementation of IMT is subject to agreement obtained under No. **9.21** with concerned administrations and shall not cause harmful interference to, or claim protection from these services. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution **244 (Rev.WRC-23**) applies. (WRC-23)

5.553B In Region 2 and Algeria, Angola, Saudi Arabia, Australia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Rep., Comoros, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lesotho, Liberia, Libya, Lithuania, Madagascar, Malaysia, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Singapore, Slovenia, Somalia, Sudan, South Sudan, South Africa, Sweden, Tanzania, Chad, Togo, Tunisia, Zambia and Zimbabwe, the frequency band 47.2-48.2 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated, and does not establish any priority in the Radio Regulations. Resolution **243 (Rev.WRC-23)** applies. (WRC-23)

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)

5.555C The use of the frequency band 51.4-52.4 GHz by the fixed-satellite service (Earth-to-space) is limited to geostationary-satellite networks. The earth stations shall be limited to gateway earth stations with a minimum antenna diameter of 2.4 metres. (WRC-19)

5.556 In the bands 51.4-54.25 GHz, 58.2-59 GHz and 64-65 GHz, radio astronomy observations may be carried out under national arrangements. (WRC-2000)

5.556A Use of the bands 54.25-56.9 GHz, 57-58.2 GHz and 59-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m^2 · 100 MHz)) for all angles of arrival. (WRC-97)

5.556B *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)

5.559AA The frequency band 66-71 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which this frequency band is allocated and does not establish priority in the Radio Regulations. Resolution **241 (Rev.WRC-23)** applies. (WRC-23)

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 frequency bands 105-109.5 GHz, 111.8-114.25 GHz and 217-226 GHz, the use of this allocation is limited to space-based radio astronomy only. (WRC-19)

5.562C Use of the band 116-122.25 GHz by the inter-satellite service is limited to satellites in the 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 (SUP - WRC-19)

5.562G (SUP - WRC-19)

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)

5.563AA In the frequency band 235-238 GHz, stations in the Earth exploration-satellite service (passive) shall not claim protection from stations in the fixed and mobile services. (WRC-23)

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)

5.564A For the operation of fixed and land mobile service applications in frequency bands in the range 275-450 GHz:

The frequency bands 275-296 GHz, 306-313 GHz, 318-333 GHz and 356-450 GHz are identified for use by administrations for the implementation of land mobile and fixed service applications where no specific conditions are necessary to protect Earth exploration-satellite service (passive) applications.

The frequency bands 296-306 GHz, 313-318 GHz and 333-356 GHz may only be used by fixed and land mobile service applications when specific conditions to ensure the protection of Earth exploration-satellite service (passive) applications are determined in accordance with Resolution **731 (Rev.WRC-23)**.

In those portions of the frequency range 275-450 GHz where radio astronomy applications are used, specific conditions (e.g. minimum separation distances and/or avoidance angles) may be necessary to ensure protection of radio astronomy sites from land mobile and/or fixed service applications, on a case-by-case basis, in accordance with Resolution **731 (Rev.WRC-23)**.

The use of the above-mentioned frequency bands by land mobile and fixed service applications does not preclude use by, and does not establish priority over, any other applications of radio services in the range of 275-450 GHz. (WRC-23)

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 D

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 2850–3025 kHz, 3400–3500 kHz, 4650–4700 kHz, 5480–5680 kHz, 6525–6685 kHz, 8815–8965 kHz, 10005– 10100 kHz, 11275–11400 kHz, 13260–13360 kHz, 17900– 17970 kHz and 21924–22000 kHz by the aeronautical mobile (R) service.

IND 5 The use of the bands 3025–3155 kHz, 4700–4750 kHz, 5680–5730 kHz, 6685–6765 kHz, 8965–9040 kHz, 11175–11275 kHz, 13200–13260 kHz, 15010– 15100 kHz and 17970–18030 kHz by the aeronautical mobile (OR) service shall be subject to Chapter VIII and other provisions of the Radio Regulations (**Rev. NFAP-2025**).

