



Authority for
Info-communications
Technology
Industry of Brunei Darussalam

Brunei Darussalam RADIO SPECTRUM PLAN

TABLE OF FREQUENCY ALLOCATIONS



2014/2015 EDITION

Foreword

The Brunei Darussalam Radio Spectrum Plan (herein referred to as “Spectrum Plan”) is prepared under Regulation 3 of the *Telecommunications (Radio-communication) Regulations, 2013*. The Spectrum Plan provides the Table of Frequency Allocations and other information related to spectrum management in Brunei Darussalam. The contents are legally binding on Authority for Info-communications Technology Industry of Brunei Darussalam (AITI) in making decisions on use of the radiofrequency spectrum.

Further detail on current usage of, and issues related to radiofrequency spectrum in Brunei Darussalam, please refer to AITI’s website at www.aiti.gov.bn.

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1 Introduction

- 1.1 Radio frequency spectrum is a finite natural resource which needs to be efficiently planned and managed. Demand for usage of the spectrum is increasing with technology continuously improving.
- 1.2 In accordance with the section 6 of the Authority for Info-communications Technology Industry of Brunei Darussalam (AITI) Order, 2001, AITI is responsible for the management of the radio frequency spectrum. AITI ensures effective and efficient use of the radio frequency spectrum in Brunei Darussalam by planning, regulating, monitoring and administering as well as internationally coordinating the use of the radio frequency in accordance with the International Telecommunications Union (ITU) Radio Regulations. The Telecommunications (Radio-communication) Regulations, 2013 is a subsidiary legislation under Telecommunications Order, 2001, which provides regulatory provisions for the management of radio frequency spectrum and the use of radio-communication systems in Brunei Darussalam.
- 1.3 AITI is a member of the Frequency Assignment and Coordination, Singapore, Malaysia and Brunei Darussalam (FACSMAB), which is a platform for regional frequency coordination, cross-border radio frequency interference resolution as well as the discussion on developments of Info-communications Technology. FACSMAB holds monthly coordination meeting between the telecommunication regulators of Singapore, Malaysia and Brunei Darussalam.
- 1.4 Brunei Darussalam is a member of Asia Pacific Telecommunity (APT), a focal Intergovernmental Organization for the field of Info-communications Technology in Asia-Pacific region. AITI represents Brunei Darussalam in attending several conferences, meetings and seminars organized by APT. One of the most important meetings related to spectrum management is the APT Conference Preparatory Group for World Radiocommunication Conference (APG). The objective of APG is to harmonize views and develop common proposals from the Asia-Pacific region for the World Radiocommunication Conference (WRC).
- 1.5 Brunei Darussalam is also a member of ITU, a United Nations specialized agency for information and communication technologies (ICTs). One of the roles of ITU is to ensure the equitable, efficient and economical use of the radio frequency spectrum by all radiocommunication services, including those using satellite orbits, and to carry out studies and approve Recommendations on radiocommunication matters. ITU organize WRC every three to four years to review and revise the Radio Regulations, the international treaty governing the use of the radio frequency spectrum and satellite orbits.
- 1.6 The objectives of spectrum management in Brunei Darussalam are as follows:
 - To maximize the overall benefit to the public by ensuring the efficient and effective use of spectrum;
 - To facilitate current and future introduction of advanced and innovative communication services and to develop competition in communications services;
 - To safeguard government and community services by ensuring that necessary

spectrum is reserved for services to be provided by or on behalf of the Government;
and

- To fulfil Brunei's international obligations relating to the use of spectrum.

1.7 This Spectrum Plan will provide a clear picture on how the radio frequency spectrum is currently utilised in Brunei Darussalam and how AITI plans to develop it further in the future. Ensuring optimal utilisation of this finite natural resource whilst accommodating the continuously changing technology as well as catering for the demands of general public.

2 Terms and Definitions

2.1 Introduction

The terms and definitions used in this Spectrum Plan shall have the meanings set out in the following documents, unless the context requires otherwise:

- a) the ITU Radio Regulations
- b) the Telecommunications Order, 2001;
- c) the Telecommunications (Radio-communication) Regulations, 2013

NOTE – If, in the text of a definition below, a term is printed in italics, this means that the term itself is defined in this Spectrum Plan.

2.2 General Terms

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.

telecommunication: A transmission, *emission* or reception of signs, signals, writings, images, sounds or intelligence of any nature by wire, *radio*, optical or other electromagnetic systems whether or not such signs, signals, writing, images, sounds or intelligence have been subjected to rearrangement, computation or other processes by any means in the course of their transmission, emission or reception.

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

radio waves or hertzian waves: Electromagnetic waves of frequencies not exceeding 1,000 terahertz propagated in space without artificial guide.

radiocommunication: *Telecommunication* by means of Hertzian or *radio waves*.

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

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.

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*.

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

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

radio direction-finding: *Radiodetermination* using the reception of *radio waves* for the purpose of determining the direction of a *station* or object.

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

Coordinated Universal Time (UTC): Time scale, based on the second (SI), as defined in Recommendation ITU-R TF.460-6. (WRC-03)

For most practical purposes associated with the Radio Regulations, UTC is equivalent to mean solar time at the prime meridian (0° longitude), formerly expressed in GMT.

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

2.3 Specific Terms Related to Frequency Management

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.

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.

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

2.4 Radio Services

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

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

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

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

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.

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

mobile-satellite service: A radiocommunication service:

- between *mobile earth stations* and one or more *space stations*, or between *space stations* used by this service; or
- between *mobile earth stations* by means of one or more *space stations*.

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

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

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

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

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

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.

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.

aeronautical mobile service: A *mobile service* between *aeronautical stations* and *aircraft stations*, or between *aircraft stations*, in which *survival craft stations* may participate; *emergency position-indicating radiobeacon stations* may also participate in this service on designated distress and emergency frequencies.

aeronautical mobile (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.

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

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

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

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

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

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

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

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

radiodetermination-satellite service: A *radiocommunication service* for the purpose of *radiodetermination* involving the use of one or more *space stations*. This service may also include *feeder links* necessary for its own operation.

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

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

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

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

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

** (OR): off-route.

* (R): route.

** (OR): off-route.

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

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

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

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

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.

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

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

standard frequency and time signal-satellite service: A *radiocommunication service* using *space stations* on *earth satellites* for the same purposes as those of the *standard frequency and time signal service*. This service may also include *feeder links* necessary for its operation.

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

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

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

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

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

2.5 Radio Stations and Systems

station: One or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on a *radiocommunication service*, or the *radio astronomy service*. Each station shall be classified by the service in which it operates permanently or temporarily.

terrestrial station: A station effecting *terrestrial radiocommunication*. In this Spectrum Plan, unless otherwise stated, any *station* is a terrestrial station.

earth station: A station located either on the Earth's surface or within the major portion of the Earth's atmosphere and intended for communication:

- with one or more *space stations*; or
- with one or more *stations* of the same kind by means of one or more reflecting *satellites* or other objects in space.

space station: A station located on an object which is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere.

survival craft station: A *mobile station* in the *maritime mobile service* or the *aeronautical mobile service* intended solely for survival purposes and located on any lifeboat, life-raft or other survival equipment.

fixed station: A station in the *fixed service*.

high altitude platform station: A station located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the Earth.

mobile station: A station in the *mobile service* intended to be used while in motion or during halts at unspecified points.

mobile earth station: An *earth station* in the *mobile-satellite service* intended to be used while in motion or during halts at unspecified points.

land station: A station in the *mobile service* not intended to be used while in motion.

land earth station: An *earth station* in the *fixed-satellite service* or, in some cases, in the *mobile-satellite service*, located at a specified fixed point or within a specified area on land to provide a *feeder link* for the *mobile-satellite service*.

base station: A *land station* in the *land mobile service*.

base earth station: An *earth station* in the *fixed-satellite service* or, in some cases, in the *land mobile-satellite service*, located at a specified fixed point or within a specified area on land to provide a *feeder link* for the *land mobile-satellite service*.

land mobile station: A *mobile station* in the *land mobile service* capable of surface movement within the geographical limits of a country or continent.

land mobile earth station: A *mobile earth station* in the *land mobile-satellite service* capable of surface movement within the geographical limits of a country or continent.

coast station: A land station in the maritime mobile service.

coast earth station: An earth station in the fixed-satellite service or, in some cases, in the maritime mobile-satellite service, located at a specified fixed point on land to provide a feeder link for the maritime mobile-satellite service.

ship station: A mobile station in the maritime mobile service located on board a vessel which is not permanently moored, other than a survival craft station.

ship earth station: A mobile earth station in the maritime mobile-satellite service located on board ship.

on-board communication station: A low-powered mobile station in the maritime mobile service intended for use for internal communications on board a ship, or between a ship and its lifeboats and life-rafts during lifeboat drills or operations, or for communication within a group of vessels being towed or pushed, as well as for line handling and mooring instructions.

port station: A coast station in the port operations service.

aeronautical station: A land station in the aeronautical mobile service.

In certain instances, an aeronautical station may be located, for example, on board ship or on a platform at sea.

aeronautical earth station: An earth station in the fixed-satellite service, or, in some cases, in the aeronautical mobile-satellite service, located at a specified fixed point on land to provide a feeder link for the aeronautical mobile-satellite service.

aircraft station: A mobile station in the aeronautical mobile service, other than a survival craft station, located on board an aircraft.

aircraft earth station: A mobile earth station in the aeronautical mobile-satellite service located on board an aircraft.

broadcasting station: A station in the broadcasting service.

radiodetermination station: A station in the radiodetermination service.

radionavigation mobile station: A station in the radionavigation service intended to be used while in motion or during halts at unspecified points.

radionavigation land station: A station in the radionavigation service not intended to be used while in motion.

radiolocation mobile station: A station in the radiolocation service intended to be used while in motion or during halts at unspecified points.

radiolocation land station: A station in the radiolocation service not intended to be used while in motion.

radio direction-finding station: A radiodetermination station using radio direction-finding.

radiobeacon station: A station in the radionavigation service the emissions of which are intended to enable a mobile station to determine its bearing or direction in relation to the

radiobeacon station.

emergency position-indicating radiobeacon station: A station in the mobile service the emissions of which are intended to facilitate search and rescue operations.

satellite emergency position-indicating radiobeacon: An earth station in the mobile-satellite service the emissions of which are intended to facilitate search and rescue operations.

standard frequency and time signal station: A station in the standard frequency and time signal service.

amateur station: A station in the amateur service.

radio astronomy station: A station in the radio astronomy service.

experimental station: A station utilizing radio waves in experiments with a view to the development of science or technique. This definition does not include *amateur stations*.

ship's emergency transmitter: A ship's transmitter to be used exclusively on a distress frequency for distress, urgency or safety purposes.

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

primary radar: A radiodetermination system based on the comparison of reference signals with radio signals reflected from the position to be determined.

secondary radar: A radiodetermination system based on the comparison of reference signals with radio signals retransmitted from the position to be determined.

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

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

instrument landing system localizer: A system of horizontal guidance embodied in the instrument landing system which indicates the horizontal deviation of the aircraft from its optimum path of descent along the axis of the runway.

instrument landing system glide path: A system of vertical guidance embodied in the instrument landing system which indicates the vertical deviation of the aircraft from its optimum path of descent.

marker beacon: A transmitter in the aeronautical radionavigation service which radiates vertically a distinctive pattern for providing position information to aircraft.

radio altimeter: Radionavigation equipment, on board an aircraft or spacecraft, used to determine the height of the aircraft or the spacecraft above the Earth's surface or another surface.

radiosonde: An automatic radio transmitter in the *meteorological aids service* usually carried on an aircraft, free balloon, kite or parachute, and which transmits meteorological data.

adaptive system: A radiocommunication system which varies its radio characteristics according to channel quality.

space system: Any group of cooperating *earth stations* and/or *space stations* employing *space radiocommunication* for specific purposes.

satellite system: A *space system* using one or more artificial earth *satellites*.

satellite network: A *satellite system* or a part of a *satellite system*, consisting of only one *satellite* and the cooperating *earth stations*.

satellite link: A radio link between a transmitting *earth station* and a receiving *earth station* through one *satellite*.

A satellite link comprises one up-link and one down-link.

multi-satellite link: A radio link between a transmitting *earth station* and a receiving *earth station* through two or more *satellites*, without any intermediate *earth station*.

A multi-satellite link comprises one up-link, one or more satellite-to-satellite links and one down-link.

feeder link: A radio link from an *earth station* at a given location to a *space station*, or vice versa, conveying information for a *space radiocommunication service* other than for the *fixed-satellite service*. The given location may be at a specified fixed point, or at any fixed point within specified areas.

2.6 Operational Terms

public correspondence: Any *telecommunication* which the offices and *stations* must, by reason of their being at the disposal of the public, accept for transmission.

telegraphy¹: A form of *telecommunication* in which the transmitted information is intended to be recorded on arrival as a graphic document; the transmitted information may sometimes be presented in an alternative form or may be stored for subsequent use.

facsimile: A form of *telegraphy* for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form.

telephony: A form of *telecommunication* primarily intended for the exchange of information in the form of speech.

simplex operation: Operating method in which transmission is made possible alternately in each direction of a *telecommunication* channel, for example, by means of manual control².

¹ A graphic document records information in a permanent form and is capable of being filed and consulted; it may take the form of written or printed matter or of a fixed image.

² In general, *duplex operation* and *semi-duplex operation* require two frequencies in *radiocommunication*; *simplex operation* may use either one or two.

duplex operation: Operating method in which transmission is possible simultaneously in both directions of a *telecommunication* channel².

semi-duplex operation: A method which is *simplex operation* at one end of the circuit and *duplex operation* at the other.²

television: A form of *telecommunication* for the transmission of transient images of fixed or moving objects.

individual reception (in the broadcasting-satellite service): The reception of *emissions* from a *space station* in the *broadcasting-satellite service* by simple domestic installations and in particular those possessing small antennae.

community reception (in the broadcasting-satellite service): The reception of *emissions* from a *space station* in the *broadcasting-satellite service* by receiving equipment, which in some cases may be complex and have antennae larger than those used for *individual reception*, and intended for use:

- by a group of the general public at one location; or
- through a distribution system covering a limited area.

telemetry: The use of *telecommunication* for automatically indicating or recording measurements at a distance from the measuring instrument.

radiotelemetry: *Telemetry* by means of *radio waves*.

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

telecommand: The use of *telecommunication* for the transmission of signals to initiate, modify or terminate functions of equipment at a distance.

space telecommand: The use of *radiocommunication* for the transmission of signals to a *space station* to initiate, modify or terminate functions of equipment on an associated space object, including the *space station*.

space tracking: Determination of the *orbit*, velocity or instantaneous position of an object in space by means of *radiodetermination*, excluding *primary radar*, for the purpose of following the movement of the object.

2.7 Characteristics of Emissions and Radio Equipment

radiation: The outward flow of energy from any source in the form of *radio waves*.

emission: *Radiation* produced, or the production of *radiation*, by a radio transmitting *station*.

For example, the energy radiated by the local oscillator of a radio receiver would not be an emission but a *radiation*.

class of emission: The set of characteristics of an *emission*, designated by standard symbols, e.g. type of modulation of the main carrier, modulating signal, type of information to be

transmitted, and also, if appropriate, any additional signal characteristics.

single-sideband emission: An amplitude modulated *emission* with one sideband only.

out-of-band emission: *Emission* on a frequency or frequencies immediately outside the *necessary bandwidth* which results from the modulation process, but excluding *spurious emissions*.

spurious emission: *Emission* on a frequency or frequencies which are outside the *necessary bandwidth* and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic *emissions*, parasitic *emissions*, intermodulation products and frequency conversion products, but exclude *out-of-band emissions*.

unwanted emissions: Consist of *spurious emissions* and *out-of-band emissions*.

assigned frequency band: The frequency band within which the *emission* of a *station* is authorized; the width of the band equals the *necessary bandwidth* plus twice the absolute value of the *frequency tolerance*. Where *space stations* are concerned, the assigned frequency band includes twice the maximum Doppler shift that may occur in relation to any point of the Earth's surface.

assigned frequency: The centre of the frequency band assigned to a *station*.

characteristic frequency: A frequency which can be easily identified and measured in a given *emission*.

A carrier frequency may, for example, be designated as the characteristic frequency.

reference frequency: A frequency having a fixed and specified position with respect to the *assigned frequency*. The displacement of this frequency with respect to the *assigned frequency* has the same absolute value and sign that the displacement of the *characteristic frequency* has with respect to the centre of the frequency band occupied by the *emission*.

frequency tolerance: The maximum permissible departure by the centre frequency of the frequency band occupied by an *emission* from the *assigned frequency* or, by the *characteristic frequency* of an *emission* from the *reference frequency*. The frequency tolerance is expressed in parts in 10^6 or in hertz.

necessary bandwidth: For a given *class of emission*, the width of the frequency band which is just sufficient to ensure the transmission of information at the rate and with the quality required under specified conditions.

occupied bandwidth: The width of a frequency band such that, below the lower and above the upper frequency limits, the *mean powers* emitted are each equal to a specified percentage $\beta/2$ the *total mean power* of a given *emission*

Unless otherwise specified in an ITU-R Recommendation for the appropriate *class of emission*, the value of $\beta/2$ should be taken as 0.5%.

power: Whenever the power of a radio transmitter, etc. is referred to it shall be expressed in

one of the following forms, according to the class of *emission*, using the arbitrary symbols indicated:

- *peak envelope power* (PX or pX);
- *mean power* (PY or pY);
- *carrier power* (PZ or pZ).

For different *classes of emission*, the relationships between *peak envelope power*, *mean power* and *carrier power*, under the conditions of normal operation and of no modulation, are contained in ITU-R Recommendations which may be used as a guide.

For use in formulae, the symbol p denotes power expressed in watts and the symbol P denotes power expressed in decibels relative to a reference level.

peak envelope power (of a radio transmitter): The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the crest of the modulation envelope taken under normal operating conditions.

mean power (of a radio transmitter): The average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation taken under normal operating conditions.

carrier power (of a radio transmitter): The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle taken under the condition of no modulation.

gain of an antenna: The ratio, usually expressed in decibels, of the power required at the input of a loss-free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength or the same power flux-density at the same distance. When not specified otherwise, the gain refers to the direction of maximum *radiation*. The gain may be considered for a specified polarization.

Depending on the choice of the reference antenna a distinction is made between:

- a) absolute or isotropic gain (G_i), when the reference antenna is an isotropic antenna isolated in space;
- b) gain relative to a half-wave dipole (G_d), when the reference antenna is a half-wave dipole isolated in space whose equatorial plane contains the given direction;
- c) gain relative to a short vertical antenna (G_v), when the reference antenna is a linear conductor, much shorter than one quarter of the wavelength, normal to the surface of a perfectly conducting plane which contains the given direction.

equivalent isotropically radiated power (e.i.r.p.): The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna (*absolute or isotropic gain*).

effective radiated power (e.r.p.) (in a given direction): The product of the power supplied to

the antenna and its *gain relative to a half-wave dipole* in a given direction.

effective monopole radiated power (e.m.r.p.) (in a given direction): The product of the power supplied to the antenna and its *gain relative to a short vertical antenna* in a given direction.

tropospheric scatter: The propagation of *radio waves* by scattering as a result of irregularities or discontinuities in the physical properties of the troposphere.

ionospheric scatter: The propagation of *radio waves* by scattering as a result of irregularities or discontinuities in the ionization of the ionosphere.