IND 6 The use of the bands 4063–4438 kHz, 6200–6525 kHz, 8195–8815 kHz, 12230– 13200 kHz, 16360–17410 kHz, 18780–18900 kHz, 19680–19800 kHz, 22000–22855 kHz and 25070–25210 kHz, 26100-26175 kHz by the maritime mobile service shall be subject to the provisions of Appendix17, and Chapters VII and IX of the Radio Regulations.

IND 7 The use of the bands 5950–6200 kHz, 7200–7300 kHz, 9500–9900 kHz, 11650–12050 kHz, 13600–13800 kHz, 15100– 15600 kHz, 17550–17900 kHz, 21450–21850 kHz and 25670–26100 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 8100–8195 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 (Rev. WRC-23).**

IND 11 Between the band 100-103.8 MHz, 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 radio astronomy facility centered at Latitude N 19º 05' 26.31" Longitude E 74º 02' 59.65" and spread out over a region of 30 km, near village Khoda in Pune district needs to be protected from any radio emissions which may fall within the frequency bands allocated to radio astronomy service. In addition to bands listed in No. 5.149, the facility may also be protected to the extent feasible in the frequency bands between 50 - 1500 MHz. Keeping in view the facility being receive only, and quite radio sensitive in nature, therefore, before setting of new terrestrial radio station, proposed to be operating within 50-1500 MHz band, in the area within the radius of 30 Km from the center of location needs to be coordinated on case-to-case basis (**Rev. NFAP-2025**).

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 (Rev. WRC-23)**.

IND 15 While considering assignments in 2200 -2300 MHz band, protection of earth stations (a) at a few locations operating in the frequency band 2200-2290 MHz for Space Operations, Earth Exploration Satellite Service, Space Research services and (b) at Bylalu in Bangalore operating in the frequency band 2290-2300 MHz band for Space Research (Deep Space), shall be taken into account.

IND 16 The following frequency bands, or parts thereof, have been identified for implementation of International Mobile Telecommunications,

Sl. No.	**Frequency Bands**	**Relevant RR Footnotes**
1	470-585 MHz	5.296A, Notes below
2	585-610 MHz	
3	610-890 MHz	5.296A, 5.307, 5.313A, 5.314A, 5.317A, Notes below
4	890-942 MHz	
5	942-960 MHz	
6	1427-1518 MHz	5.341C, 5.346A
7	1710-2025 MHz	5.384A, 5.388, 5.388A
8	2110-2200 MHz	5.388, 5.388A
9	2300-2400 MHz	5.384A
10	2500-2690 MHz	5.384A, Notes below
11	3300-3400 MHz	5.429F, Notes below
12	3400-3500 MHz	5.432B, Notes below
13	3500-3600 MHz	5.433A

14	3600-3670 MHz	Notes below
15	6425 – 7025 MHz	Notes below
16	7025 – 7125 MHz	5.457E
17	24.25-27.5 GHz	5.338A 5.532AB, Notes below
18	37-40 GHz	5.550B, Notes below
19	42.5 – 43.5 GHz	5.550B, Notes below
20	66-71 GHz	5.559AA, Notes below

Note 1*: New assignments to the broadcasting service may not be made in 470-582 MHz range. The frequency range 526-582 MHz may be used for mobile service/IMT in coordination with the broadcasting service.

Note 2: The frequency range 582-617 MHz may be used primarily by mobile service/IMT and rural point to point links.

Note 3: In India, the band 608-614 MHz is also allocated to the radio astronomy service on a primary basis as per RR No. 5.307.

Note 4: The frequency range 617-698 MHz may be used for IMT except that certain point to point links, subject to population being less, may be protected initially at few locations. Such sporadic non-IMT users shall vacate the band in near future.