2.8 Frequency Sharing

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.

permissible interference: Observed or predicted *interference* which complies with quantitative *interference* and sharing criteria contained in these Regulations or in ITU-R Recommendations or in special agreements as provided for in these Regulations.

accepted interference: *Interference* at a higher level than that defined as *permissible interference* and which has been agreed upon between two or more administrations without prejudice to other administrations.

harmful interference: *Interference* which endangers the functioning of a *radionavigation service* or of other *safety services* or seriously degrades, obstructs, or repeatedly interrupts a *radiocommunication service* operating in accordance with Radio Regulations (CS).

coordination distance: When determining the need for coordination, the distance on a given azimuth from an *earth station* sharing the same frequency band with *terrestrial stations*, or from a transmitting *earth station* sharing the same bidirectionally allocated frequency band with receiving *earth stations*, beyond which the level of *permissible interference* will not be exceeded and coordination is therefore not required. (WRC-2000)

2.9 Technical Terms Relating to Space

deep space: Space at distances from the Earth equal to, or greater than, 2×10^6 km.

spacecraft: A man-made vehicle which is intended to go beyond the major portion of the Earth's atmosphere.

satellite: A body which revolves around another body of preponderant mass and which has a motion primarily and permanently determined by the force of attraction of that other body.

active satellite: A *satellite* carrying a *station* intended to transmit or retransmit radiocommunication signals.

reflecting satellite: A *satellite* intended to reflect radiocommunication signals.

active sensor: A measuring instrument in the *earth exploration-satellite service* or in the *space research service* by means of which information is obtained by transmission and reception of *radio waves*.

passive sensor: A measuring instrument in the *earth exploration-satellite service* or in the *space research service* by means of which information is obtained by reception of *radio waves* of natural origin.

orbit: The path, relative to a specified frame of reference, described by the centre of mass of a *satellite* or other object in space subjected primarily to natural forces, mainly the force of gravity.

inclination of an orbit (of an earth satellite): The angle determined by the plane containing the *orbit* and the plane of the Earth's equator measured in degrees between 0° and 180° and in counter-clockwise direction from the Earth's equatorial plane at the ascending node of the *orbit*.

period (of a satellite): The time elapsing between two consecutive passages of a *satellite* through a characteristic point on its *orbit*.

altitude of the apogee or of the perigee: The altitude of the apogee or perigee above a specified reference surface serving to represent the surface of the Earth.

geosynchronous satellite: An earth *satellite* whose period of revolution is equal to the period of rotation of the Earth about its axis.

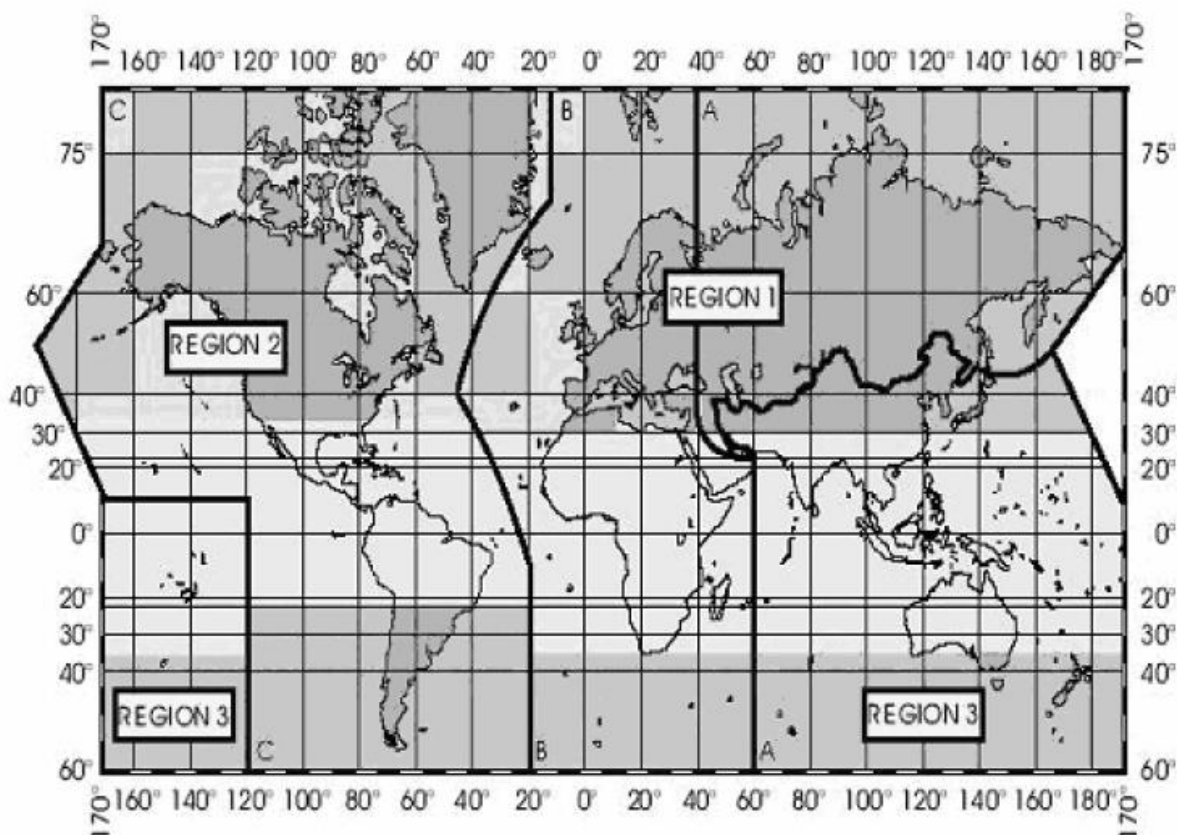
geostationary satellite: A *geosynchronous satellite* whose circular and direct *orbit* lies in the plane of the Earth's equator and which thus remains fixed relative to the Earth; by extension, a *geosynchronous satellite* which remains approximately fixed relative to the Earth. (WRC-03)

geostationary-satellite orbit: The *orbit* of a *geosynchronous satellite* whose circular and direct *orbit* lies in the plane of the Earth's equator.

3 Geographic Regions

3.1 Regions and Areas

3.1.1 The International Telecommunication Union (ITU) is responsible for the global allocation of radio frequency spectrum and satellite orbits. The ITU's Radio Regulations is an international treaty governing the use of the radio frequency spectrum and satellite orbits. One of the key elements of Radio Regulations is the Table of Frequency Allocations Table for all regions in the world.



3.1.2 For the allocation of frequencies, the world has been divided into three Regions as shown on the map above.

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

(B) Region 2: This region includes the area limited on the east by line B and on the west by line C.

(C) Region 3: This region includes the area west of line C and east of line A, except any of

the territory of Armenia, Azerbaijan, the Russian Federation. It also includes that part of the territory of the Islamic Republic of Iran lying outside of those limits.

3.1.3 The lines A, B and C are defined as follows:

- (A) **Line A:** Line A extends from the North Pole along meridian 40° East of Greenwich to parallel 40° North; thence by great circle arc to the intersection of meridian 60° East and the Tropic of Cancer; thence along the meridian 60° East to the South Pole.
- (B) **Line B:** Line B extends from the North Pole along meridian 10° West of Greenwich to its intersection with parallel 72° North; thence by great circle arc to the intersection of meridian 50° West and parallel 40° North; thence by great circle arc to the intersection of meridian 20° West and parallel 10° South; thence along meridian 20° West to the South Pole.
- (C) **Line C:** Line C extends from the North Pole by great circle arc to the intersection of parallel 65° 30' North with the international boundary in Bering Strait; thence by great circle arc to the intersection of meridian 165° East of Greenwich and parallel 50° North; thence by great circle arc to the intersection of meridian 170° West and parallel 10° North; thence along parallel 10° North to its intersection with meridian 120° West; thence along meridian 120° West to the South Pole.

3.1.4 The term “African Broadcasting Area” means:

- (A) African countries, parts of countries, territories and groups of territories situated between the parallels 40° South and 30° North;
- (B) Islands in the Indian Ocean west of meridian 60° East of Greenwich, situated between the parallel 40° South and the great circle arc joining the points 45° East, 11° 30' North and 60° East, 15° North;
- (C) Islands in the Atlantic Ocean east of line B defined in No. **3.1.3 (B)** situated between the parallels 40° South and 30° North.

3.1.5 The “European Broadcasting Area” is bounded on the west by the western boundary of Region 1, on the east by the meridian 40° East of Greenwich and on the south by the parallel 30° North so as to include the northern part of Saudi Arabia and that part of those countries bordering the Mediterranean within these limits. In addition, Armenia, Azerbaijan, Georgia and those parts of the territories of Iraq, Jordan, Syrian Arab Republic, Turkey and Ukraine lying outside the above limits are included in the European Broadcasting Area.

3.1.6 The “European Maritime Area” is bounded to the north by a line extending along parallel 72° North from its intersection with meridian 55° East of Greenwich to its intersection with meridian 5° West, then along meridian 5° West to its intersection with parallel 67° North, thence along parallel 67° North to its intersection with meridian 32° West; to the west by a line extending along meridian 32° West to its intersection with parallel 30° North; to the south by a line extending along parallel 30° North to its intersection with meridian 43° East; to the east by a line extending along meridian 43° East to its intersection with parallel 60° North, thence along parallel 60° North to its intersection with meridian 55° East and thence along

meridian 55° East to its intersection with parallel 72° North.

3.1.7 The “Tropical Zone” (see map in No. **3.1.1**) is defined as:

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

(B) The whole of that area in Regions 1 and 3 contained between the parallels 30° North and 35° South with the addition of:

i) The area contained between the meridians 40° East and 80° East of Greenwich and the parallels 30° North and 40° North;

ii) that part of Libyan Arab Jamahiriya north of parallel 30° North.

3.1.8 In Region 2, the Tropical Zone may be extended to parallel 33° North, subject to special agreements between the countries concerned in that Region (See ITU’s Radio Regulations Articles - Article 6).

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

3.2 Categories of Services and Allocations

3.2.1 Primary and secondary services

3.2.1.1 Where, in a box of the Table in section 4.2, a band is indicated as allocated to more than one service, either on a worldwide or Regional basis, such services are listed in the following order:

(A) Services the names of which are printed in “capitals” (example: FIXED); these are called “primary” services;

(B) Services the names of which are printed in “normal characters” (example: Mobile); these are called “secondary” services (see Nos. **3.2.1.3**).

3.2.1.2 Additional remarks shall be printed in normal characters (example: MOBILE except aeronautical mobile).

3.2.1.3 Stations of a secondary service:

(A) Shall not cause harmful interference to stations of primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date;

(B) cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date;

(C) can claim protection, however, from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date.

3.2.1.4 Where a band is indicated in a footnote of the Table as allocated to a service “on a

secondary basis” in an area smaller than a Region, or in a particular country, this is a secondary service (see Nos. **3.2.1.3**).

3.2.1.5 Where a band is indicated in a footnote of the Table as allocated to a service “on a primary basis”, in an area smaller than a Region, or in a particular country, this is a primary service only in that area or country.

3.2.2 Additional allocations

3.2.2.1 Where a band is indicated in a footnote of the Table as “also allocated” to a service in an area smaller than a Region, or in a particular country, this is an “additional” allocation, i.e. an allocation which is added in this area or in this country to the service or services which are indicated in the Table (see No. **3.2.2.2**).

3.2.2.2 If the footnote does not include any restriction on the service or services concerned apart from the restriction to operate only in a particular area or country, stations of this service or these services shall have equality of right to operate with stations of the other primary service or services indicated in the Table.

3.2.2.3 If restrictions are imposed on an additional allocation in addition to the restriction to operate only in a particular area or country, this is indicated in the footnote of the Table.

3.2.3 Alternative allocations

3.2.3.1 Where a band is indicated in a footnote of the Table as “allocated” to one or more services in an area smaller than a Region, or in a particular country, this is an “alternative” allocation, i.e. an allocation which replaces, in this area or in this country, the allocation indicated in the Table (see No. **3.2.3.2**).

3.2.3.2 If the footnote does not include any restriction on stations of the service or services concerned, apart from the restriction to operate only in a particular area or country, these stations of such a service or services shall have an equality of right to operate with stations of the primary service or services, indicated in the Table, to which the band is allocated in other areas or countries.

3.2.3.3 If restrictions are imposed on stations of a service to which an alternative allocation is made, in addition to the restriction to operate only in a particular country or area, this is indicated in the footnote.

3.2.4 Miscellaneous provisions

3.2.4.1 Where it is indicated that a service or stations in a service may operate in a specific frequency band subject to not causing harmful interference to another service or to another station in the same service, this means also that the service which is subject to not causing harmful interference cannot claim protection from harmful interference caused by the other service or other station in the same service.

3.2.4.2 Where it is indicated that a service or stations in a service may operate in a specific

frequency band subject to not claiming protection from another service or from another station in the same service, this means also that the service which is subject to not claiming protection shall not cause harmful interference to the other service or other station in the same service.

3.2.4.3 Except if otherwise specified in a footnote, the term “fixed service”, where appearing in Section **4.2** of this Article, does not include systems using ionospheric scatter propagation.

4 Table of Frequency Allocations

4.1 Description of the Table of Frequency Allocations

- 4.1.1** The heading of the Table in **4.2** includes four columns, three of which corresponds to one of the Regions (see No. **3.1**) and the fourth column corresponds to the frequency allocations in Brunei Darussalam. Where an allocation occupies the whole of the width of the Table or only one or two of the three columns, this is a worldwide allocation or a Regional allocation, respectively.
- 4.1.2** The frequency band referred to in each allocation is indicated in the left-hand top corner of the part of the Table concerned.
- 4.1.3** Within each of the categories specified in Nos. **3.2.1.1 (A)** and **3.2.1.1 (B)**, services are listed in alphabetical order according to the French language. The order of listing does not indicate relative priority within each category.
- 4.1.4** In the case where there is a parenthetical addition to an allocation in the Table, that service allocation is restricted to the type of operation so indicated.
- 4.1.5** The footnote references which appear in the Table below the allocated service or services apply to more than one of the allocated services, or to the whole of the allocation concerned.
- 4.1.6** The footnote references which appear to the right of the name of a service are applicable only to that particular service.
- 4.1.7** In certain cases, the names of countries appearing in the footnotes have been simplified in order to shorten the text.

4.2 Table of Frequency Allocations

8.3 – 110 kHz			
ITU Radio Regulations			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
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 5.54B 5.54C
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 MARITIME MOBILE 5.57 5.55 5.56		FIXED	14-19.95 FIXED MARITIME MOBILE 5.57 5.55 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 MARITIME MOBILE 5.57 5.56 5.58		FIXED	20.05-70 FIXED MARITIME MOBILE 5.57 5.56 5.58
70-72 RADIONAVIGATION 5.60	70-90 FIXED MARITIME MOBILE 5.57 MARITIME RADIO- NAVIGATION 5.60 Radiolocation 5.61	70-72 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59	70-72 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59
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 5.59
86-90 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56		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

200-495 kHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
255-283.5 BROADCASTING AERONAUTICAL RADIONAVIGATION 5.70 5.71	200-275 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	200-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	200-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile
	275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)		
	283.5-315 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 5.72 5.74	285-315 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	
315-325 AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73 5.72 5.75	315-325 MARITIME RADIONAVIGATION (radiobeacons) 5.73 Aeronautical radionavigation	315-325 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	315-325 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73
325-405 AERONAUTICAL RADIONAVIGATION 5.72	325-335 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)	325-405 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	325-405 AERONAUTICAL RADIONAVIGATION Aeronautical mobile
	335-405 AERONAUTICAL RADIONAVIGATION Aeronautical mobile		
405-415 RADIONAVIGATION 5.76 5.72	405-415 RADIONAVIGATION 5.76 Aeronautical mobile		405-415 RADIONAVIGATION 5.76 Aeronautical mobile
415-435 MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION	415-472 MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 5.80 5.78 5.82		415-472 MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 5.80 5.78 5.82
435-472 MARITIME MOBILE 5.79 Aeronautical radionavigation 5.77 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 Amateur 5.80A Aeronautical radionavigation 5.77 5.80 5.80B 5.82
479-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77	479-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77 5.80		479-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77 5.80

495-1 800 kHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
495-505 MARITIME MOBILE			495-505 MARITIME MOBILE
505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	505-510 MARITIME MOBILE 5.79	505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Land mobile	505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Land mobile
	510-525 MARITIME MOBILE 5.79A 5.84 AERONAUTICAL RADIONAVIGATION		
	525-535 BROADCASTING 5.86 AERONAUTICAL RADIONAVIGATION		
526.5-1 606.5 BROADCASTING 5.87 5.87A	535-1 605 BROADCASTING	526.5-535 BROADCASTING Mobile 5.88	526.5-535 BROADCASTING Mobile 5.88
	1 605-1 625 BROADCASTING 5.89	535-1 606.5 BROADCASTING	535-1 606.5 BROADCASTING
1 606.5-1 625 FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	1 625-1 705 FIXED MOBILE BROADCASTING 5.89 Radiolocation 5.90	1 606.5-1 800 FIXED MOBILE RADIOLOCATION RADIONAVIGATION	1 606.5-1 800 FIXED MOBILE RADIOLOCATION RADIONAVIGATION
1 625-1 635 RADIOLOCATION 5.93			
1 635-1 800 FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92 5.96			
	1 705-1 800 FIXED MOBILE RADIOLOCATION AERONAUTICAL RADIONAVIGATION	5.91	5.91

1 800-2 194 kHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
1 800-1 810 RADIOLOCATION 5.93	1 800-1 850 AMATEUR	1 800-2 000 AMATEUR FIXED MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation	1 800-2 000 AMATEUR FIXED MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation
1 810-1 850 AMATEUR 5.98 5.99 5.100 5.101			
1 850-2 000 FIXED MOBILE except aeronautical mobile 5.92 5.96 5.103	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			
2 045-2 160 FIXED MARITIME MOBILE LAND MOBILE 5.92			
2 160-2 170 RADIOLOCATION 5.93 5.107	2 065-2 107 MARITIME MOBILE 5.105 5.106		2 065-2 107 MARITIME MOBILE 5.105 5.106
	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

2 194-3 230 kHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
2 194-2 300 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.112	2 194-2 300 FIXED MOBILE 5.112		2 194-2 300 FIXED MOBILE 5.112
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
	2 495-2 501 STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)		2 495-2 501 STANDARD FREQUENCY AND TIME SIGNAL (2 500kHz)
2 498-2 501 STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)			
2 501-2 502 STANDARD FREQUENCY AND TIME SIGNAL Space Research			2 501-2 502 STANDARD FREQUENCY AND TIME SIGNAL Space Research
2 502-2 625 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.114	2 502-2 505 STANDARD FREQUENCY AND TIME SIGNAL		2 502-2 505 STANDARD FREQUENCY AND TIME SIGNAL
	2 505-2 850 FIXED MOBILE		2 505-2 850 FIXED MOBILE
2 625-2 650 MARITIME MOBILE MARITIME RADIONAVIGATION 5.92			
2 650-2 850 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103			
2 850-3 025 AERONAUTICAL MOBILE (R) 5.111 5.115			2 850-3 025 AERONAUTICAL MOBILE (R) 5.111 5.115
3 025-3 155 AERONAUTICAL MOBILE (OR)			3 025-3 155 AERONAUTICAL MOBILE (OR)
3 155-3 200 FIXED MOBILE except aeronautical mobile (R) 5.116 5.117			3 155-3 200 FIXED MOBILE except aeronautical mobile (R) 5.116 5.117

3 200-3 230

FIXED

MOBILE except aeronautical mobile (R)

BROADCASTING 5.113

5.116

3 200-3 230

FIXED

MOBILE except aeronautical mobile (R)

BROADCASTING 5.113

5.116

3 230-5 003 kHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
3 230-3 400 FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116 5.118			3 230-3 400 FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116 5.118
3 400-3 500 AERONAUTICAL MOBILE (R)			
3 500-3 800 AMATEUR FIXED MOBILE except aeronautical mobile 5.92	3 500-3 750 AMATEUR 5.119	3 500-3 900 AMATEUR FIXED MOBILE	3 500-3 900 AMATEUR FIXED MOBILE
3 800-3 900 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	3 750-4 000 AMATEUR FIXED MOBILE except aeronautical mobile (R)		
3 900-3 950 AERONAUTICAL MOBILE (OR) 5.123		3 900-3 950 AERONAUTICAL MOBILE BROADCASTING	3 900-3 950 AERONAUTICAL MOBILE BROADCASTING
3 950-4 000 FIXED BROADCASTING	5.122 5.125	3 950-4 000 FIXED BROADCASTING 5.126	3 950-4 000 FIXED BROADCASTING 5.126
4 000-4 063 FIXED MARITIME MOBILE 5.127 5.126			4 000-4 063 FIXED MARITIME MOBILE 5.127 5.126
4 063-4 438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128			4 063-4 438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128
4 438-4 488 FIXED MOBILE except aeronautical mobile (R) Radiolocation 5.132A 5.132B	4 438-4 488 FIXED MOBILE except aeronautical mobile (R) RADIOLOCATION 5.132A	4 438-4 488 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	4 438-4 488 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A
4 488-4 650 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)
4 700-4 750 AERONAUTICAL MOBILE (OR)			4 700-4 750 AERONAUTICAL MOBILE (OR)