Note 5: INSAT/GSAT system uses the frequency band 2555 - 2615 MHz for Broadcasting Satellite Service (BSS), 2500-2535 MHz for Mobile Satellite Service downlink and 2655-2690 MHz for Mobile Satellite service uplink to provide governmental and societal applications. Satellite services in the frequency bands 2500 to 2535 MHz, 2555 to 2615 MHz, 2655 to 2690 MHz shall be protected from harmful interference to their operations

Note 6: The frequency band 3300-3400 MHz may be used for implementation of IMT except that initially some usages towards high seas-beyond 50 kms from the coast may be permitted for non-IMT usages. Such non-IMT usages shall be shifted to other bands in near future.

Note 7: The frequency range 3400-3425 MHz may be used for implementation of IMT except that in six DoS (Department of Space) locations at Thiruvanthapuram, Hassan, Bhopal, Jodhpur, Shillong and A&N Islands, a suitable keep-off distance and protection measures shall be taken while deploying IMT stations.

Note 8: The frequency range 3600-3670 MHz may be used for implementation of IMT. The Satellite services may use the C band frequencies beyond 3670 MHz after leaving a guard band of 10 MHz.

Note 9: The frequency range 6425-7025 MHz may be used for implementation of IMT, except that in the frequency ranges 6425-6435 MHz, 6450-6485 MHz, 6600-6640 MHz, 6664-6725 MHz and 7010-7025 MHz, IMT stations will not claim protection from the satellite earth stations uplink operations in these frequency ranges at certain designated locations. IMT stations will also not claim protection from the satellite earth station uplink operating in the frequency band 6440-6450 MHz at NCA-T campus, Ghaziabad.

* This matter is under review by the Government.

Note 10: The frequency range 24.25-27.5 GHz may be used for implementation of IMT except that in 25.5-27 GHz frequency range the IMT stations will be required to maintain a keep-off distance of 2.7 kms around five DoS locations at Delhi, Shadnagar, Khambaliya, Hut Bay and Tirunelveli.

Note 11: The frequency bands 37.5-40 GHz and 42.5-43.5 GHz may also be used for satellite gateway links.

Note 12: While considering the band 66-71 GHz for the implementation of International Mobile Telecommunications (IMT), the requirements of Satellite based and other services to which these bands might have been allocated in the RR, may be taken due care of.

(**Rev. NFAP-2025**)

IND 17 The bands 14-14.5 GHz (Earth-to-space), 27.5-30 GHz (Earth-to-space), 10.7-11.7 GHz (space-to-Earth), 12.2-12.75 GHz (space-to-Earth) and 17.7-20.2 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. (**Rev. NFAP-2025**)

IND 18 In Region 3, the frequency ranges 406.1-430 MHz and 440-450 MHz, are harmonized for Public Protection and Disaster Relief (PPDR) applications. Additionally, parts of the frequency range 806-894 MHz may also be considered for PPDR applications. See **Resolution 646 (Rev. WRC-19)**.

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 806-824 MHz paired with 851-869 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)
			387.5-389.9 (CMRT/PMRT)	397.5-399.9 (CMRT/PMRT)
6	410-420	420-430	410-417.5 (PPDR)	420-427.5 (PPDR)
			417.5-420 (CMRT)	427.5-430 (CMRT)
7	440-450	-	Part of 440-450 MHz may be considered for PPDR.	
8	806-811	851-856	PPDR	
9	811-814	856-859	PMRT	
10	814-819	859-864	PPDR	
11	819-824	864-869	PPDR	

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

PMRT operations to be migrated from band 814-824/859-869 MHz to 811-814/856-859 MHz within four years. Other 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 applications will be considered in the frequency band 814-824/859-869 MHz. (**Rev. NFAP-2025**)

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 23A Subject to not constraining the deployment of the services to which the bands 174 - 230 MHz and 470-612 MHz have been allocated, the use of very low power audio Programme Making and Special Events (PMSE) radio equipment and system (e.g., wireless microphones, in-ear monitoring etc), power levels not exceeding 100mW e.i.r.p, may also be permitted on case to case basis and non-interference and non-protection (NINP) basis (**NFAP-2025**).