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)	

5 003-7 450 kHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
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
5 060-5 250 FIXED Mobile except aeronautical mobile 5.133			5 060-5 250 FIXED Mobile except aeronautical mobile 5.133
5 250-5 275 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A 5.133A	5 250-5 275 FIXED MOBILE except aeronautical mobile RADIOLOCATION 5.132A	5 250-5 275 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	5 250-5 275 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A
5 275-5 450 FIXED MOBILE except aeronautical mobile			5 275-5 450 FIXED MOBILE except aeronautical mobile
5 450-5 480 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5 450-5 480 AERONAUTICAL MOBILE (R)	5 450-5 480 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5 450-5 480 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE
5 480-5 680 AERONAUTICAL MOBILE (R) 5.111 5.115			5 480-5 680 AERONAUTICAL MOBILE (R) 5.111 5.115
5 680-5 730 AERONAUTICAL MOBILE (OR) 5.111 5.115			5 680-5 730 AERONAUTICAL MOBILE (OR) 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
6 200-6 525 MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137			6 200-6 525 MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137
6 525-6 685 AERONAUTICAL MOBILE (R)			6 525-6 685 AERONAUTICAL MOBILE (R)

6 685-6 765 AERONAUTICAL MOBILE (OR)		6 685-6 765 AERONAUTICAL MOBILE (OR)	
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 5.140 5.141 5.141A	
7 100-7 200 AMATEUR 5.141A 5.141B		7 100-7 200 AMATEUR 5.141A 5.141B <u>BD141B</u>	
7 200-7 300 BROADCASTING	7 200-7 300 AMATEUR 5.142	7 200-7 300 BROADCASTING	7 200-7 300 BROADCASTING
7 300-7 400 BROADCASTING 5.134 5.143 5.143A 5.143B 5.143C 5.143D		7 300-7 400 BROADCASTING 5.134 5.143 5.143A 5.143B 5.143C 5.143D	
7 400-7 450 BROADCASTING 5.143B 5.143C	7 400-7 450 FIXED MOBILE except aeronautical mobile (R)	7 400-7 450 BROADCASTING 5.143A 5.143C	7 400-7 450 BROADCASTING 5.143A 5.143C

7 450-13 360 kHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
7 450-8 100 FIXED MOBILE except aeronautical mobile (R) 5.144			7 450-8 100 FIXED MOBILE except aeronautical mobile (R) 5.144
8 100-8 195 FIXED MARITIME MOBILE			8 100-8 195 FIXED MARITIME MOBILE
8 195-8 815 MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111			8 195-8 815 MARITIME MOBILE 5.109 5.110 5.132 5.1455.111
8 815-8 965 AERONAUTICAL MOBILE (R)			8 815-8 965 AERONAUTICAL MOBILE (R)
8 965-9 040 AERONAUTICAL MOBILE (OR)			8 965-9 040 AERONAUTICAL MOBILE (OR)
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 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) 5.111
10 100-10 150 FIXED Amateur			10 100-10 150 FIXED Amateur
10 150-11 175 FIXED Mobile except aeronautical mobile (R)			10 150-11 175 FIXED Mobile except aeronautical mobile (R)
11 175-11 275 AERONAUTICAL MOBILE (OR)			11 175-11 275 AERONAUTICAL MOBILE (OR)

11 275-11 400 AERONAUTICAL MOBILE (R)	11 275-11 400 AERONAUTICAL MOBILE (R)
11 400-11 600 FIXED	11 400-11 600 FIXED
11 600-11 650 BROADCASTING 5.134 5.146	11 600-11 650 BROADCASTING 5.134 5.146
11 650-12 050 BROADCASTING 5.147	11 650-12 050 BROADCASTING 5.147
12 050-12 100 BROADCASTING 5.134 5.146	12 050-12 100 BROADCASTING 5.134 5.146
12 100-12 230 FIXED	12 100-12 230 FIXED
12 230-13 200 MARITIME MOBILE 5.109 5.110 5.132 5.145	12 230-13 200 MARITIME MOBILE 5.109 5.110 5.132 5.145
13 200-13 260 AERONAUTICAL MOBILE (OR)	13 200-13 260 AERONAUTICAL MOBILE (OR)
13 260-13 360 AERONAUTICAL MOBILE (R)	13 260-13 360 AERONAUTICAL MOBILE (R)

13 360-18 030 kHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
13 360-13 410 FIXED RADIO ASTRONOMY 5.149			13 360-13 410 FIXED RADIO ASTRONOMY 5.149
13 410-13 450 FIXED Mobile except aeronautical mobile (R)			13 410-13 450 FIXED Mobile except aeronautical mobile (R)
13 450-13 550 FIXED Mobile except aeronautical mobile (R) Radiolocation 5.132A 5.149A	13 450-13 550 FIXED Mobile except aeronautical mobile (R) Radiolocation 5.132A	13 450-13 550 FIXED Mobile except aeronautical mobile (R) Radiolocation 5.132A	
13 550-13 570 FIXED Mobile except aeronautical mobile (R) 5.150			13 550-13 570 FIXED Mobile except aeronautical mobile (R) 5.150
13 570-13 600 BROADCASTING 5.134 5.151			13 570-13 600 BROADCASTING 5.134 5.151
13 600-13 800 BROADCASTING			13 600-13 800 BROADCASTING
13 800-13 870 BROADCASTING 5.134 5.151			13 800-13 870 BROADCASTING 5.134 5.151
13 870-14 000 FIXED Mobile except aeronautical mobile (R)			13 870-14 000 FIXED Mobile except aeronautical mobile (R)
14 000-14 250 AMATEUR AMATEUR-SATELLITE			14 000-14 250 AMATEUR AMATEUR-SATELLITE
14 250-14 350 AMATEUR 5.152			14 250-14 350 AMATEUR 5.152
14 350-14 990 FIXED Mobile except aeronautical mobile (R)			14 350-14 990 FIXED Mobile except aeronautical mobile (R)
14 990-15 005 STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) 5.111			14 990-15 005 STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) 5.111
15 005-15 010 STANDARD FREQUENCY AND TIME SIGNAL Space research			15 005-15 010 STANDARD FREQUENCY AND TIME SIGNAL Space research
15 010-15 100 AERONAUTICAL MOBILE (OR)			15 010-15 100 AERONAUTICAL MOBILE (OR)
15 100-15 600 BROADCASTING			15 100-15 600 BROADCASTING
15 600-15 800 BROADCASTING 5.134 5.146			15 600-15 800 BROADCASTING 5.134 5.146

15 800-16 100 FIXED 5.153			15 800-16 100 FIXED 5.153
16 100-16 200 FIXED Radiolocation 5.145A 5.145B	16 100-16 200 FIXED RADIOLOCATION 5.145A	16 100-16 200 FIXED Radiolocation 5.145A	16 100-16 200 FIXED Radiolocation 5.145A
16 200-16 360 FIXED			16 200-16 360 FIXED
16 360-17 410 MARITIME MOBILE 5.109 5.110 5.132 5.145			16 360-17 410 MARITIME MOBILE 5.109 5.110 5.132 5.145
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
17 900-17 970 AERONAUTICAL MOBILE (R)			17 900-17 970 AERONAUTICAL MOBILE (R)
17 970-18 030 AERONAUTICAL MOBILE (OR)			17 970-18 030 AERONAUTICAL MOBILE (OR)

18 030-23 350 kHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
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 5.154
18 168-18 780 FIXED Mobile except aeronautical mobile			18 168-18 780 FIXED Mobile except aeronautical mobile
18 780-18 900 MARITIME MOBILE			18 780-18 900 MARITIME MOBILE
18 900-19 020 BROADCASTING 5.134 5.146			18 900-19 020 BROADCASTING 5.134 5.146
19 020-19 680 FIXED			19 020-19 680 FIXED
19 680-19 800 MARITIME MOBILE 5.132			19 680-19 800 MARITIME MOBILE 5.132
19 800-19 990 FIXED			19 800-19 990 FIXED
19 990-19 995 STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111			19 990-19 995 STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111
19 995-20 010 STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) 5.111			19 995-20 010 STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) 5.111
20 010-21 000 FIXED Mobile			20 010-21 000 FIXED Mobile
21 000-21 450 AMATEUR AMATEUR-SATELLITE			21 000-21 450 AMATEUR AMATEUR-SATELLITE
21 450-21 850 BROADCASTING			21 450-21 850 BROADCASTING
21 850-21 870 FIXED 5.155A 5.155			21 850-21 870 FIXED 5.155A 5.155
21 870-21 924 FIXED 5.155B			21 870-21 924 FIXED 5.155B

21 924-22 000 AERONAUTICAL MOBILE (R)	21 924-22 000 AERONAUTICAL MOBILE (R)
22 000-22 855 MARITIME MOBILE 5.132 5.156	22 000-22 855 MARITIME MOBILE 5.132 5.156
22 855-23 000 FIXED 5.156	22 855-23 000 FIXED 5.156
23 000-23 200 FIXED Mobile except aeronautical mobile (R) 5.156	23 000-23 200 FIXED Mobile except aeronautical mobile (R) 5.156
23 200-23 350 FIXED 5.156A AERONAUTICAL MOBILE (OR)	23 200-23 350 FIXED 5.156A AERONAUTICAL MOBILE (OR)

23 350-27 500 kHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
23 350-24 000 FIXED MOBILE except aeronautical mobile 5.157			23 350-24 000 FIXED MOBILE except aeronautical mobile 5.157
24 000-24 450 FIXED LAND MOBILE			24 000-24 450 FIXED LAND MOBILE
24 450-24 600 FIXED LAND MOBILE Radiolocation 5.132A 5.158	24 450-24 650 FIXED LAND MOBILE RADIOLOCATION 5.132A	24 450-24 600 FIXED LAND MOBILE Radiolocation 5.132A	24 450-24 600 FIXED LAND MOBILE Radiolocation 5.132A
24 600-24 890 FIXED LAND MOBILE		24 600-24 890 FIXED LAND MOBILE	24 600-24 890 FIXED LAND MOBILE
24 890-24 990 AMATEUR AMATEUR-SATELLITE			24 890-24 990 AMATEUR AMATEUR-SATELLITE
24 990-25 005 STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)			24 990-25 005 STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)
25 005-25 010 STANDARD FREQUENCY AND TIME SIGNAL Space research			25 005-25 010 STANDARD FREQUENCY AND TIME SIGNAL Space research
25 010-25 070 FIXED MOBILE except aeronautical mobile			25 010-25 070 FIXED MOBILE except aeronautical mobile
25 070-25 210 MARITIME MOBILE			25 070-25 210 MARITIME MOBILE
25 210-25 550 FIXED MOBILE except aeronautical mobile			25 210-25 550 FIXED MOBILE except aeronautical mobile
25 550-25 670 RADIO ASTRONOMY 5.149			25 550-25 670 RADIO ASTRONOMY 5.149
25 670-26 100 BROADCASTING			25 670-26 100 BROADCASTING
26 100-26 175 MARITIME MOBILE 5.132			26 100-26 175 MARITIME MOBILE 5.132
26 175-26 200 FIXED MOBILE except aeronautical mobile			26 175-26 200 FIXED MOBILE except aeronautical mobile
26 200-26 350 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	26 200-26 420 FIXED MOBILE except aeronautical mobile	26 200-26 350 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	26 200-26 350 FIXED MOBILE except aeronautical mobile Radiolocation 5.132A

5.133A	RADIOLOCATION 5.132A		
26 350-27 500 FIXED MOBILE except aeronautical mobile		26 350-27 500 FIXED MOBILE except aeronautical mobile	26 350-27 500 FIXED MOBILE except aeronautical mobile
	26 420-27 500 FIXED MOBILE except aeronautical mobile		
5.150	5.150	5.150	5.150

27.5-47 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
27.5-28 METEOROLOGICAL AIDS FIXED MOBILE			27.5-28 METEOROLOGICAL AIDS FIXED MOBILE
28-29.7 AMATEUR AMATEUR-SATELLITE			28-29.7 AMATEUR AMATEUR-SATELLITE
29.7-30.005 FIXED MOBILE			29.7-30.005 FIXED MOBILE
30.005-30.01 SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH			30.005-30.01 SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH
30.01-37.5 FIXED MOBILE			30.01-37.5 FIXED MOBILE
37.5-38.25 FIXED MOBILE Radio astronomy 5.149			37.5-38.25 FIXED MOBILE Radio astronomy 5.149
38.25-39 FIXED MOBILE	38.25-39.986 FIXED MOBILE	38.25-39.5 FIXED MOBILE	38.25-39.5 FIXED MOBILE
39-39.5 FIXED MOBILE Radiolocation 5.132A 5.159			
39.5-39.986 FIXED MOBILE			
39.986-40.02 FIXED MOBILE Space research		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 Space research	40-40.02 FIXED MOBILE Space research

40.02-40.98 FIXED MOBILE 5.150		40.02-40.98 FIXED MOBILE 5.150
40.98-41.015 FIXED MOBILE Space research 5.160 5.161		40.98-41.015 FIXED MOBILE Space research 5.160 5.161
41.015-42 FIXED MOBILE 5.160 5.161 5.161A		41.015-42 FIXED MOBILE 5.160 5.161 5.161A
42-42.5 FIXED MOBILE Radiolocation 5.132A 5.160 5.161B	42-42.5 FIXED MOBILE 5.161	42-42.5 FIXED MOBILE 5.161
42.5-44 FIXED MOBILE 5.160 5.161 5.161A		42.5-44 FIXED MOBILE 5.160 5.161 5.161A
44-47 FIXED MOBILE 5.162 5.162A		44-47 FIXED MOBILE 5.162 5.162A

47-75.2 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
47-68 BROADCASTING 5.162A 5.163 5.164 5.165 5.169 5.171	47-50 FIXED MOBILE	47-50 FIXED MOBILE BROADCASTING 5.162A	47-50 FIXED MOBILE BROADCASTING 5.162A
	50-54 AMATEUR 5.162A 5.166 5.167 5.167A 5.168 5.170		50-54 AMATEUR 5.162A 5.166 5.167 5.167A 5.168 5.170 <u>BD167</u>
	54-68 BROADCASTING Fixed Mobile 5.172	54-68 FIXED MOBILE BROADCASTING 5.162A	54-68 FIXED MOBILE BROADCASTING 5.162A
68-74.8 FIXED MOBILE except aeronautical mobile 5.149 5.175 5.177 5.179	68-72 BROADCASTING Fixed Mobile 5.173	68-74.8 FIXED MOBILE 5.149 5.176 5.179	68-74.8 FIXED MOBILE 5.149 5.176 5.179
	72-73 FIXED MOBILE		
	73-74.6 RADIO ASTRONOMY 5.178		
	74.6-74.8 FIXED MOBILE		
74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180 5.181			74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180 5.181

75.2-137.175 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
75.2-87.5 FIXED MOBILE except aeronautical mobile 5.175 5.179 5.187	75.2-75.4 FIXED MOBILE 5.179		75.2-75.4 FIXED MOBILE 5.179
	75.4-76 FIXED MOBILE		75.4-87 FIXED MOBILE 5.182 5.183 5.188
	76-88 BROADCASTING Fixed Mobile		
	87.5-100 BROADCASTING 5.190	5.185	87-100 FIXED MOBILE BROADCASTING
88-100 BROADCASTING			
100-108 BROADCASTING 5.192 5.194			100-108 BROADCASTING 5.192 5.194
108-117.975 AERONAUTICAL RADIONAVIGATION 5.197 5.197A			108-117.975 AERONAUTICAL RADIONAVIGATION 5.197 5.197A
117.975-137 AERONAUTICAL MOBILE (R) 5.111 5.200 5.201 5.202			117.975-137 AERONAUTICAL MOBILE (R) 5.111 5.200 5.201 5.202
137-137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137-137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208 <u>BD204</u>
137.025-137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 5.204 5.205 5.206 5.207 5.208			137.025-137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 5.204 5.205 5.206 5.207 5.208 <u>BD204</u>

137.175-148 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
137.175-137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137.175-137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208 <u>BD204</u>
137.825-138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 5.204 5.205 5.206 5.207 5.208			137.825-138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 5.204 5.205 5.206 5.207 5.208 <u>BD204</u>
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) 5.207 5.213
143.6-143.65 AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth)	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) 5.207 5.213
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) 5.207 5.213
144-146 AMATEUR AMATEUR-SATELLITE 5.216			144-146 AMATEUR AMATEUR-SATELLITE 5.216
146-148 FIXED MOBILE except aeronautical mobile (R)	146-148 AMATEUR 5.217	146-148 AMATEUR FIXED MOBILE 5.217	146-148 AMATEUR FIXED MOBILE 5.217

148-223 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
148-149.9 FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221	148-149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221		148-149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221 <u>BD221</u>
149.9-150.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223			149.9-150.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223
150.05-153 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	150.05-154 FIXED MOBILE 5.225		150.05-154 FIXED MOBILE 5.225
153-154 FIXED MOBILE except aeronautical mobile (R) Meteorological aids			
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
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
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
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
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

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
156.8375-161.9625 FIXED MOBILE except aeronautical mobile 5.226	156.8375-161.9625 FIXED MOBILE 5.226	156.8375-161.9625 FIXED MOBILE 5.226	

148-223 MHz (end)			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
161.9625-161.9875 FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B	161.9625-161.9875 AERONAUTICAL MOBILE (OR) MARITIME MOBILE MOBILE-SATELITE (Earth-to-space) 5.228C 5.228D	161.9625-161.9875 MARITIME MOBILE Aeronautical mobile (OR) 5.228E Mobile-satellite (Earth-to-space) 5.228F 5.226	161.9625-161.9875 MARITIME MOBILE Aeronautical mobile (OR) 5.228E Mobile-satellite (Earth-to-space) 5.228F 5.226
161.9875-162.0125 FIXED MOBILE except aeronautical mobile 5.226 5.229	161.9875-162.0125 FIXED MOBILE 5.226		161.9875-162.0125 FIXED MOBILE 5.226
162.0125-162.0375 FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B 5.229	162.0125-162.0375 AERONAUTICAL MOBILE (OR) MARITIME MOBILE MOBILE-SATELITE (Earth-to-space) 5.228C 5.228D	162.0125-162.0375 MARITIME MOBILE Aeronautical mobile (OR) 5.228E Mobile-satellite (Earth-to-space) 5.228F 5.226	162.0125-162.0375 MARITIME MOBILE Aeronautical mobile (OR) 5.228E Mobile-satellite (Earth-to-space) 5.228F 5.226
162.0375-174 FIXED MOBILE except aeronautical mobile 5.226 5.229	162.0375-174 FIXED MOBILE 5.226 5.230 5.231 5.232		162.0375-174 FIXED MOBILE 5.226 5.230 5.231 5.232
174-223 BROADCASTING 5.235 5.237 5.243	174-216 BROADCASTING Fixed Mobile 5.234	174-223 FIXED MOBILE BROADCASTING 5.233 5.238 5.240 5.245	174-223 FIXED MOBILE BROADCASTING 5.233 5.238 5.240 5.245
	216-220 FIXED MARITIME MOBILE Radiolocation 5.241 5.242		

220-335.4 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
	220-225		
223-230 BROADCASTING Fixed Mobile 5.243 5.246 5.247	AMATEUR FIXED MOBILE Radiolocation 5.241	223-230 FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation 5.250	223-230 FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation 5.250
230-235 FIXED MOBILE 5.247 5.251 5.252	225-235 FIXED MOBILE	230-235 FIXED MOBILE AERONAUTICAL RADIONAVIGATION 5.250	230-235 FIXED MOBILE AERONAUTICAL RADIONAVIGATION 5.250
235-267 FIXED MOBILE 5.111 5.252 5.254 5.256 5.256A			235-267 FIXED 5.111 5.252 5.254 5.256 5.256A
267-272 FIXED MOBILE Space operation (space-to-Earth) 5.254 5.257			267-272 FIXED MOBILE Space operation (space-to-Earth) 5.254 5.257
272-273 SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254			272-273 SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254
273-312 FIXED MOBILE 5.254			273-312 FIXED MOBILE 5.254
312-315 FIXED MOBILE Mobile-satellite (Earth-to-space) 5.254 5.255			312-315 FIXED MOBILE Mobile-satellite (Earth-to-space) 5.254 5.255
315-322 FIXED MOBILE 5.254			315-322 FIXED MOBILE 5.254
322-328.6 FIXED MOBILE RADIO ASTRONOMY 5.149			322-328.6 FIXED MOBILE RADIO ASTRONOMY 5.149