IND 24 As per RR 5.340 any emissions in the frequency bands mentioned therein is prohibited. (**Rev. NFAP-2025**)

IND 25 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 26 Not used.

IND 27 SUP (NFAP-2025)

IND 28 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.

Use of frequency band 2400 – 2483.5 MHz for Low Power Equipment has been exempted from licensing requirement as per conditions notified vide GSR No. G.S.R. 45(E) dated 28.01.2005. (**Rev. NFAP-2025)**

IND 29 The frequency band 5 875 to 5 925 MHz may be used for V2X/ITS under Mobile service. This does not preclude the use of this frequency bands for other allocated services (**Rev. NFAP-2025**).

IND 30 The frequency bands 10.7-10.95 GHz, 10.95-11.2 GHz, 11.2-11.45 GHz, 11.45-11.7 GHz and 12.2-12.75 GHz may predominantly be used for fixed satellite service (space-to-Earth). The frequency band 11.7-12.2 GHz may be used for broadcasting - satellite service (**Rev. NFAP-2025**).

IND 31 It may be borne in mind that the frequency band 18.6-18.8 GHz is used by Earth Exploration Satellite Service (EESS-passive) in IRS Satellite system (**Rev. NFAP-2025**).

IND 32A The frequency bands 17.7-19.7 GHz (space-to-Earth) and 27.5-29.5 GHz (Earth-to-space) may be considered for fixed-satellite service (**NFAP-2025**).

IND 32 The frequency bands 19.7-21.2 GHz (space-to-Earth) and 29.5-31.0 GHz (space-to-Earth) may be considered predominantly for fixed-satellite service. Mobile Satellite Service may also be considered in these bands in accordance with the service allocations (**Rev. NFAP-2025).**

IND 33 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 2 Watts with spectrum spread of 50 MHz or higher may also be permitted on non-interference, non-protection and non-exclusive basis.

IND 34 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 fixed-satellite service.

IND 35 The band 57-64 GHz may be used for high-density point to point / multipoint links and other access applications, taking care of other services identified as Primary in band. While considering usage of 57-66 GHz frequency band, usage by Earth Exploration Satellite will be limited up to 57 GHz (**Rev. NFAP-2025**).

IND 36 The frequency bands 40.0-42.5 GHz (space-to-Earth) and 47.7-50.2 GHz (Earth-to-space) may be considered predominantly for fixed-satellite services (**NFAP-2025**).