328.6-335.4

AERONAUTICAL RADIONAVIGATION 5.258
5.259

328.6-335.4

AERONAUTICAL RADIONAVIGATION 5.258
5.259

335.4-410 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
335.4-387 FIXED MOBILE 5.254			335.4-387 FIXED MOBILE 5.254
387-390 FIXED MOBILE Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255			387-390 FIXED MOBILE Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255
390-399.9 FIXED MOBILE 5.254			390-399.9 FIXED MOBILE 5.254
399.9-400.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260 5.220			399.9-400.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260 5.220
400.05-400.15 STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261 5.262			400.05-400.15 STANDARD FREQUENCY AND TIME SIGNAL SATELLITE (400.1 MHz)5.261 5.262
400.15-401 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.262 5.264			400.15-401 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.262 5.264
401-402 METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile			401-402 METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile
402-403 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile			402-403 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile

403-406 METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	403-406 METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile
406-406.1 MOBILE-SATELLITE (Earth-to-space) 5.266 5.267	406-406.1 MOBILE-SATELLITE (Earth-to-space) 5.266 5.267
406.1-410 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	406.1-410 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149

410-460 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
410-420 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268			410-420 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268
420-430 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271			420-430 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271
430-432 AMATEUR RADIOLOCATION 5.271 5.272 5.273 5.274 5.275 5.276 5.277	430-432 RADIOLOCATION Amateur 5.271 5.276 5.278 5.279	430-432 RADIOLOCATION Amateur 5.271 5.276 5.278 5.279 <i>BD276</i>	
432-438 AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A 5.138 5.271 5.272 5.276 5.277 5.280 5.281 5.282	432-438 RADIOLOCATION Amateur Earth exploration-satellite (active) 5.279A 5.271 5.276 5.278 5.279 5.281 5.282	432-438 RADIOLOCATION Amateur Earth exploration-satellite (active) 5.279A 5.271 5.276 5.278 5.279 5.281 5.282 <i>BD276</i>	
438-440 AMATEUR RADIOLOCATION 5.271 5.273 5.274 5.275 5.276 5.277 5.283	438-440 RADIOLOCATION Amateur 5.271 5.276 5.278 5.279	438-440 RADIOLOCATION Amateur 5.271 5.276 5.278 5.279 <i>BD276</i>	
440-450 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271 5.284 5.285 5.286			440-450 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271 5.284 5.285 5.286
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 5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E
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 5.209 5.271 5.286A 5.286B 5.286C 5.286E
456-459 FIXED MOBILE 5.286AA 5.271 5.287 5.288			456-459 FIXED MOBILE 5.286AA 5.271 5.287 5.288

<p>459-460 FIXED MOBILE 5.286AA</p> <p>5.209 5.271 5.286A 5.286B 5.286C 5.286E</p>	<p>459-460 FIXED MOBILE 5.286AA MOBILE-SATELLITE (Earth-to-space) 5.209 5.286A 5.286B 5.286C</p>	<p>459-460 FIXED MOBILE 5.286AA</p> <p>5.209 5.271 5.286A 5.286B 5.286C 5.286E</p>	<p>459-460 FIXED MOBILE 5.286AA</p> <p>5.209 5.271 5.286A 5.286B 5.286C 5.286E</p>
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890-1 300 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
890-942 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation 5.323	890-902 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation 5.318 5.325 902-928 FIXED Amateur Mobile except aeronautical mobile 5.325A Radiolocation 5.150 5.325 5.326 928-942 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation 5.325	890-942 FIXED MOBILE 5.317A BROADCASTING Radiolocation 5.327	890-942 FIXED MOBILE 5.317A BROADCASTING Radiolocation5.327
942-960 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.323	942-960 FIXED MOBILE 5.317A	942-960 FIXED MOBILE 5.317A BROADCASTING 5.320	942-960 FIXED MOBILE 5.317A BROADCASTING 5.320
960-1 164 AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328			960-1 164 AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328
1 164-1 215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B5.328A			1 164-1 215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B5.328A
1 215-1 240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332			1 215-1 240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332

<p>1 240-1 300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.282 5.330 5.331 5.332 5.335 5.335A</p>	<p>1 240-1 300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space- to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.282 5.330 5.331 5.332 5.335 5.335A</p>
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1 300-1 525 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
1 300-1 350 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 RADIONAVIGATION-SATELLITE (Earth-to-space) 5.149 5.337A			1 300-1 350 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 RADIONAVIGATION-SATELLITE (Earth-to-space) 5.149 5.337A
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 5.334 5.339
1 400-1 427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			1 400-1 427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341
1 427-1 429 SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.338A 5.341			1 427-1 429 SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.338A 5.341
1 429-1 452 FIXED MOBILE except aeronautical mobile 5.338A 5.341 5.342	1 429-1 452 FIXED MOBILE 5.343 5.338A 5.341	1 429-1 452 FIXED MOBILE 5.343 5.338A 5.341	
1 452-1 492 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.342 5.345	1 452-1 492 FIXED MOBILE 5.343 BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.344 5.345		1 452-1 492 FIXED MOBILE 5.343 BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.344 5.345
1 492-1 518 FIXED MOBILE except aeronautical mobile 5.341 5.342	1 492-1 518 FIXED MOBILE 5.343 5.341 5.344	1 492-1 518 FIXED MOBILE 5.341	1 492-1 518 FIXED MOBILE 5.341

<p>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</p>	<p>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</p>	<p>1 518-1 525 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341</p>	<p>1 518-1 525 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341</p>
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1 525-1 610 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
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 5.349 5.341 5.351 5.352A 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 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 5.343 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 5.355 5.356 5.357 5.357A 5.359 5.362A
1 559-1 610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.208B 5.328B 5.329A 5.341 5.362B 5.362C			1 559-1 610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.208B 5.328B 5.329A 5.341 5.362B 5.362C

1 610-1 660 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
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 RADIO DETERMINATION-SATELLITE (Earth-to-space) 5.341 5.364 5.366 5.367 5.368 5.370 5.372	1 610-1 610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372	1 610-1 610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372
1 610.6-1 613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION 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 RADIO DETERMINATION-SATELLITE (Earth-to-space) 5.149 5.341 5.364 5.366 5.367 5.368 5.370 5.372	1 610.6-1 613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372	1 610.6-1 613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372
1 613.8-1 626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372	1 613.8-1 626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIO DETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) 5.208B 5.341 5.364 5.365 5.366 5.367 5.368 5.370 5.372	1 613.8-1 626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B Radiodetermination-satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.372	1 613.8-1 626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B Radiodetermination-satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.372
1 626.5-1 660 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 5.355 5.357A 5.359 5.362A 5.374 5.375 5.376

1 660-1 710 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
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 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 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 5.149 5.341 5.379 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
1 675-1 690 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341			1 675-1 690 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341

<p>1 690-1 700 METEOROLOGICAL AIDS METEOROLOGICAL- SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile 5.289 5.341 5.382</p>	<p>1 690-1 700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341 5.381</p>	<p>1 690-1 700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341 5.381</p>
<p>1 700-1 710 FIXED METEOROLOGICAL- SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341</p>	<p>1 700-1 710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341 5.384</p>	<p>1 700-1 710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341 5.384</p>

1 710-2 170 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
1 710-1 930 FIXED MOBILE 5.384A 5.388A 5.388B 5.149 5.341 5.385 5.386 5.387 5.388			1 710-1 930 FIXED MOBILE 5.384A 5.388A 5.388B 5.149 5.341 5.385 5.386 5.387 5.388
1 930-1 970 FIXED MOBILE 5.388A 5.388B 5.388	1 930-1 970 FIXED MOBILE 5.388A 5.388B Mobile-satellite (Earth-to-space) 5.388	1 930-1 970 FIXED MOBILE 5.388A 5.388B 5.388	1 930-1 970 FIXED MOBILE 5.388A 5.388B 5.388
1 970-1 980 FIXED MOBILE 5.388A 5.3885.388			1 970-1 980 FIXED MOBILE 5.388A 5.388B 5.388
1 980-2 010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389B 5.389F			1 980-2 010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389B 5.389F
2 010-2 025 FIXED MOBILE 5.388A 5.388B 5.388	2 010-2 025 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.388 5.389C 5.389E	2 010-2 025 FIXED MOBILE 5.388A 5.388B 5.388	2 010-2 025 FIXED MOBILE 5.388A 5.388B 5.388
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			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
2 110-2 120 FIXED MOBILE 5.388A 5.388B SPACE RESEARCH (deep space) (Earth-to-space) 5.388			2 110-2 120 FIXED MOBILE 5.388A 5.388B SPACE RESEARCH (deep space) (Earth- to-space) 5.388
2 120-2 160 FIXED MOBILE 5.388A 5.388B 5.388	2 120-2 160 FIXED MOBILE 5.388A 5.388B Mobile-satellite (space-to-Earth) 5.388	2 120-2 160 FIXED MOBILE 5.388A 5.388B 5.388	2 120-2 160 FIXED MOBILE 5.388A 5.388B 5.388

2 160-2 170 FIXED MOBILE 5.388A 5.388B 5.388	2 160-2 170 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.388 5.389C 5.389E	2 160-2 170 FIXED MOBILE 5.388A 5.388B 5.388	2 160-2 170 FIXED MOBILE 5.388A 5.388B 5.388
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2 170-2 520 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
2 170-2 200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A 5.388 5.389A 5.389F			2 170-2 200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A 5.388 5.389A 5.389F
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
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)
2 300-2 450 FIXED MOBILE 5.384A Amateur Radiolocation 5.150 5.282 5.395	2 300-2 450 FIXED MOBILE 5.384A RADIOLOCATION Amateur 5.150 5.282 5.393 5.394 5.396	2 300-2 450 FIXED MOBILE 5.384A RADIOLOCATION Amateur 5.150 5.282 5.393 5.394 5.396	
2 450-2 483.5 FIXED MOBILE Radiolocation 5.150 5.397	2 450-2 483.5 FIXED MOBILE RADIOLOCATION 5.150		2 450-2 483.5 FIXED MOBILE RADIOLOCATION 5.150
2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 Radiolocation 5.398A 5.150 5.399 5.401 5.402	2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.402	2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.401 5.402	2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.401 5.402

<p>2 500-2 520 FIXED 5.410 MOBILE except aeronautical mobile 5.384A</p> <p>5.405 5.412</p>	<p>2 500-2 520 FIXED 5.410 FIXED-SATELLITE (space- to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A</p>	<p>2 500-2 520 FIXED 5.410 FIXED-SATELLITE (space- to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A</p> <p>5.404 5.415A</p>	<p>2 500-2 520 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A</p> <p>5.404 5.415A</p>
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2 520-2 700 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
2 520-2 655 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.405 5.412 5.417C 5.417D 5.418B 5.418C	2 520-2 655 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.417C 5.417D 5.418B 5.418C	2 520-2 535 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.403 5.414A 5.415A	2 520-2 535 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.403 5.414A 5.415A
		2 535-2 655 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.417A 5.417B 5.417C 5.417D 5.418 5.418A 5.418B 5.418C	2 535-2 655 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.417A 5.417B 5.417C 5.417D 5.418 5.418A 5.418B 5.418C
2 655-2 670 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.208B 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.412	2 655-2 670 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.208B	2 655-2 670 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.208B 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.420	2 655-2 670 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.208B 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.420

<p>2 670-2 690 FIXED 5.410 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive)</p> <p>5.149 5.412</p>	<p>2 670-2 690 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.208B 5.415 MOBILE except aeronautical mobile 5.384A Earth exploration- satellite (passive) Radio astronomy Space research (passive)</p> <p>5.149</p>	<p>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)</p> <p>5.149</p>	<p>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)</p> <p>5.149</p>
<p>2 690-2 700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)</p> <p>5.340 5.422</p>		<p>2 690-2 700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)</p> <p>5.340 5.422 <u>BD422</u></p>	

2 700-4 800 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
2 700-2 900 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423 5.424			2 700-2 900 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423 5.424
2 900-3 100 RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427			2 900-3 100 RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427
3 100-3 300 RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149 5.428			3 100-3 300 RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149 5.428
3 300-3 400 RADIOLOCATION 5.149 5.429 5.430	3 300-3 400 RADIOLOCATION Amateur Fixed Mobile 5.149	3 300-3 400 RADIOLOCATION Amateur 5.149 5.429	3 300-3 400 RADIOLOCATION Amateur 5.149 5.429 <u>BD429</u>
3 400-3 600 FIXED FIXED-SATELLITE (space-to-Earth) Mobile 5.430A Radiolocation 5.431	3 400-3 500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile 5.431A Radiolocation 5.433 5.282	3 400-3 500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile 5.432B Radiolocation 5.433 5.282 5.432 5.432A	3 400-3 500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile 5.432B Radiolocation 5.433 5.282 5.432 5.432A
		3 500-3 600 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433	3 500-3 600 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.433A Radiolocation 5.433
3 600-4 200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile	3 600-3 700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.435	3 600-3 700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.435	3 600-3 700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.435
		3 700-4 200 FIXED FIXED-SATELLITE (space to-Earth) MOBILE except aeronautical mobile	3 700-4 200 FIXED FIXED-SATELLITE (space to-Earth) MOBILE except aeronautical mobile
4 200-4 400 AERONAUTICAL RADIONAVIGATION 5.438 5.439 5.440			4 200-4 400 AERONAUTICAL RADIONAVIGATION 5.438 5.439 5.440

4 400-4 500 FIXED MOBILE 5.440A	4 400-4 500 FIXED MOBILE 5.440A
4 500-4 800 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE 5.440A	4 500-4 800 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE 5.440A

4 800-5 570 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
4 800-4 990 FIXED MOBILE 5.440A 5.442 Radio astronomy 5.149 5.339 5.443			4 800-4 990 FIXED MOBILE 5.440A 5.442 Radio astronomy 5.149 5.339 5.443
4 990-5 000 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149			4 990-5 000 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149
5 000-5 010 AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space)			5 000-5 010 AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space)
5 010-5 030 AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B			5 010-5 030 AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B
5 030-5 091 AERONAUTICAL MOBILE (R) 5.443C AERONAUTICAL MOBILE-SATELLITE (R) 5.443D AERONAUTICAL RADIONAVIGATION 5.444			5 030-5 091 AERONAUTICAL MOBILE (R) 5.443C AERONAUTICAL MOBILE-SATELLITE (R) 5.443D AERONAUTICAL RADIONAVIGATION 5.444
5 091-5 150 AERONAUTICAL MOBILE 5.444B AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION 5.444 5.444A			5 091-5 150 AERONAUTICAL MOBILE 5.444B AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION 5.444 5.444A
5 150-5 250 FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B AERONAUTICAL RADIONAVIGATION 5.446 5.446C 5.447 5.447B 5.447C			5 150-5 250 FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B AERONAUTICAL RADIONAVIGATION 5.446 5.446C 5.447 5.447B 5.447C

<p>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</p>	<p>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</p>
<p>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</p>	<p>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</p>
<p>5 350-5 460 EARTH EXPLORATION-SATELLITE (active) 5.448B RADIOLOCATION 5.448D AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448C</p>	<p>5 350-5 460 EARTH EXPLORATION-SATELLITE (active) 5.448B RADIOLOCATION 5.448D AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448C</p>

4 800-5 570 MHz (end)			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
5 460-5 470 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION 5.448D RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448B			5 460-5 470 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION 5.448D RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448B
5 470-5 570 EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B MARITIME RADIONAVIGATION SPACE RESEARCH (active) 5.448B 5.450 5.451			5 470-5 570 EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B MARITIME RADIONAVIGATION SPACE RESEARCH (active) 5.448B 5.450 5.451

5 570-7 250 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
5 570-5 650 MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B MARITIME RADIONAVIGATION 5.450 5.451 5.452			5 570-5 650 MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B MARITIME RADIONAVIGATION 5.450 5.451 5.452
5 650-5 725 MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION Amateur Space research (deep space) 5.282 5.451 5.453 5.454 5.455			5 650-5 725 MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION Amateur Space research (deep space) 5.282 5.451 5.453 5.454 5.455 <i>BD453</i>
5 725-5 830 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur 5.150 5.451 5.453 5.455 5.456	5 725-5 830 RADIOLOCATION Amateur 5.150 5.453 5.455		5 725-5 830 RADIOLOCATION Amateur 5.150 5.453 5.455 <i>BD453</i>
5 830-5 850 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.451 5.453 5.455 5.456	5 830-5 850 RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.453 5.455		5 830-5 850 RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.453 5.455 <i>BD453</i>
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 Radiolocation 5.150
5 925-6 700 FIXED 5.457 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B MOBILE 5.457C 5.149 5.440 5.458			5 925-6 700 FIXED 5.457 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B MOBILE 5.457C 5.149 5.440 5.458

6 700-7 075 FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C	6 700-7 075 FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C
7 075-7 145 FIXED MOBILE 5.458 5.459	7 075-7 145 FIXED MOBILE 5.458 5.459
7 145-7 235 FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458 5.459	7 145-7 235 FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458 5.459
7 235-7 250 FIXED MOBILE 5.458	7 235-7 250 FIXED MOBILE 5.458

7 250-8 500 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
7 250-7 300 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 5.461			7 250-7 300 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 5.461
7 300-7 450 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461			7 300-7 450 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461
7 450-7 550 FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461A			7 450-7 550 FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461A
7 550-7 750 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile			7 550-7 750 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile
7 750-7 900 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile			7 750-7 900 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile
7 900-8 025 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.461			7 900-8 025 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.461
8 025-8 175 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A			8 025-8 175 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A
8 175-8 215 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A			8 175-8 215 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A

<p>8 215-8 400 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A</p>	<p>8 215-8 400 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A</p>
<p>8 400-8 500 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.465 5.466</p>	<p>8 400-8 500 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.465 5.466</p>

8 500-10 000 MHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
8 500-8 550 RADIOLOCATION 5.468 5.469			8 500-8 550 RADIOLOCATION 5.468 5.469 <u>BD468</u>
8 550-8 650 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.468 5.469 5.469A			8 550-8 650 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.468 5.469 5.469A <u>BD468</u>
8 650-8 750 RADIOLOCATION 5.468 5.469			8 650-8 750 RADIOLOCATION 5.468 5.469 <u>BD468</u>
8 750-8 850 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470 5.471			8 750-8 850 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470 5.471
8 850-9 000 RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473			8 850-9 000 RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473
9 000-9 200 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 5.471 5.473A			9 000-9 200 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 5.471 5.473A
9 200-9 300 RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473 5.474			9 200-9 300 RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473 5.474
9 300-9 500 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.427 5.474 5.475 5.475A 5.475B 5.476A			9 300-9 500 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.427 5.474 5.475 5.475A 5.475B 5.476A
9 500-9 800 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A			9 500-9 800 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A
9 800-9 900 RADIOLOCATION Earth exploration-satellite (active) Fixed Space research (active) 5.477 5.478 5.478A 5.478B			9 800-9 900 RADIOLOCATION Earth exploration-satellite (active) Fixed Space research (active) 5.477 5.478 5.478A 5.478B <u>BD477</u>

9 900-10 000 RADIOLOCATION Fixed 5.477 5.478 5.479	9 900-10 000 RADIOLOCATION Fixed 5.477 5.478 5.479 <i>BD477</i>
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10-11.7 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
10-10.45 FIXED MOBILE RADIOLOCATION Amateur 5.479	10-10.45 RADIOLOCATION Amateur 5.479 5.480	10-10.45 FIXED MOBILE RADIOLOCATION Amateur 5.479	10-10.45 FIXED MOBILE RADIOLOCATION Amateur 5.479
10.45-10.5 RADIOLOCATION Amateur Amateur-satellite 5.481			10.45-10.5 RADIOLOCATION Amateur Amateur-satellite 5.481
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
10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482 5.482A			10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482 5.482A
10.68-10.7 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.483			10.68-10.7 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.483
10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484 MOBILE except aeronautical mobile	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	

11.7-14 GHz				
Allocation to services			Allocations in Brunei Darussalam	
Region 1	Region 2	Region 3		
11.7-12.5 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	11.7-12.1 FIXED 5.486 FIXED-SATELLITE (space-to-Earth) 5.484A 5.488 Mobile except aeronautical mobile 5.485	11.7-12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	11.7-12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	
	12.1-12.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.488 5.485 5.489			5.487 5.487A
	12.2-12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	12.2-12.5 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE except aeronautical mobile BROADCASTING		12.2-12.5 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE except aeronautical mobile BROADCASTING
12.5-12.75 FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space)	5.487A 5.488 5.490 12.7-12.75 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile	12.5-12.75 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.493	12.5-12.75 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.493	
12.75-13.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth)			12.75-13.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth)	
13.25-13.4 EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A 5.499			13.25-13.4 EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A 5.499	
13.4-13.75 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.500 5.501 5.501B			13.4-13.75 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.500 5.501 5.501B <u>BD500</u>	

<p>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</p>	<p>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 <u>BD500</u></p>
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14-15.4 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
14-14.25 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research 5.504A 5.505			14-14.25 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research 5.504A 5.505 <u>BD505</u>
14.25-14.3 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508			14.25-14.3 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508 <u>BD505</u>
14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth- to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 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 5.506 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 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A
14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth) 5.504A			14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth)
14.47-14.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy 5.149 5.504A			14.47-14.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy 5.149 5.504A

14.5-14.8 FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research	14.5-14.8 FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research
14.8-15.35 FIXED MOBILE Space research 5.339	14.8-15.35 FIXED MOBILE Space research 5.339
15.35-15.4 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.511	15.35-15.4 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.511

15.4-18.4 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
15.4-15.43 RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511D			15.4-15.43 RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511D
15.43-15.63 FIXED-SATELLITE (Earth-to-space) 5.511A RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511C			15.43-15.63 FIXED-SATELLITE (Earth-to-space) 5.511A RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511C
15.63-15.7 RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511D			15.63-15.7 RADIOLOCATION 5.511E 5.511F AERONAUTICAL RADIONAVIGATION 5.511D
15.7-16.6 RADIOLOCATION 5.512 5.513			15.7-16.6 RADIOLOCATION 5.512 5.513 <u>BD512</u>
16.6-17.1 RADIOLOCATION Space research (deep space) (Earth-to-space) 5.512 5.513			16.6-17.1 RADIOLOCATION Space research (deep space) (Earth-to-space) 5.512 5.513 <u>BD512</u>
17.1-17.2 RADIOLOCATION 5.512 5.513			17.1-17.2 RADIOLOCATION 5.512 5.513 <u>BD512</u>
17.2-17.3 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513 5.513A			17.2-17.3 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513 5.513A <u>BD512</u>
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 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 5.514
17.7-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	17.7-17.8 FIXED FIXED-SATELLITE (space-to-Earth) 5.517 (Earth-to-space) 5.516 BROADCASTING-SATELLITE Mobile 5.515	17.7-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	17.7-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE

	17.8-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE 5.519	
18.1-18.4 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B (Earth-to-space) 5.520 MOBILE 5.519 5.521		18.1-18.4 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B (Earth-to-space) 5.520 MOBILE 5.519 5.521

18.4-22 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
18.4-18.6 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE			18.4-18.6 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE
18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A 5.522C	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.522B MOBILE except aeronautical mobile SPACE RESEARCH (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A
18.8-19.3 FIXED FIXED-SATELLITE (space-to-Earth) 5.516.B 5.523A MOBILE			18.8-19.3 FIXED FIXED-SATELLITE (space-to-Earth) 5.516.B 5.523A MOBILE
19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B 5.523C 5.523D 5.523E MOBILE			19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B MOBILE
19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth) 5.524	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 5.529	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth) 5.524	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth) 5.524 <u>BD524</u>
20.1-20.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528			20.1-20.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 <u>BD524</u>
20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) 5.524			20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) 5.524 <u>BD524</u>

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 FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A 5.530B 5.530C 5.530D	21.4-22 FIXED MOBILE 5.530A 5.530C	21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A 5.530B 5.530C 5.530D 5.531	21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A 5.530B 5.530C 5.530D 5.531

22-24.75 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
22-22.21 FIXED MOBILE except aeronautical mobile 5.149			22-22.21 FIXED MOBILE except aeronautical mobile 5.149
22.21-22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532			22.21-22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532
22.5-22.55 FIXED MOBILE			22.5-22.55 FIXED MOBILE
22.55-23.15 FIXED INTER-SATELLITE 5.338A MOBILE SPACE RESEARCH (Earth-to-space) 5.532A 5.149			22.55-23.15 FIXED INTER-SATELLITE 5.338A MOBILE SPACE RESEARCH (Earth-to-space) 5.532A 5.149
23.15-23.55 FIXED INTER-SATELLITE 5.338A MOBILE			23.15-23.55 FIXED INTER-SATELLITE 5.338A MOBILE
23.55-23.6 FIXED MOBILE			23.55-23.6 FIXED MOBILE
23.6-24 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			23.6-24 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
24-24.05 AMATEUR AMATEUR-SATELLITE 5.150			24-24.05 AMATEUR AMATEUR-SATELLITE 5.150
24.05-24.25 RADIOLOCATION Amateur Earth exploration-satellite (active) 5.150			24.05-24.25 RADIOLOCATION Amateur Earth exploration-satellite (active) 5.150

24.25-24.45 FIXED	24.25-24.45 RADIONAVIGATION	24.25-24.45 RADIONAVIGATION FIXED MOBILE	24.25-24.45 RADIONAVIGATION FIXED MOBILE
24.45-24.65 FIXED INTER-SATELLITE	24.45-24.65 INTER-SATELLITE RADIONAVIGATION 5.533	24.45-24.65 FIXED INTER-SATELLITE MOBILE RADIONAVIGATION 5.533	24.45-24.65 FIXED INTER-SATELLITE MOBILE RADIONAVIGATION 5.533
24.65-24.75 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE	24.65-24.75 INTER-SATELLITE RADIOLOCATION- SATELLITE (Earth-to- space)	24.65-24.75 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE 5.533	24.65-24.75 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE 5.533

24.75-29.9 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B	24.75-25.25 FIXED-SATELLITE (Earth-to-space) 5.535	24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE	24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE
25.25-25.5 FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)			25.25-25.5 FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)
25.5-27 EARTH EXPLORATION-SATELLITE (space-to Earth) 5.536B FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536A			25.5-27 EARTH EXPLORATION-SATELLITE (space-to Earth) 5.536B FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536A
27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE	27-27.5 FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE	
27.5-28.5 FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540			27.5-28.5 FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540
28.5-29.1 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540			28.5-29.1 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540
29.1-29.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540			29.1-29.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540

<p>29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration- satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542</p>	<p>29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration- satellite (Earth-to-space) 5.541 5.525 5.526 5.527 5.529 5.540</p>	<p>29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration- satellite (Earth-to-space) 5.541 Mobile-satellite (Earth- to-space) 5.540 5.542</p>	<p>29.5-29.9 FIXED-SATELLITE(Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542 <u>BD542</u></p>
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29.9-34.2 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
29.9-30 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542			29.9-30 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542 <u>BD542</u>
30-31 FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) 5.542			30-31 FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) 5.542 <u>BD542</u>
31-31.3 FIXED 5.338A 5.543A MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.545 5.149			31-31.3 FIXED 5.338A 5.543A MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.545 5.149
31.3-31.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			31.3-31.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.546	31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149	31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149
31.8-32 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547B 5.548			31.8-32 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547B 5.548

32-32.3 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547C 5.548	32-32.3 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547C 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 5.547D 5.548
33-33.4 FIXED 5.547A RADIONAVIGATION 5.547 5.547E	33-33.4 FIXED 5.547A RADIONAVIGATION 5.547 5.547E
33.4-34.2 RADIOLOCATION 5.549	33.4-34.2 RADIOLOCATION 5.549

34.2-40 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
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) 5.549
34.7-35.2 RADIOLOCATION Space research 5.550 5.549			34.7-35.2 RADIOLOCATION Space research 5.550 5.549
35.2-35.5 METEOROLOGICAL AIDS RADIOLOCATION 5.549			35.2-35.5 METEOROLOGICAL AIDS RADIOLOCATION 5.549
35.5-36 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A			35.5-36 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A
36-37 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A			36-37 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A
37-37.5 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.547			37-37.5 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.547
37.5-38 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547			37.5-38 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547
38-39.5 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth) 5.547			38-39.5 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth) 5.547

39.5-40 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547	39.5-40 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547
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40-47.5 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
40-40.5 EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)			40-40.5 EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)
40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547	40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile Mobile-satellite (space-to-Earth) 5.547	40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547	40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547
41-42.5 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551F 5.551H 5.551I			41-42.5 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551F 5.551H 5.551I
42.5-43.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.547			42.5-43.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.547
43.5-47 MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554			43.5-47 MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554
47-47.2 AMATEUR AMATEUR-SATELLITE			47-47.2 AMATEUR AMATEUR-SATELLITE
47.2-47.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A			47.2-47.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A

47.5-51.4 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A MOBILE	47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE		47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE
47.9-48.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A			47.9-48.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A
48.2-48.54 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.338A 5.552 MOBILE		48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.338A 5.552 MOBILE
48.54-49.44 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.149 5.340 5.555			
49.44-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	5.149 5.340 5.555		5.149 5.340 5.555
50.2-50.4 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340			50.2-50.4 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340
50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE Mobile-satellite (Earth-to-space)			50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE Mobile-satellite (Earth-to-space)

51.4-55.78 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
51.4-52.6 FIXED 5.338A MOBILE 5.547 5.556			51.4-52.6 FIXED 5.338A MOBILE 5.547 5.556
52.6-54.25 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556			52.6-54.25 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556
54.25-55.78 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive) 5.556B			54.25-55.78 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive) 5.556B

55.78-66 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
55.78-56.9 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			55.78-56.9 EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557
56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557
57-58.2 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			57-58.2 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557
58.2-59 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556			58.2-59 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556
59-59.3 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)			59-59.3 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)
59.3-64 FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138			59.3-64 FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138
64-65 FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556			64-65 FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556
65-66 EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH 5.547			65-66 EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH 5.547

66-81 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
66-71 INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554			66-71 INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554
71-74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)			71-74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)
74-76 FIXED MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) 5.561			74-76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) 5.561
76-77.5 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149			76-77.5 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149
77.5-78 AMATEUR Radio astronomy Space research (space-to-Earth) 5.149			77.5-78 AMATEUR AMATEUR-SATELLITE Radio astronomy Space research (space-to-Earth) 5.149
78-79 RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth) 5.149 5.560			78-79 RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth) 5.149 5.560
79-81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149			79-81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149

81-86 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
81-84 FIXED 5.338A FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) 5.149 5.561A			81-84 FIXED 5.338A FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) 5.149 5.561A
84-86 FIXED 5.338A FIXED-SATELLITE (Earth-to-space) 5.561B MOBILE RADIO ASTRONOMY 5.149			84-86 FIXED 5.338A FIXED-SATELLITE (Earth-to-space) 5.561B MOBILE RADIO ASTRONOMY 5.149

86-111.8 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
86-92 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			86-92 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
92-94 FIXED 5.338A MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149			92-94 FIXED 5.338A MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149
94-94.1 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A			94-94.1 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A
94.1-95 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149			94.1-95 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149
95-100 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554			95-100 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554
100-102 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			100-102 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341
102-105 FIXED MOBILE RADIO ASTRONOMY 5.149 5.341			102-105 FIXED MOBILE RADIO ASTRONOMY 5.149 5.341
105-109.5 FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341			105-109.5 FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341
109.5-111.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			109.5-111.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341

111.8-119.98 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
111.8-114.25 FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341			111.8-114.25 FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341
114.25-116 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			114.25-116 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341
116-119.98 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341			116-119.98 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341

119.98-151.5 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
119.98-122.25 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341			119.98-122.25 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341
122.25-123 FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138			122.25-123 FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138
123-130 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.562D 5.149 5.554			123-130 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.562D 5.149 5.554
130-134 EARTH EXPLORATION-SATELLITE (active) 5.562E FIXED INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A			130-134 EARTH EXPLORATION-SATELLITE (active) 5.562E FIXED INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A
134-136 AMATEUR AMATEUR-SATELLITE Radio astronomy			134-136 AMATEUR AMATEUR-SATELLITE Radio astronomy
136-141 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149			136-141 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149
141-148.5 FIXED MOBILE RADIOLOCATION 5.149			141-148.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149
148.5-151.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			148.5-151.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340

151.5-158.5 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
151.5-155.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149			151.5-155.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149
155.5-158.5 EARTH EXPLORATION-SATELLITE (passive) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.562F 5.562G			155.5-158.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.562F 5.562G

158.5-200 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
158.5-164 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)			158.5-164 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)
164-167 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			164-167 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
167-174.5 FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558 5.149 5.562D			167-174.5 FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558 5.149 5.562D
174.5-174.8 FIXED INTER-SATELLITE MOBILE 5.558			174.5-174.8 FIXED INTER-SATELLITE MOBILE 5.558
174.8-182 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)			174.8-182 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)
182-185 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			182-185 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
185-190 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)			185-190 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)
190-191.8 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340			190-191.8 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340
191.8-200 FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554			191.8-200 FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554

200-248 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
200-209 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A			200-209 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A
209-217 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.341			209-217 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.341
217-226 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341			217-226 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341
226-231.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			226-231.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
231.5-232 FIXED MOBILE Radiolocation			231.5-232 FIXED MOBILE Radiolocation
232-235 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation			232-235 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation
235-238 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B			235-238 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B
238-240 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE			238-240 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE
240-241 FIXED MOBILE RADIOLOCATION			240-241 FIXED MOBILE RADIOLOCATION

241-248

RADIO ASTRONOMY

RADIOLOCATION

Amateur

Amateur-satellite

5.138 5.149

241-248

RADIO ASTRONOMY

RADIOLOCATION

Amateur

Amateur-satellite

5.138 5.149

248-3 000 GHz			
Allocation to services			Allocations in Brunei Darussalam
Region 1	Region 2	Region 3	
248-250 AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149			248-250 AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149
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
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) 5.565			

5 ITU Footnotes

- 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, Egypt, the United Arab Emirates, the Russian Federation, Iraq, 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-12)
- 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, Azerbaijan, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the band 14-17 kHz is also allocated to the radionavigation service on a primary basis. (WRC-07)
- 5.56** The stations of services to which the bands 14-19.95 kHz and 20.05-70 kHz and in Region 1 also the bands 72-84 kHz and 86-90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC-12)
- 5.57** The use of the bands 14-19.95 kHz, 20.05-70 kHz and 70-90 kHz (72-84 kHz and 86-90 kHz in Region 1) by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only). Exceptionally, the use of class J2B or J7B emissions is authorized subject to the necessary bandwidth not exceeding that normally used for class A1A or F1B emissions in the band concerned.
- 5.58** *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, the band 67-70 kHz is also allocated to the

radionavigation service on a primary basis. (WRC-2000)

- 5.59** *Different category of service:* in Bangladesh and Pakistan, the allocation of the bands 70-72 kHz and 84-86 kHz to the fixed and maritime mobile services is on a primary basis (see No. **3.3.1.5**). (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 (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 and to the radionavigation service on a secondary basis.
- 5.67** *Additional allocation:* in Mongolia, Kyrgyzstan and Turkmenistan, the band 130-148.5 kHz is also allocated to the radionavigation service on a secondary basis. Within and between these countries this service shall have an equal right to operate. (WRC-07)
- 5.67A** Stations in the amateur service using frequencies in the band 135.7-137.8 kHz shall not exceed a maximum radiated power of 1 W (e.i.r.p.) and shall not cause harmful interference to stations of the radionavigation service operating in countries listed in No. **5.67**. (WRC-07)
- 5.67B** The use of the band 135.7-137.8 kHz in Algeria, Egypt, Iran (Islamic Republic of), Iraq, Lebanon, Syrian Arab Republic, Sudan, South Sudan and Tunisia is limited to the fixed and maritime mobile services. The amateur service shall not be used in the above-mentioned countries in the band 135.7-137.8 kHz, and this should be taken into account by the countries authorizing such use. (WRC-12)

- 5.68** *Alternative allocation:* in Angola, Congo (Rep. of the), the Dem. Rep. of the Congo and South Africa, the band 160-200 kHz is allocated to the fixed service on a primary basis. (WRC-12)
- 5.69** *Additional allocation:* in Somalia, the band 200-255 kHz is also allocated to the aeronautical radionavigation service on a primary basis.
- 5.70** *Alternative allocation:* in Angola, Botswana, Burundi, the Central African Rep., Congo (Rep. of the), Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, the Dem. Rep. of the Congo, South Africa, Swaziland, Tanzania, Chad, Zambia and Zimbabwe, the band 200-283.5 kHz is allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)
- 5.71** *Alternative allocation:* in Tunisia, the band 255-283.5 kHz is allocated to the broadcasting service on a primary basis.
- 5.72** (SUP - WRC-12)
- 5.73** The band 285-325 kHz (283.5-325 kHz in Region 1) in the maritime radionavigation service may be used to transmit supplementary navigational information using narrow-band techniques, on condition that no harmful interference is caused to radiobeacon stations operating in the radionavigation service. (WRC-97)
- 5.74** *Additional Allocation:* in Region 1, the frequency band 285.3-285.7 kHz is also allocated to the maritime radionavigation service (other than radiobeacons) on a primary basis.
- 5.75** *Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Moldova, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and the Black Sea areas of Romania, the allocation of the band 315-325 kHz to the maritime radionavigation service is on a primary basis under the condition that in the Baltic Sea area, the assignment of frequencies in this band to new stations in the maritime or aeronautical radionavigation services shall be subject to prior consultation between the administrations concerned. (WRC-07)
- 5.76** The frequency 410 kHz is designated for radio direction-finding in the maritime 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 and Sri Lanka, the allocation of the frequency band 415-495 kHz to the aeronautical radionavigation service is on a primary basis. In Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Latvia, Uzbekistan and Kyrgyzstan, the allocation of the frequency band 435-495 kHz to the aeronautical radionavigation service is on a primary basis. Administrations in all the aforementioned countries shall take all practical steps necessary to ensure that aeronautical radionavigation stations in the frequency band 435-495 kHz do not cause interference to reception by coast stations of transmissions from ship stations on frequencies designated for ship stations on a worldwide basis. (WRC-12)
- 5.78** *Different category of service:* in Cuba, the United States of America and Mexico, the allocation of the band 415-435 kHz to the aeronautical radionavigation service is on a primary basis.

- 5.79** The use of the bands 415-495 kHz and 505-526.5 kHz (505-510 kHz in Region 2) by the maritime mobile service is limited to radiotelegraphy.
- 5.79A** When establishing coast stations in the NAVTEX service on the frequencies 490 kHz, 518 kHz and 4 209.5 kHz, administrations are strongly recommended to coordinate the operating characteristics in accordance with the procedures of the International Maritime Organization (IMO) (see Resolution **339 (Rev.WRC-07)**). (WRC-07)
- 5.80** In Region 2, the use of the band 435-495 kHz by the aeronautical radionavigation service is limited to non-directional beacons not employing voice transmission.
- 5.80A** The maximum equivalent isotropically radiated power (e.i.r.p.) of stations in the amateur service using frequencies in the band 472-479 kHz shall not exceed 1 W. Administrations may increase this limit of e.i.r.p. to 5 W in portions of their territory which are at a distance of over 800 km from the borders of Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, China, Comoros, Djibouti, Egypt, United Arab Emirates, the Russian Federation, Iran (Islamic Republic of), Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Oman, Uzbekistan, Qatar, Syrian Arab Republic, Kyrgyzstan, Somalia, Sudan, Tunisia, Ukraine and Yemen. In this frequency band, stations in the amateur service shall not cause harmful interference to, or claim protection from, stations of the aeronautical radionavigation service. (WRC-12)
- 5.80B** The use of the frequency band 472-479 kHz in Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, China, Comoros, Djibouti, Egypt, United Arab Emirates, the Russian Federation, Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Mauritania, Oman, Uzbekistan, Qatar, Syrian Arab Republic, Kyrgyzstan, Somalia, Sudan, Tunisia and Yemen is limited to the maritime mobile and aeronautical radionavigation services. The amateur service shall not be used in the above-mentioned countries in this frequency band, and this should be taken into account by the countries authorizing such use. (WRC-12)
- 5.81** (SUP - WRC-2000)
- 5.82** In the maritime mobile service, the frequency 490 kHz is to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles **31** and **52** in ITU's Radio Regulations Articles. In using the frequency band 415-495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz. In using the frequency band 472-479 kHz for the amateur service, administrations shall ensure that no harmful interference is caused to the frequency 490 kHz. (WRC-12)
- 5.82A** (SUP - WRC-12)
- 5.82B** (SUP - WRC-12)
- 5.83** (SUP - WRC-07)
- 5.84** The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles **31** and **52** in ITU's Radio Regulations Articles. (WRC-07)
- 5.85** Not used.