Chapter 4

Annexures

Annexure 1 - Wireless Equipment exempted from licensing

S. No.	Frequency Range	Title of the Rule	Gazette Notification
1	9-50 kHz	The use of very low power Radio Frequency devices or equipments including the Radio Frequency Identification Devices, (Exemption from Licensing Requirements) Rules, 2014	GSR No. 83(E) dated 11-Feb-2014 and subsequent amendments, if any.
2	50-200 kHz	The use of very low power Radio Frequency devices or equipments including the Radio Frequency Identification Devices, (Exemption from Licensing Requirements) Rules, 2009	GSR No. 90(E) dated 10-Feb-2009 and subsequent amendments, if any.
3	9 – 148.5 kHz 3155-3400 kHz 148.5-5000 kHz 7400-8800 kHz 10200-11000 kHz 5000-30000 kHz	The use of Very Low Power Radio Frequency Devices or Equipments for Inductive Applications (Exemption from License) Rules, 2021.	GSR No. 870(E) dated 21-Dec-2021 and subsequent amendments, if any
4	13.553-13.567 MHz	The use of very low power Radio Frequency devices for indoor Applications in the 13.553 –13.567 MHz frequency range (Exemption from Licensing Requirements) Rules, 2010	GSR No. 884(E) dated 04-Nov-2010 and subsequent amendments, if any.
5	26.957-27.283 MHz	The use of very low power equipment in the Citizen Band 26.957 – 27.283 MHz (Exemption from Licensing Requirements) Rules, 2005	GSR No. 533(E) dated 12-Aug-2005 and subsequent amendments, if any.
		Use of Low Power Equipment in the Citizen band 26.957 - 27.283 MHz (Exemption from Licensing Requirement) **Amendment** Rules, 2006	GSR No. 35(E) dated 10-Jan-2007
6	36 - 38 MHz	The use of very low power devices or equipments for Wireless Microphones (Exemption from Licensing Requirements) Rules, 2015	GSR No. 696 (E) dated 16-Sep-2015 and subsequent amendments, if any.
7	335.7125- 335.8375 MHz	The use of low power equipment of cranes (Exemption from Licensing Requirement) rules, 2005	GSR No. 532(E) dated 12-Aug-2005 and subsequent amendments, if any.
		The use of low power equipment of cranes (Exemption from Licensing Requirement) **Amendment** Rules, 2006	GSR No. 34(E) dated 10-Jan-2007

S. No.	Frequency Range	Title of the Rule	Gazette Notification
8	402 - 405 MHz	The use of low power remote cardiac monitoring radio frequency wireless monitoring devices, medical implant communication system (MICS) or medical implant telemetry system (MITS), and other such very low power medical radio frequency wireless devices or equipments (Exemption from Licensing Requirement) Rules, 2008	GSR No. 673(E) dated 23-Sep-2008 and subsequent amendments, if any.
9	433.05-434.79 MHz	The use of Low Power Radio Frequency Devices in the frequency band 433.05 to 434.79 MHz (Exemption from License) Rules, 2022	GSR No. 347(E) dated 09-May-2022 and subsequent amendments, if any
10	865-868 MHz	The Use of Low Power Equipment in the Frequency Band 865-868 MHz for Short Range Devices (Exemption from Licence) Rules, 2021	GSR No. 853(E) dated 10-Dec.2021 and subsequent amendments, if any
11	2.4-2.4835 GHz	The use of low power equipments 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.
12	5150 - 5250 MHz 5250 - 5350 MHz 5470 - 5725 MHz 5725 - 5875 MHz	The use of wireless access system including radio local area network in 5 GHz band (Exemption from Licensing Requirement) Rules, 2018	GSR No. 1048(E) dated 18-Oct.2018 and subsequent amendments, if any.
13	76-77 GHz	The 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.
14	456.9-457.1 kHz 6765-6795 kHz 26957-27283 kHz 30-37.5 MHz 87.5-108 MHz 401-402 MHz 405-406 MHz 446.0-446.2 MHz 2400-2483.5 MHz 2446-2454 MHz 2483.5-2500 MHz 5725-5875 MHz 169.4 - 169.8125 MHz 24-24.25 GHz 61-61.5 GHz	The use of low power and very low power Short Range Radio Frequency Devices (Exemption from Licensing Requirement) Rules, 2018	GSR No. 1047(E) dated 18-Oct.2018 and subsequent amendments, if any
		The Use of Low Power and Very Low Power Short Range Radio Frequency Devices (Exemption from Licensing Requirement) **Amendment** Rules, 2024	G.S.R. No. 271(E) dated 09-May-2024

S. No.	Frequency Range	Title of the Rule	Gazette Notification
15	Various frequency bands (UWB)	The use of very low power Ultra-wideband devices (Exemption from Licensing Requirement) Rules, 2018	GSR No. 1046(E) dated 18-Oct.2018 and subsequent amendments, if any

Annexure-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	

Sl. No.	Frequency	Purpose	Remarks
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, 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	Cordless Telephones	
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

PRINTED IN INDIA
NEW DELHI 2025