- 5.86** In Region 2, in the band 525-535 kHz the carrier power of broadcasting stations shall not exceed 1 kW during the day and 250 W at night.
- 5.87** *Additional allocation:* in Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, Niger and Swaziland, the band 526.5-535 kHz is also allocated to the mobile service on a secondary basis. (WRC-12)
- 5.87A** *Additional allocation:* in Uzbekistan, the band 526.5-1 606.5 kHz is also allocated to the radionavigation service on a primary basis. Such use is subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-97)
- 5.88** *Additional allocation:* in China, the band 526.5-535 kHz is also allocated to the aeronautical radionavigation service on a secondary basis.
- 5.89** In Region 2, the use of the band 1 605-1 705 kHz by stations of the broadcasting service is subject to the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).
- The examination of frequency assignments to stations of the fixed and mobile services in the band 1 625-1 705 kHz shall take account of the allotments appearing in the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).
- 5.90** In the band 1 605-1 705 kHz, in cases where a broadcasting station of Region 2 is concerned, the service area of the maritime mobile stations in Region 1 shall be limited to that provided by ground-wave propagation.
- 5.91** *Additional allocation:* in the Philippines and Sri Lanka, the band 1 606.5-1 705 kHz is also allocated to the broadcasting service on a secondary basis. (WRC-97)
- 5.92** Some countries of Region 1 use radiodetermination systems in the bands 1 606.5-1 625 kHz, 1 635-1 800 kHz, 1 850-2 160 kHz, 2 194-2 300 kHz, 2 502-2 850 kHz and 3 500-3 800 kHz, subject to agreement obtained under No. **9.21**. The radiated mean power of these stations shall not exceed 50 W.
- 5.93** *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Tajikistan, Chad, Turkmenistan and Ukraine, the bands 1 625-1 635 kHz, 1 800-1 810 kHz and 2 160-2 170 kHz are also allocated to the fixed and land mobile services on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. (WRC-12)
- 5.94** and **5.95** Not used.
- 5.96** In Germany, Armenia, Austria, Azerbaijan, Belarus, Denmark, Estonia, the Russian Federation, Finland, Georgia, Hungary, Ireland, Iceland, Israel, Kazakhstan, Latvia, Liechtenstein, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., the United Kingdom, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the bands 1 715-1 800 kHz and 1 850-2 000 kHz. However, when allocating the bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and

mobile services of other countries. The mean power of any amateur station shall not exceed 10 W. (WRC-03)

- 5.97** In Region 3, the Loran system operates either on 1 850 kHz or 1 950 kHz, the bands occupied being 1 825-1 875 kHz and 1 925-1 975 kHz respectively. Other services to which the band 1 800-2 000 kHz is allocated may use any frequency therein on condition that no harmful interference is caused to the Loran system operating on 1 850 kHz or 1 950 kHz.
- 5.98** *Alternative allocation:* in Angola, Armenia, Azerbaijan, Belarus, Belgium, Cameroon, Congo (Rep. of the), Denmark, Egypt, Eritrea, Spain, Ethiopia, the Russian Federation, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Tunisia, Turkmenistan, Turkey and Ukraine, the band 1 810-1 830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.99** *Additional allocation:* in Saudi Arabia, Austria, Iraq, Libya, Uzbekistan, Slovakia, Romania, Slovenia, Chad, and Togo, the band 1 810-1 830 kHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.100** In Region 1, the authorization to use the band 1 810-1 830 kHz by the amateur service in countries situated totally or partially north of 40° N shall be given only after consultation with the countries mentioned in Nos. **5.98** and **5.99** to define the necessary steps to be taken to prevent harmful interference between amateur stations and stations of other services operating in accordance with Nos. **5.98** and **5.99**.
- 5.101** (SUP - WRC-12)
- 5.102** *Alternative allocation:* in Bolivia, Chile, Mexico, Paraguay, Peru and Uruguay, the band 1 850-2 000 kHz is allocated to the fixed, mobile except aeronautical mobile, radiolocation and radionavigation services on a primary basis. (WRC-07)
- 5.103** In Region 1, in making assignments to stations in the fixed and mobile services in the bands 1 850-2 045 kHz, 2 194-2 498 kHz, 2 502-2 625 kHz and 2 650-2 850 kHz, administrations should bear in mind the special requirements of the maritime mobile service.
- 5.104** In Region 1, the use of the band 2 025-2 045 kHz by the meteorological aids service is limited to oceanographic buoy stations.
- 5.105** In Region 2, except in Greenland, coast stations and ship stations using radiotelephony in the band 2 065-2 107 kHz shall be limited to class J3E emissions and to a peak envelope power not exceeding 1 kW. Preferably, the following carrier frequencies should be used: 2 065.0 kHz, 2 079.0 kHz, 2 082.5 kHz, 2 086.0 kHz, 2 093.0 kHz, 2 096.5 kHz, 2 100.0 kHz and 2 103.5 kHz. In Argentina and Uruguay, the carrier frequencies 2 068.5 kHz and 2 075.5 kHz are also used for this purpose, while the frequencies within the band 2 072-2 075.5 kHz are used as provided in No. **52.165**.
- 5.106** In Regions 2 and 3, provided no harmful interference is caused to the maritime mobile service, the frequencies between 2 065 kHz and 2 107 kHz may be used by stations of the fixed service communicating only within national borders and whose mean power does not exceed 50 W. In notifying the frequencies, the attention of the Bureau should be drawn to these provisions.
- 5.107** *Additional allocation:* in Saudi Arabia, Eritrea, Ethiopia, Iraq, Libya, Somalia and Swaziland, the

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

- 5.108** The carrier frequency 2 182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2 173.5-2 190.5 kHz are prescribed in Articles **31** and **52** in ITU's Radio Regulations Articles. (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** in ITU's Radio Regulations Articles.
- 5.110** The frequencies 2 174.5 kHz, 4 177.5 kHz, 6 268 kHz, 8 376.5 kHz, 12 520 kHz and 16 695 kHz are international distress frequencies for narrow-band direct-printing telegraphy. The conditions for the use of these frequencies are prescribed in Article **31** in ITU's Radio Regulations Articles.
- 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** in ITU's Radio Regulations Articles.

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 WRC-07)

- 5.112** *Alternative allocation:* in Denmark and Sri Lanka, the band 2 194-2 300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.113** For the conditions for the use of the bands 2 300-2 495 kHz (2 498 kHz in Region 1), 3 200-3 400 kHz, 4 750-4 995 kHz and 5 005-5 060 kHz by the broadcasting service, see Nos. **5.16** to **5.20**, **5.21** and **23.3** to **23.10** in ITU's Radio Regulations Articles.
- 5.114** *Alternative allocation:* in Denmark and Iraq, the band 2 502-2 625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.115** The carrier (reference) frequencies 3 023 kHz and 5 680 kHz may also be used, in accordance with Article **31** in ITU's Radio Regulations Articles, by stations of the maritime mobile service engaged in coordinated search and rescue operations. (WRC-07)
- 5.116** Administrations are urged to authorize the use of the band 3 155-3 195 kHz to provide a common worldwide channel for low power wireless hearing aids. Additional channels for these devices may be assigned by administrations in the bands between 3 155 kHz and 3 400 kHz to suit local needs.
- It should be noted that frequencies in the range 3 000 kHz to 4 000 kHz are suitable for hearing aid devices which are designed to operate over short distances within the induction field.
- 5.117** *Alternative allocation:* in Côte d'Ivoire, Denmark, Egypt, Liberia, Sri Lanka and Togo, the band 3 155-3 200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.118** *Additional allocation:* in the United States, Mexico, Peru and Uruguay, the band 3 230-3 400 kHz

is also allocated to the radiolocation service on a secondary basis. (WRC-03)

- 5.119** *Additional allocation:* in Honduras, Mexico and Peru, the band 3 500-3 750 kHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)
- 5.120** (SUP - WRC-2000)
- 5.121** Not used.
- 5.122** *Alternative allocation:* in Bolivia, Chile, Ecuador, Paraguay, Peru and Uruguay, the band 3 750-4 000 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)
- 5.123** *Additional allocation:* in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the band 3 900-3 950 kHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles.
- 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** in ITU's Radio Regulations Articles).
- 5.128** Frequencies in the bands 4 063-4 123 kHz and 4 130-4 438 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W, on condition that harmful interference is not caused to the maritime mobile service. In addition, in Afghanistan, Argentina, Armenia, Azerbaijan, Belarus, Botswana, Burkina Faso, the Central African Rep., China, the Russian Federation, Georgia, India, Kazakhstan, Mali, Niger, Pakistan, Kyrgyzstan, Tajikistan, Chad, Turkmenistan and Ukraine, in the bands 4 063-4 123 kHz, 4 130-4 133 kHz and 4 408-4 438 kHz, stations in the fixed service, with a mean power not exceeding 1 kW, can be operated on condition that they are situated at least 600 km from the coast and that harmful interference is not caused to the maritime mobile service. (WRC-12)
- 5.129** (SUP - WRC-07)
- 5.130** The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles **31** and **52** in ITU's Radio Regulations Articles. (WRC-07)
- 5.131** The frequency 4 209.5 kHz is used exclusively for the transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing techniques. (WRC-97)
- 5.132** The frequencies 4 210 kHz, 6 314 kHz, 8 416.5 kHz, 12 579 kHz, 16 806.5 kHz, 19 680.5 kHz, 22 376 kHz and 26 100.5 kHz are the international frequencies for the transmission of maritime

safety information (MSI) (see Appendix 17 in ITU's Radio Regulations Articles).

- 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, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 4 438-4 488 kHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. (WRC-12)
- 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. **3.3.1.5**). (WRC-12)
- 5.133A** *Alternative allocation:* in Armenia, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency bands 5 250-5 275 kHz and 26 200-26 350 kHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.134** The use of the bands 5 900-5 950 kHz, 7 300-7 350 kHz, 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 13 570-13 600 kHz, 13 800-13 870 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz by the broadcasting service is subject to the application of the procedure of Article 12. Administrations are encouraged to use these bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution **517 (Rev.WRC-07)**. (WRC-07)
- 5.135** (SUP - WRC-97)
- 5.136** *Additional allocation:* frequencies in the band 5 900-5 950 kHz may be used by stations in the following services, communicating only within the boundary of the country in which they are located: fixed service (in all three Regions), land mobile service (in Region 1), mobile except aeronautical mobile (R) service (in Regions 2 and 3), on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)
- 5.137** On condition that harmful interference is not caused to the maritime mobile service, the bands 6 200-6 213.5 kHz and 6 220.5-6 525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above conditions.
- 5.138** The following bands:
- | | |
|-------------------|--|
| 6 765-6 795 kHz | (centre frequency 6 780 kHz), |
| 433.05-434.79 MHz | (centre frequency 433.92 MHz) in Region 1
except in the countries mentioned in No. 5.280 , |

61-61.5 GHz	(centre frequency 61.25 GHz),
122-123 GHz	(centre frequency 122.5 GHz), and
244-246 GHz	(centre frequency 245 GHz)

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

5.138A (SUP-WRC-12)

5.139 (SUP-WRC-12)

5.140 *Additional allocation:* in Angola, Iraq, Kenya, Somalia and Togo, the band 7 000-7 050 kHz is also allocated to the fixed service on a primary basis. (WRC-12)

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, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, Libya, Morocco, Mauritania, Niger, New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, Singapore, Sudan, South Sudan, Tunisia, Viet Nam and Yemen, the band 7 100-7 200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis. (WRC-12)

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** in ITU's Radio Regulations Articles. (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, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency bands 9 305-9 355 kHz and 16 100-16 200 kHz are allocated to the fixed service on a primary basis. (WRC-12)
- 5.146** *Additional allocation:* frequencies in the bands 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)
- 5.147** On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9 775-9 900 kHz, 11 650-11 700 kHz and 11 975-12 050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.
- 5.148** (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** in ITU's Radio Regulations Articles). (WRC-07)

5.149A *Alternative allocation:* in Armenia, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 13 450-13 550 kHz is allocated to the fixed service on a primary basis and to the mobile, except aeronautical mobile (R), service on a secondary basis. (WRC-12)

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** in ITU's Radio Regulations Articles.

- 5.151** *Additional allocation:* frequencies in the bands 13 570-13 600 kHz and 13 800-13 870 kHz may be used by stations in the fixed service and in the mobile except aeronautical mobile (R) service, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)
- 5.152** *Additional allocation:* in Armenia, Azerbaijan, China, Côte d'Ivoire, the Russian Federation, Georgia, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 14 250-14 350 kHz is also allocated to the fixed service on a primary basis. Stations of the fixed service shall not use a radiated power exceeding 24 dBW. (WRC-03)
- 5.153** In Region 3, the stations of those services to which the band 15 995-16 005 kHz is allocated may transmit standard frequency and time signals.
- 5.154** *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 18 068-18 168 kHz is also allocated to the fixed service on a primary basis for use within their boundaries, with a peak envelope power not exceeding 1 kW. (WRC-03)
- 5.155** *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the band 21 850-21 870 kHz is also allocated to the aeronautical mobile (R) service on a primary basis. (WRC-07)
- 5.155A** In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the use of the band 21 850-21 870 kHz by the fixed service is limited to provision of services related to aircraft flight safety. (WRC-07)
- 5.155B** The band 21 870-21 924 kHz is used by the fixed service for provision of services related to aircraft flight safety.
- 5.156** *Additional allocation:* in Nigeria, the band 22 720-23 200 kHz is also allocated to the meteorological aids service (radiosondes) on a primary basis.
- 5.156A** The use of the band 23 200-23 350 kHz by the fixed service is limited to provision of services

related to aircraft flight safety.

- 5.157** The use of the band 23 350-24 000 kHz by the maritime mobile service is limited to inter-ship radiotelegraphy.
- 5.158** *Alternative allocation:* in Armenia, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 24 450-24 600 kHz is allocated to the fixed and land mobile services on a primary basis. (WRC-12)
- 5.159** *Alternative allocation:* in Armenia, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency band 39-39.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 5.160** *Additional allocation:* in Botswana, Burundi, Dem. Rep. of the Congo and Rwanda, the band 41-44 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)
- 5.161** *Additional allocation:* in Iran (Islamic Republic of) and Japan, the band 41-44 MHz is also allocated to the radiolocation service on a secondary basis.
- 5.161A** *Additional allocation:* in Korea (Rep. of) and the United States, the frequency bands 41.015-41.665 MHz and 43.35-44 MHz are also allocated to the radiolocation service on a primary basis. Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution **612 (Rev.WRC-12)**. (WRC-12)
- 5.161B** *Alternative allocation:* in Albania, Germany, Armenia, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Cyprus, Vatican, Croatia, Denmark, Spain, Estonia, Finland, France, Greece, Hungary, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Rep. of Macedonia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Montenegro, Norway, Uzbekistan, Netherlands, Poland, Portugal, Kyrgyzstan, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Slovenia, Sweden, Switzerland, Turkey and Ukraine, the frequency band 42-42.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 5.162** *Additional allocation:* in Australia, the band 44-47 MHz is also allocated to the broadcasting service on a primary basis. (WRC-12)
- 5.162A** *Additional allocation:* in Germany, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Denmark, Spain, Estonia, the Russian Federation, Finland, France, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Luxembourg, Monaco, Montenegro, Norway, the Netherlands, Poland, Portugal, the Czech Rep., the United Kingdom, Serbia, Slovenia, Sweden and Switzerland the band 46-68 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (WRC-97)**. (WRC-12)
- 5.163** *Additional allocation:* in Armenia, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the bands 47-48.5 MHz and 56.5-58 MHz are also allocated to the fixed and land mobile services on a secondary basis. (WRC-12)

- 5.164** *Additional allocation:* in Albania, Algeria, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Slovakia, Czech Rep., Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the band 47-68 MHz, in South Africa the band 47-50 MHz, and in Latvia the band 48.5-56.5 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band. (WRC-12)
- 5.165** *Additional allocation:* in Angola, Cameroon, Congo (Rep. of the), Madagascar, Mozambique, Niger, Somalia, Sudan, South Sudan, Tanzania and Chad, the band 47-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.166** *Alternative allocation:* in New Zealand, the band 50-51 MHz is allocated to the fixed and mobile services on a primary basis; the band 53-54 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 5.167** *Alternative allocation:* in Bangladesh, Brunei Darussalam, India, Iran (Islamic Republic of), Pakistan, Singapore and Thailand, the band 50-54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-07)
- 5.167A** *Additional allocation:* in Indonesia, the band 50-54 MHz is also allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-07)
- 5.168** *Additional allocation:* in Australia, China and the Dem. People's Rep. of Korea, the band 50-54 MHz is also allocated to the broadcasting service on a primary basis.
- 5.169** *Alternative allocation:* in Botswana, Lesotho, Malawi, Namibia, the Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Zambia and Zimbabwe, the band 50-54 MHz is allocated to the amateur service on a primary basis. In Senegal, the band 50-51 MHz is allocated to the amateur service on a primary basis. (WRC-12)
- 5.170** *Additional allocation:* in New Zealand, the band 51-53 MHz is also allocated to the fixed and mobile services on a primary basis.
- 5.171** *Additional allocation:* in Botswana, Lesotho, Malawi, Mali, Namibia, Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Zambia and Zimbabwe, the band 54-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.172** *Different category of service:* in the French overseas departments and communities in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 54-68 MHz to the fixed and mobile services is on a primary basis (see No. **3.3.1.5**).
- 5.173** *Different category of service:* in the French overseas departments and communities in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 68-72 MHz to the fixed and mobile services is on a primary basis (see No. **3.3.1.5**).

5.174 (SUP - WRC-07)

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

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

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

5.178 *Additional allocation:* in Colombia, Cuba, El Salvador, Guatemala, Guyana, Honduras and Nicaragua, the band 73-74.6 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-12)

5.179 *Additional allocation:* in Armenia, Azerbaijan, Belarus, China, the Russian Federation, Georgia, Kazakhstan, Lithuania, Mongolia, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the bands 74.6-74.8 MHz and 75.2-75.4 MHz are also allocated to the aeronautical radionavigation service, on a primary basis, for ground-based transmitters only. (WRC-12)

5.180 The frequency 75 MHz is assigned to marker beacons. Administrations shall refrain from assigning frequencies close to the limits of the 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 ITU's Radio Regulations Articles. 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** in ITU's Radio Regulations Articles. (WRC-03)

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

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

- 5.184** (SUP - WRC-07)
- 5.185** *Different category of service:* in the United States, the French overseas departments and communities in Region 2, Guyana, Jamaica, Mexico and Paraguay, the allocation of the band 76-88 MHz to the fixed and mobile services is on a primary basis (see No. **3.3.1.5**).
- 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** in ITU's Radio Regulations Articles. (WRC-97)
- 5.191** Not used.
- 5.192** *Additional allocation:* in China and Korea (Rep. of), the band 100-108 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-97)
- 5.193** Not used.
- 5.194** *Additional allocation:* in Azerbaijan, Kyrgyzstan, Somalia and Turkmenistan, the band 104-108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a secondary basis. (WRC-07)
- 5.195** and **5.196** Not used.
- 5.197** *Additional allocation:* in 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 ITU's Radio Regulations Articles. 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** in ITU's Radio Regulations Articles. (WRC-12)
- 5.197A** *Additional allocation:* the band 108-117.975 MHz is also allocated on a primary basis to the aeronautical mobile (R) service, limited to systems operating in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **413 (Rev.WRC-07)***. The use of the band 108-112 MHz by the aeronautical mobile (R) service shall be limited to systems composed of ground-based transmitters and associated receivers that provide navigational information in support of air navigation functions in accordance with recognized international aeronautical standards. (WRC-07)

- 5.198** (SUP - WRC-07)
- 5.199** (SUP - WRC-07)
- 5.200** In the band 117.975-137 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Article **31** in ITU's Radio Regulations Articles for distress and safety purposes with stations of the aeronautical mobile service. (WRC-07)
- 5.201** *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq (Republic of), Japan, Kazakhstan, Latvia, Moldova, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the band 132-136 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC-12)
- 5.202** *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Latvia, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the band 136-137 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC-12)
- 5.203** (SUP - WRC-07)
- 5.203A** (SUP - WRC-07)
- 5.203B** (SUP - WRC-07)
- 5.204** *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Kuwait, Montenegro, Oman, Pakistan, the Philippines, Qatar, Serbia, Singapore, Thailand and Yemen, the band 137-138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. (WRC-07)
- 5.205** *Different category of service:* in Israel and Jordan, the allocation of the band 137-138 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis .
- 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. (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** in ITU's Radio Regulations Articles. (WRC-97)

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

5.208B* In the bands:

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

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

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

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

5.211 *Additional allocation:* in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Ireland, Israel, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Liechtenstein, Luxembourg, Mali, Malta, Montenegro, Norway, the Netherlands, Qatar, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia and Turkey, the band 138-144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis. (WRC-12)

5.212 *Alternative allocation:* in Angola, Botswana, Cameroon, the Central African Rep., Congo (Rep. of the), Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Lesotho, Liberia, Libya, Malawi, Mozambique, Namibia, Niger, Oman, Uganda, Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sierra Leone, South Africa, Swaziland, Chad, Togo, Zambia and Zimbabwe, the band 138-144 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-12)

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

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

- 5.214** *Additional allocation:* in Eritrea, Ethiopia, Kenya, The Former Yugoslav Republic of Macedonia, Montenegro, Serbia, Somalia, Sudan, South Sudan and Tanzania, the band 138-144 MHz is also allocated to the fixed service on a primary basis. (WRC-12)
- 5.215** Not used.
- 5.216** *Additional allocation:* in China, the band 144-146 MHz is also allocated to the aeronautical mobile (OR) service on a secondary basis.
- 5.217** *Alternative allocation:* in Afghanistan, Bangladesh, Cuba, Guyana and India, the band 146-148 MHz is allocated to the fixed and mobile services on a primary basis.
- 5.218** *Additional allocation:* the band 148-149.9 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. The bandwidth of any individual transmission shall not exceed ± 25 kHz.
- 5.219** The use of the band 148-149.9 MHz by the mobile-satellite service is subject to coordination under No. **9.11A** in ITU's Radio Regulations Articles. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the band 148-149.9 MHz.
- 5.220** The use of the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the mobile-satellite service is subject to coordination under No. **9.11A** in ITU's Radio Regulations Articles. The mobile-satellite service shall not constrain the development and use of the radionavigation-satellite service in the bands 149.9-150.05 MHz and 399.9-400.05 MHz. (WRC-97)
- 5.221** Stations of the mobile-satellite service in the band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Djibouti, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-12)
- 5.222** Emissions of the radionavigation-satellite service in the bands 149.9-150.05 MHz and 399.9-400.05 MHz may also be used by receiving earth stations of the space research service.
- 5.223** Recognizing that the use of the band 149.9-150.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation-satellite service, administrations are urged not

to authorize such use in application of No. **4.4** in ITU's Radio Regulations Articles.

5.224 (SUP - WRC-97)

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

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

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

5.225A *Additional allocation:* in Algeria, Armenia, Azerbaijan, Belarus, China, the Russian Federation, France, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and Viet Nam, the frequency band 154-156 MHz is also allocated to the radiolocation service on a primary basis. The usage of the frequency band 154-156 MHz by the radiolocation service shall be limited to space-object detection systems operating from terrestrial locations. The operation of stations in the radiolocation service in the frequency band 154-156 MHz shall be subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. For the identification of potentially affected administrations in Region 1, the instantaneous field-strength value of 12 dB(μ V/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** in ITU's Radio Regulations Articles.

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 ITU's Radio Regulations Articles.

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** in ITU's Radio Regulations Articles).

Any use of frequencies in these bands by stations of other services to which they are allocated

should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.

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

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

5.227A (SUP - WRC-12)

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

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

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

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

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

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

- 5.228F** The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the mobile-satellite service (Earth-to-space) is limited to the reception of automatic identification system emissions from stations operating in the maritime mobile service. (WRC-12)
- 5.229** *Alternative allocation:* in Morocco, the band 162-174 MHz is allocated to the broadcasting service on a primary basis. The use of this band shall be subject to agreement with administrations having services, operating or planned, in accordance with the Table which are likely to be affected. Stations in existence on 1 January 1981, with their technical characteristics as of that date, are not affected by such agreement.
- 5.230** *Additional allocation:* in China, the band 163-167 MHz is also allocated to the space operation service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles.
- 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** *Additional allocation:* in Japan, the band 170-174 MHz is also allocated to the broadcasting service on a primary basis.
- 5.233** *Additional allocation:* in China, the band 174-184 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. These services shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations.
- 5.234** *Different category of service:* in Mexico, the allocation of the band 174-216 MHz to the fixed and mobile services is on a primary basis.
- 5.235** *Additional allocation:* in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein, Malta, Monaco, Norway, the Netherlands, the United Kingdom, Sweden and Switzerland, the band 174-223 MHz is also allocated to the land mobile service on a primary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.
- 5.236** Not used.
- 5.237** *Additional allocation:* in Congo (Rep. of the), Egypt, Eritrea, Ethiopia, Gambia, Guinea, Libya, Mali, Sierra Leone, Somalia and Chad, the band 174-223 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-12)
- 5.238** *Additional allocation:* in Bangladesh, India, Pakistan and the Philippines, the band 200-216 MHz is also allocated to the aeronautical radionavigation service on a primary basis.
- 5.239** Not used.
- 5.240** *Additional allocation:* in China and India, the band 216-223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a

secondary basis.

- 5.241** In Region 2, no new stations in the radiolocation service may be authorized in the band 216-225 MHz. Stations authorized prior to 1 January 1990 may continue to operate on a secondary basis.
- 5.242** *Additional allocation:* in Canada, the band 216-220 MHz is also allocated to the land mobile service on a primary basis.
- 5.243** *Additional allocation:* in Somalia, the band 216-225 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to not causing harmful interference to existing or planned broadcasting services in other countries.
- 5.244** (SUP - WRC-97)
- 5.245** *Additional allocation:* in Japan, the band 222-223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.
- 5.246** *Alternative allocation:* in Spain, France, Israel and Monaco, the band 223-230 MHz is allocated to the broadcasting and land mobile services on a primary basis on the basis that, in the preparation of frequency plans, the broadcasting service shall have prior choice of frequencies; and allocated to the fixed and mobile, except land mobile, services on a secondary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations in Morocco and Algeria.
- 5.247** *Additional allocation:* in Saudi Arabia, Bahrain, the United Arab Emirates, Jordan, Oman, Qatar and Syrian Arab Republic, the band 223-235 MHz is also allocated to the aeronautical radionavigation service on a primary basis.
- 5.248** and **5.249** Not used.
- 5.250** *Additional allocation:* in China, the band 225-235 MHz is also allocated to the radio astronomy service on a secondary basis.
- 5.251** *Additional allocation:* in Nigeria, the band 230-235 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles.
- 5.252** *Alternative allocation:* in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the bands 230-238 MHz and 246-254 MHz are allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles.
- 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** in ITU's Radio Regulations Articles, 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** in ITU's Radio Regulations Articles.

- 5.256** The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes. (WRC-07)
- 5.256A** *Additional allocation:* in China, the Russian Federation, Kazakhstan and Ukraine, the band 258-261 MHz is also allocated to the space research service (Earth-to-space) and space operation service (Earth-to-space) on a primary basis. Stations in the space research service (Earth-to-space) and space operation service (Earth-to-space) shall not cause harmful interference to, nor claim protection from, nor constrain the use and development of the mobile service systems and mobile-satellite service systems operating in the band. Stations in space research service (Earth-to-space) and space operation service (Earth-to-space) shall not constrain the future development of fixed service systems of other countries. (WRC-03)
- 5.257** The band 267-272 MHz may be used by administrations for space telemetry in their countries on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles.
- 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 ITU's Radio Regulations Articles. 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** in ITU's Radio Regulations Articles. (WRC-12)
- 5.260** Recognizing that the use of the band 399.9-400.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation satellite service, administrations are urged not to authorize such use in application of No. **4.4** in ITU's Radio Regulations Articles.
- 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** in ITU's Radio Regulations Articles. The power flux-density limit indicated in Annex 1 of Appendix 5 shall apply until such time as a competent world radiocommunication

conference revises it.

- 5.265** Not used.
- 5.266** The use of the band 406-406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radiobeacons (see also Article **31** in ITU's Radio Regulations Articles). (WRC-07)
- 5.267** Any emission capable of causing harmful interference to the authorized uses of the band 406-406.1 MHz is prohibited.
- 5.268** Use of the band 410-420 MHz by the space research service is limited to communications within 5 km of an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from extra-vehicular activities shall not exceed $-153 \text{ dB(W/m}^2\text{)}$ for $0^\circ \leq \delta \leq 5^\circ$, $-153 + 0.077 (\delta - 5) \text{ dB(W/m}^2\text{)}$ for $5^\circ \leq \delta \leq 70^\circ$ and $-148 \text{ dB (W/m}^2\text{)}$ for $70^\circ \leq \delta \leq 90^\circ$, where δ is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. No. **4.10** does not apply to extra-vehicular activities. In this frequency band the space research (space-to-space) service shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. (WRC-97)
- 5.269** *Different category of service:* in Australia, the United States, India, Japan and the United Kingdom, the allocation of the bands 420-430 MHz and 440-450 MHz to the radiolocation service is on a primary basis .
- 5.270** *Additional allocation:* in Australia, the United States, Jamaica and the Philippines, the bands 420-430 MHz and 440-450 MHz are also allocated to the amateur service on a secondary basis.
- 5.271** *Additional allocation:* in Belarus, China, India, Kyrgyzstan and Turkmenistan, the band 420-460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis. (WRC-07)
- 5.272** (SUP - WRC-12)
- 5.273** (SUP - WRC-12)
- 5.274** *Alternative allocation:* in Denmark, Norway, Sweden and Chad, the bands 430-432 MHz and 438-440 MHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.275** *Additional allocation:* in Croatia, Estonia, Finland, Libya, The Former Yugoslav Republic of Macedonia, Montenegro, Serbia and Slovenia, the bands 430-432 MHz and 438-440 MHz are also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)
- 5.276** *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Djibouti, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Jordan, Kenya, Kuwait, Libya, Malaysia, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Switzerland, Tanzania, Thailand, Togo, Turkey and Yemen, the band 430-440 MHz is also allocated to the fixed service on

a primary basis and the bands 430-435 MHz and 438-440 MHz are also allocated to the mobile, except aeronautical mobile, service on a primary basis. (WRC-12)

- 5.277** *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo (Rep. of the), Djibouti, the Russian Federation, Georgia, Hungary, Israel, Kazakhstan, Mali, Mongolia, Uzbekistan, Poland, the Dem. Rep. of the Congo, Kyrgyzstan, Slovakia, Romania, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the band 430-440 MHz is also allocated to the fixed service on a primary basis. (WRC-12)
- 5.278** *Different category of service:* in Argentina, Colombia, Costa Rica, Cuba, Guyana, Honduras, Panama and Venezuela, the allocation of the band 430-440 MHz to the amateur service is on a primary basis.
- 5.279** *Additional allocation:* in Mexico, the bands 430-435 MHz and 438-440 MHz are also allocated on a primary basis to the land mobile service, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles.
- 5.279A** The use of this band by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU-R RS.1260-1. Additionally, the Earth exploration-satellite service (active) in the band 432-438 MHz shall not cause harmful interference to the aeronautical radionavigation service in China. The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service (WRC-03).
- 5.280** In Germany, Austria, Bosnia and Herzegovina, Croatia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Montenegro, Portugal, Serbia, Slovenia and Switzerland, the band 433.05-434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services of these countries operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. **15.13** in ITU's Radio Regulations Articles. (WRC-07)
- 5.281** *Additional allocation:* in the French overseas departments and communities in Region 2 and India, the band 433.75-434.25 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis. In France and in Brazil, the band is allocated to the same service on a secondary basis.
- 5.282** In the bands 435-438 MHz, 1 260-1 270 MHz, 2 400-2 450 MHz, 3 400-3 410 MHz (in Regions 2 and 3 only) and 5 650-5 670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. **3.3.4.1**). 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** in ITU's Radio Regulations Articles. 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.
- 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** in ITU's Radio Regulations Articles.
- 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** in ITU's Radio Regulations Articles. (WRC-97)
- 5.286AA** The band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolution **224 (Rev.WRC-07)***. This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-07)
- 5.286B** The use of the band 454-455 MHz in the countries listed in No. **5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **5.286E**, by stations in the mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)
- 5.286C** The use of the band 454-455 MHz in the countries listed in No. **5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **5.286E**, by stations in the mobile-satellite service, shall not constrain the development and use of the fixed and mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)
- 5.286D** *Additional allocation:* in Canada, the United States and Panama, the band 454-455 MHz is also allocated to the mobile-satellite service (Earth-to-space) on a primary basis. (WRC-07)
- 5.286E** *Additional allocation:* in Cape Verde, Nepal and Nigeria, the bands 454-456 MHz and 459-460 MHz are also allocated to the mobile-satellite (Earth-to-space) service on a primary basis. (WRC-07)
- 5.287** In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. Where needed, equipment designed for 12.5 kHz channel spacing using also the additional frequencies 457.5375 MHz, 457.5625 MHz, 467.5375 MHz and 467.5625 MHz may be introduced for on-board communications. The use of these frequencies in territorial waters may be subject to the national regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-2. (WRC-07)
- 5.288** In the territorial waters of the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-2. (WRC-03)

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

- 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** in ITU's Radio Regulations Articles. (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** in ITU's Radio Regulations Articles and subject to not causing harmful interference to existing and planned broadcasting stations.
- 5.291A** *Additional allocation:* in Germany, Austria, Denmark, Estonia, Finland, Liechtenstein, Norway, Netherlands, the Czech Rep. and Switzerland, the band 470-494 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (WRC-97)**. (WRC-97)
- 5.292** *Different category of service:* in Mexico, the allocation of the band 470-512 MHz to the fixed and mobile services, and in Argentina, Uruguay and Venezuela to the mobile service, is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. (WRC-07)
- 5.293** *Different category of service:* in Canada, Chile, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-806 MHz to the fixed service is on a primary basis (see No. **3.3.1.5**), subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. In Canada, Chile, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-698 MHz to the mobile service is on a primary basis (see No. **3.3.1.5**), subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. In Argentina and Ecuador, the allocation of the band 470-512 MHz to the fixed and mobile services is on a primary basis (see No. **3.3.1.5**), subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. (WRC-12)
- 5.294** *Additional allocation:* in Saudi Arabia, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Israel, Kenya, Libya, the Syrian Arab Republic, South Sudan, Chad and Yemen, the band 470-582 MHz is also allocated to the fixed service on a secondary basis. (WRC-12)
- 5.295** Not used.
- 5.296** *Additional allocation:* in Albania, Germany, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Burkina Faso, Cameroon, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Djibouti, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Gabon, Ghana, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kuwait, Latvia, The Former Yugoslav Republic of Macedonia, Libya, Liechtenstein, Lithuania, Luxembourg, Mali, Malta, Morocco, Moldova, Monaco, Niger, Norway, Oman, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, the Czech

Republic, the United Kingdom, Sudan, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the band 470-790 MHz, and in Angola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Nigeria, South Africa, Tanzania, Zambia and Zimbabwe, the band 470-698 MHz are also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote. (WRC-12)

- 5.297** *Additional allocation:* in Canada, Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana, Honduras, Jamaica and Mexico, the band 512-608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. (WRC-07)
- 5.298** *Additional allocation:* in India, the band 549.75-550.25 MHz is also allocated to the space operation service (space-to-Earth) on a secondary basis.
- 5.299** Not used.
- 5.300** *Additional allocation:* in Saudi Arabia, Cameroon, Egypt, United Arab Emirates, Israel, Jordan, Libya, Oman, Qatar, the Syrian Arab Republic, Sudan and South Sudan, the band 582-790 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-12)
- 5.301** Not used.
- 5.302** (SUP - WRC-12)
- 5.303** Not used.
- 5.304** *Additional allocation:* in the African Broadcasting Area, 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, and in Region 3, the band 608-614 MHz is also allocated to the radio astronomy service on a secondary basis.
- 5.307** *Additional allocation:* in India, the band 608-614 MHz is also allocated to the radio astronomy service on a primary basis.
- 5.308** Not used.
- 5.309** *Different category of service:* in Costa Rica, El Salvador and Honduras, the allocation of the band 614-806 MHz to the fixed service is on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles.
- 5.310** (SUP - WRC-97)
- 5.311** (SUP - WRC-07)
- 5.311A** For the frequency band 620-790 MHz, see also Resolution **549 (WRC-07)**. (WRC-07)

- 5.312** *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 645-862 MHz, in Bulgaria the bands 646-686 MHz, 726-758 MHz, 766-814 MHz and 822-862 MHz, in Romania the band 830-862 MHz, and in Poland, the band 830-860 MHz until 31 December 2012 and the band 860-862 MHz until 31 December 2017, are also allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)
- 5.312A** In Region 1, the use of the band 694-790 MHz by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution **232 (WRC-12)**. See also Resolution **224 (Rev.WRC-12)**. (WRC-12)
- 5.313** (SUP - WRC-97)
- 5.313A** The band, or portions of the band 698-790 MHz, in Bangladesh, China, Korea (Rep. of), India, Japan, New Zealand, Pakistan, Papua New Guinea, Philippines and Singapore are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. In China, the use of IMT in this band will not start until 2015. (WRC-12)
- 5.313B** *Different category of service:* in Brazil, the allocation of the band 698-806 MHz to the mobile service is on a secondary basis (see No. **3.3.1.4**). (WRC-07)
- 5.314** *Additional allocation:* in Austria, Italy, Moldova, Uzbekistan, Kyrgyzstan and the United Kingdom, the band 790-862 MHz is also allocated to the land mobile service on a secondary basis. (WRC-12)
- 5.315** *Alternative allocation:* in Greece, the band 790-838 MHz is allocated to the broadcasting service on a primary basis. (WRC-12)
- 5.316** *Additional allocation:* in Germany, Saudi Arabia, Bosnia and Herzegovina, Burkina Faso, Cameroon, Côte d'Ivoire, Croatia, Denmark, Egypt, Finland, Greece, Israel, Jordan, Kenya, Libya, The Former Yugoslav Republic of Macedonia, Liechtenstein, Mali, Monaco, Montenegro, Norway, the Netherlands, Portugal, the United Kingdom, the Syrian Arab Republic, Serbia, Sweden and Switzerland, the band 790-830 MHz, and in these same countries and in Spain, France, Gabon and Malta, the band 830-862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band. This allocation is effective until 16 June 2015. (WRC-07)
- 5.316A** *Additional allocation:* in Spain, France, Gabon and Malta, the band 790-830 MHz, in Albania, Angola, Bahrain, Benin, Botswana, Burundi, Congo (Rep. of the), Egypt, United Arab Emirates, Estonia, Gambia, Ghana, Guinea, Guinea-Bissau, Hungary, Iraq, Kuwait, Lesotho, Latvia, Lebanon, Lithuania, Luxembourg, Malawi, Morocco, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Poland, Qatar, Slovakia, Czech Rep., Romania, Rwanda, Senegal, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Yemen, Zambia, Zimbabwe and French

overseas departments and communities of Region 1, the band 790-862 MHz and in Georgia, the band 806-862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis subject to the agreement by the administrations concerned obtained under No. **9.21** and under the GE06 Agreement, as appropriate, including those administrations mentioned in No. **5.312**, where appropriate. See Resolutions **224 (Rev.WRC-12)** and **749 (Rev.WRC-12)**. This allocation is effective until 16 June 2015. (WRC-12)

- 5.316B** In Region 1, the allocation to the mobile, except aeronautical mobile, service on a primary basis in the frequency band 790-862 MHz shall come into effect from 17 June 2015 and shall be subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles 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-12)** and **749 (Rev.WRC-12)** shall apply, as appropriate. (WRC-12)
- 5.317** *Additional allocation:* in Region 2 (except Brazil and the United States), the band 806-890 MHz is also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. The use of this service is intended for operation within national boundaries.
- 5.317A** Those parts of the band 698-960 MHz in Region 2 and the band 790-960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolutions **224 (Rev.WRC-12)** and **749 (Rev.WRC-12)**, as appropriate. This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-12)
- 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** in ITU's Radio Regulations Articles. The use of this service is limited to operation within national boundaries. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table, to ensure that no harmful interference is caused to such services.

- 5.321** (SUP - WRC-07)
- 5.322** In Region 1, in the band 862-960 MHz, stations of the broadcasting service shall be operated only in the African Broadcasting Area excluding Algeria, Burundi, Egypt, Spain, Lesotho, Libya, Morocco, Malawi, Namibia, Nigeria, South Africa, Tanzania, Zimbabwe and Zambia, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. (WRC-12)
- 5.323** *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 862-960 MHz, in Bulgaria the bands 862-890.2 MHz and 900-935.2 MHz, in Poland the band 862-876 MHz until 31 December 2017, and in Romania the bands 862-880 MHz and 915-925 MHz, are also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-12)
- 5.324** Not used.
- 5.325** *Different category of service:* in the United States, the allocation of the band 890-942 MHz to the radiolocation service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles.
- 5.325A** *Different category of service:* in Cuba, the allocation of the band 902-915 MHz to the land mobile service is on a primary basis. (WRC-2000)
- 5.326** *Different category of service:* in Chile, the band 903-905 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles.
- 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.
- 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-12)**. (WRC-12)
- 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. The provisions of No. **21.18** in ITU's Radio Regulations Articles shall apply. (WRC-07)
- 5.328B** The use of the bands 1 164-1 300 MHz, 1 559-1 610 MHz and 5 010-5 030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the Radiocommunication Bureau after 1 January 2005 is subject to the application of the provisions of Nos. **9.12**, **9.12A** and **9.13** in ITU's Radio Regulations Articles. 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** in ITU's Radio Regulations Articles shall only apply with respect to other systems and networks in the radionavigation-satellite service (space-to-space). (WRC-07)

5.329 Use of the radionavigation-satellite service in the band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. **5.331**. Furthermore, the use of the radionavigation-satellite service in the band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. Resolution **608 (WRC-03)** shall apply. (WRC-03)

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

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

- 5.331** *Additional allocation:* in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, Pakistan, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sudan, South Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the band 1 215-1 300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the band 1 240-1 300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service. (WRC-12)
- 5.332** In the band 1 215-1 260 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the radionavigation-satellite service and other services allocated on a primary basis. (WRC-2000)
- 5.333** (SUP - WRC-97)
- 5.334** *Additional allocation:* in Canada and the United States, the band 1 350-1 370 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-03)
- 5.335** In Canada and the United States in the band 1 240-1 300 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause interference to, claim protection from, or otherwise impose constraints on operation or development of the aeronautical radionavigation service. (WRC-97)
- 5.335A** In the band 1 260-1 300 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on 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 bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz, 51.4-52.6 GHz, 81-86 GHz and 92-94 GHz, Resolution **750 (Rev.WRC-12)** applies. (WRC-12)

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 GHz¹,

52.6-54.25 GHz,

86-92 GHz,

100-102 GHz,

109.5-111.8 GHz,

114.25-116 GHz,

148.5-151.5 GHz,

164-167 GHz,

182-185 GHz,

190-191.8 GHz,

200-209 GHz,

226-231.5 GHz,

250-252 GHz. (WRC-03)

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

- 5.341** In the bands 1 400-1 727 MHz, 101-120 GHz and 197-220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.
- 5.342** *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Uzbekistan, Kyrgyzstan and Ukraine, the band 1 429-1 535 MHz, and in Bulgaria the band 1 525-1 535 MHz, are also allocated to the aeronautical mobile service on a primary basis exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the band 1 452-1 492 MHz is subject to agreement between the administrations concerned. (WRC-12)
- 5.343** In Region 2, the use of the band 1 435-1 535 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.
- 5.344** *Alternative allocation:* in the United States, the band 1 452-1 525 MHz is allocated to the fixed and mobile services on a primary basis (see also No. **5.343**).
- 5.345** Use of the band 1 452-1 492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (WARC-92)***.
- 5.346** Not used.
- 5.347** (SUP - WRC-07)
- 5.347A**** (SUP - WRC-07)
- 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 ITU's Radio Regulations Articles. 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** in ITU's Radio Regulations Articles for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be -150 dB(W/m²) in any 4 kHz band for all angles of arrival, instead of those given in Table 5-2 of Appendix 5. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. **5.43A** does not apply. (WRC-03)
- 5.348B** In the band 1 518-1 525 MHz, stations in the mobile-satellite service shall not claim protection from aeronautical mobile telemetry stations in the mobile service in the territory of the United States (see Nos. **5.343** and **5.344**) and in the countries listed in No. **5.342**. No. **5.43A** does not apply. (WRC-03)

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

** *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.

5.348C (SUP - WRC-07)

5.349 *Different category of service:* in Saudi Arabia, Azerbaijan, Bahrain, Cameroon, Egypt, France, Iran (Islamic Republic of), Iraq, Israel, Kazakhstan, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Morocco, Qatar, Syrian Arab Republic, Kyrgyzstan, Turkmenistan and Yemen, the allocation of the band 1 525-1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **3.3.1.5**). (WRC-07)

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

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

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

5.352 (SUP - WRC-97)

5.352A In the band 1 525-1 530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in Algeria, Saudi Arabia, Egypt, France and French overseas communities of Region 3, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Tanzania, Viet Nam and Yemen notified prior to 1 April 1998. (WRC-12)

5.353 (SUP - WRC-97)

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

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

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

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

- 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** in ITU's Radio Regulations Articles).
- 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** in ITU's Radio Regulations Articles 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** in ITU's Radio Regulations Articles. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution **222 (Rev.WRC-12)** shall apply.) (WRC-12)
- 5.358** (SUP - WRC-97)
- 5.359** *Additional allocation:* in Germany, Saudi Arabia, Armenia, Austria, Azerbaijan, Belarus, Benin, Cameroon, the Russian Federation, France, Georgia, Greece, 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, Tanzania, Tunisia, Turkmenistan and Ukraine, the bands 1 550-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in these bands. (WRC-12)
- 5.360** to **5.362** (SUP - WRC-97)
- 5.362A** In the United States, in the bands 1 555-1 559 MHz and 1 656.5-1 660.5 MHz, the aeronautical mobile-satellite (R) service shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (WRC-97)
- 5.362B** *Additional allocation:* The band 1 559-1 610 MHz is also allocated to the fixed service on a secondary basis in Algeria, Saudi Arabia, Armenia, Azerbaijan, Belarus, Benin, Cameroon, Russian

Federation, Gabon, Georgia, Guinea, Guinea-Bissau, Jordan, Kazakhstan, Libya, Lithuania, Mali, Mauritania, Nigeria, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Romania, Senegal, Tajikistan, Tanzania, Tunisia, Turkmenistan and Ukraine until 1 January 2015, at which time this allocation shall no longer be valid. Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and the aeronautical radionavigation service and not authorize new frequency assignments to fixed-service systems in this band. (WRC-12)

5.362C *Additional allocation:* in Congo (Rep. of the), Eritrea, Iraq, Israel, Jordan, Qatar, the Syrian Arab Republic, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the band 1 559-1 610 MHz is also allocated to the fixed service on a secondary basis until 1 January 2015, at which time this allocation shall no longer be valid. Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and not authorize new frequency assignments to fixed-service systems in this band. (WRC-12)

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** in ITU's Radio Regulations Articles. 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 -excess of earth station operating in either of the services in this band shall not produce a peak e.i.r.p. **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** in ITU's Radio Regulations Articles.

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** in ITU's Radio Regulations Articles. (WRC-12)

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

5.369 *Different category of service:* in Angola, Australia, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Israel, Lebanon, Liberia, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab

Republic, the Dem. Rep. of the Congo, Sudan, South Sudan, Togo and Zambia, the allocation of the band 1 610-1 626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is on a primary basis (see No. **3.3.1.5**), subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles 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** in ITU's Radio Regulations Articles. (WRC-12)
- 5.372** Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6-1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. **29.13** in ITU's Radio Regulations Articles applies).
- 5.373** Not used.
- 5.373A** (SUP - WRC-97)
- 5.374** Mobile earth stations in the mobile-satellite service operating in the bands 1 631.5-1 634.5 MHz and 1 656.5-1 660 MHz shall not cause harmful interference to stations in the fixed service operating in the countries listed in No. **5.359**. (WRC-97)
- 5.375** The use of the band 1 645.5-1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article **31** in ITU's Radio Regulations Articles).
- 5.376** Transmissions in the band 1 646.5-1 656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.
- 5.376A** Mobile earth stations operating in the band 1 660-1 660.5 MHz shall not cause harmful interference to stations in the radio astronomy service. (WRC-97)
- 5.377** (SUP - WRC-03)
- 5.378** Not used.
- 5.379** *Additional allocation:* in Bangladesh, India, Indonesia, Nigeria and Pakistan, the band 1 660.5-1 668.4 MHz is also allocated to the meteorological aids service on a secondary basis.
- 5.379A** Administrations are urged to give all practicable protection in the band 1 660.5-1 668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1 664.4-1 668.4 MHz as soon as practicable.
- 5.379B** The use of the band 1 668-1 675 MHz by the mobile-satellite service is subject to coordination under No. **9.11A** in ITU's Radio Regulations Articles. In the band 1 668-1 668.4 MHz, Resolution **904 (WRC-07)** shall apply. (WRC-07)
- 5.379C** In order to protect the radio astronomy service in the band 1 668-1 670 MHz, the aggregate power

flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed -181 dB(W/m²) in 10 MHz and -194 dB(W/m²) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2 000 s. (WRC-03)

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

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

5.380 (SUP - WRC-07)

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

5.381 *Additional allocation:* in Afghanistan, Cuba, India, Iran (Islamic Republic of) and Pakistan, the band 1 690-1 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)

5.382 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Iraq, Israel, Jordan, Kazakhstan, Kuwait, the Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Tanzania, Turkmenistan, Ukraine and Yemen, the allocation of the band 1 690-1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**), and in the Dem. People's Rep. of Korea, the allocation of the band 1 690-1 700 MHz to the fixed service is on a primary basis (see No. **3.3.1.5**) and to the mobile, except aeronautical mobile, service on a secondary basis. (WRC-12)

5.383 Not used.

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

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

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

- 5.385** *Additional allocation:* the band 1 718.8-1 722.2 MHz is also allocated to the radio astronomy service on a secondary basis for spectral line observations. (WRC-2000)
- 5.386** *Additional allocation:* the band 1 750-1 850 MHz is also allocated to the space operation (Earth-to-space) and space research (Earth-to-space) services in Region 2, in Australia, Guam, India, Indonesia and Japan on a primary basis, subject to agreement obtained under No. **9.21**, having particular regard to troposcatter systems. (WRC-03)
- 5.387** *Additional allocation:* in Belarus, Georgia, Kazakhstan, Kyrgyzstan, Romania, Tajikistan and Turkmenistan, the band 1 770-1 790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. (WRC-12)
- 5.388** The bands 1 885-2 025 MHz and 2 110-2 200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications (IMT). Such use does not preclude the use of these bands by other services to which they are allocated. The bands should be made available for IMT in accordance with Resolution **212 (Rev.WRC-07)** (See also Resolution **223 (Rev.WRC-07)***). (WRC-12)
- 5.388A** In Regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz and, in Region 2, the bands 1 885-1 980 MHz and 2 110-2 160 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications (IMT), in accordance with Resolution **221 (Rev.WRC-07)**. Their use by IMT applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-12)
- 5.388B** In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire, China, Cuba, Djibouti, Egypt, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Libya, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, South Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT base station in neighbouring countries, in the bands referred to in No. **5.388A**, shall not exceed a co-channel power flux-density of $-127 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ at the Earth's surface outside a country's borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS. (WRC-12)
- 5.389** Not used.
- 5.389A** The use of the bands 1 980-2 010 MHz and 2 170-2 200 MHz by the mobile-satellite service is subject to coordination under No. **9.11A** in ITU's Radio Regulations Articles and to the provisions of Resolution **716 (Rev.WRC-2000)***. (WRC-07)
- 5.389B** The use of the band 1 980-1 990 MHz by the mobile-satellite service shall not cause harmful interference to or constrain the development of the fixed and mobile services in Argentina, Brazil, Canada, Chile, Ecuador, the United States, Honduras, Jamaica, Mexico, Peru, Suriname, Trinidad

and Tobago, Uruguay and Venezuela.

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

5.389D (SUP - WRC-03)

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

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

5.390 (SUP - WRC-07)

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

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

5.392A (SUP - WRC-07)

5.393 *Additional allocation:* in Canada, the United States, India and Mexico, the band 2 310-2 360 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev.WRC-03)**, with the exception of *resolves* 3 in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz. (WRC-07)

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

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

5.396 Space stations of the broadcasting-satellite service in the band 2 310-2 360 MHz operating

in accordance with No. **5.393** that may affect the services to which this band is allocated in other countries shall be coordinated and notified in accordance with Resolution **33 (Rev.WRC-97)***. Complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use.

5.397 (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** in ITU's Radio Regulations Articles 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, Burundi, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, Dem. Rep. of the Congo, Sudan, Swaziland, Togo and Zambia, the 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** in ITU's Radio Regulations Articles 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-12)

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** in ITU's Radio Regulations Articles. 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** in ITU's Radio Regulations Articles, the band 2 520-2 535 MHz may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-

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

satellite, service for operation limited to within national boundaries. The provisions of No. **9.11A** in ITU's Radio Regulations Articles 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** in ITU's Radio Regulations Articles.
- 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)
- 5.410** 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** in ITU's Radio Regulations Articles. No. **9.21** in ITU's Radio Regulations Articles 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 2 500 MHz and 2 690 MHz, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2 690-2 700 MHz.
- 5.414** The allocation of the frequency band 2 500-2 520 MHz to the mobile-satellite service (space-to-Earth) is subject to coordination under No. **9.11A** in ITU's Radio Regulations Articles. (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** in ITU's Radio Regulations Articles. The following pfd values shall be used as a threshold for coordination under No. **9.11A** in ITU's Radio Regulations Articles, 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 $0^\circ \leq \theta \leq 5^\circ$ |
| $-136 + 0.55(\theta - 5)$ dB(W/(m ² · MHz)) | for $5^\circ < \theta \leq 25^\circ$ |

$$-125 \text{ dB(W/(m}^2 \cdot \text{MHz))}$$

$$\text{for } 25^\circ < \theta \leq 90^\circ$$

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** in ITU's Radio Regulations Articles 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** in ITU's Radio Regulations Articles associated with No. **9.11A** in ITU's Radio Regulations Articles, 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** in ITU's Radio Regulations Articles, 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** in ITU's Radio Regulations Articles, the band 2 515-2 535 MHz may also be used for the aeronautical mobile-satellite service (space-to-Earth) for operation limited to within their national boundaries. (WRC-2000)

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

5.417 (SUP - WRC-2000)

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

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

$$-130 + 0.4 (\theta - 5) \text{ dB(W/(m}^2 \cdot \text{MHz))} \quad \text{for } 5^\circ \leq \theta \leq 25^\circ$$

$$-122 \text{ dB(W/(m}^2 \cdot \text{MHz))} \quad \text{for } 25^\circ \leq \theta \leq 90^\circ$$

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

limits may be exceeded on the territory of any country whose administration has so agreed. In the case of the broadcasting-satellite service (sound) networks of Korea (Rep. of), as an exception to the limits above, the power flux-density value of $-122\text{dB(W/(m}^2 \cdot \text{MHz))}$ shall be used as a threshold for coordination under No. **9.11** in ITU's Radio Regulations Articles in an area of 1 000 km around the territory of the administration notifying the broadcasting-satellite service (sound) system, for angles of arrival greater than 35° . (WRC-03)

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

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

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

5.418 *Additional allocation:* in Korea (Rep. of), India, Japan and Thailand, the band 2 535-2 655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev.WRC-03)**. The provisions of No. **5.416** and Table **21-4** of Article **21** in ITU's Radio Regulations Articles, do not apply to this additional allocation. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) is subject to Resolution **539 (Rev.WRC-03)**. Geostationary broadcasting-satellite service (sound) systems for which complete Appendix 4 coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting satellite service (sound) space station operating in the band 2 630-2 655 MHz, and for which complete Appendix 4 coordination information has been received after 1 June 2005, shall not exceed the following limits, for all conditions and for all methods of modulation:

$-130 \text{ dB(W/(m}^2 \cdot \text{MHz))}$	for $0^\circ \leq \theta \leq 5^\circ$
$-130 + 0.4 (\theta - 5) \text{ dB(W/(m}^2 \cdot \text{MHz))}$	for $5^\circ < \theta \leq 25^\circ$

$$-122 \text{ dB(W/(m}^2 \cdot \text{MHz))}$$

$$\text{for } 25^\circ \leq \theta \leq 90^\circ$$

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 $-122 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ shall be used as a threshold for coordination under No. **9.11** in ITU's Radio Regulations Articles 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-12)

- 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 ITU's Radio Regulations Articles, 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** in ITU's Radio Regulations Articles does not apply. No. **22.2** in ITU's Radio Regulations Articles 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** in ITU's Radio Regulations Articles. (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** in ITU's Radio Regulations Articles with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. **5.418** and No. **22.2** in ITU's Radio Regulations Articles does not apply. (WRC-03)
- 5.419** When introducing systems of the mobile-satellite service in the band 2 670-2 690 MHz, administrations shall take all necessary steps to protect the satellite systems operating in this band prior to 3 March 1992. The coordination of mobile-satellite systems in the band shall be in accordance with No. **9.11A** in ITU's Radio Regulations Articles. (WRC-07)
- 5.420** The band 2 655-2 670 MHz may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite, service for operation limited to within national boundaries, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. The coordination under No. **9.11A** in ITU's Radio Regulations Articles 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 in ITU's Radio Regulations Articles.
- 5.428** *Additional allocation:* in Azerbaijan, Mongolia, Kyrgyzstan and Turkmenistan, the band 3 100-3 300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-12)
- 5.429** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Egypt, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea and Yemen, the band 3 300-3 400 MHz is also allocated to the fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-12)
- 5.430** *Additional allocation:* in Azerbaijan, Mongolia, Kyrgyzstan and Turkmenistan, the band 3 300-3 400 MHz is also allocated to the radionavigation service on a primary basis. (WRC-12)
- 5.430A** *Different category of service:* in Albania, Algeria, Germany, Andorra, Saudi Arabia, Austria, Azerbaijan, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cameroon, Cyprus, Vatican, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Egypt, Spain,

Estonia, Finland, France and French overseas departments and communities in Region 1, Gabon, Georgia, Greece, Guinea, Hungary, Ireland, Iceland, Israel, Italy, Jordan, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Malawi, Mali, Malta, Morocco, Mauritania, Moldova, Monaco, Mongolia, Montenegro, Mozambique, Namibia, Niger, Norway, Oman, Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Senegal, Serbia, Sierra Leone, Slovenia, South Africa, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe, the band 3 400-3 600 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis subject to agreement obtained under No. **9.21** with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** in ITU's Radio Regulations Articles also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed $-154.5 \text{ dB(W)/(m}^2 \cdot 4 \text{ kHz)}$ for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). This allocation is effective from 17 November 2010. (WRC-12)

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

5.431A *Different category of service:* in Argentina, Brazil, Chile, Costa Rica, Cuba, French overseas departments and communities in Region 2, Dominican Republic, El Salvador, Guatemala, Mexico, Paraguay, Suriname, Uruguay and Venezuela, the band 3 400-3 500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. **9.21**. Stations of the mobile service in the band 3 400-3 500 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-12)

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

5.432A In Korea (Rep. of), Japan and Pakistan, the band 3 400-3 500 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio

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

5.432B *Different category of service:* in Bangladesh, China, French overseas communities of Region 3, India, Iran (Islamic Republic of), New Zealand and Singapore, the band 3 400-3 500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** in ITU's Radio Regulations Articles also apply. Before an administration brings into a (base or mobile) station of the mobile service in this band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed $-154.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$ for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3 400-3 500 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). This allocation is effective from 17 November 2010. (WRC-12)

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

5.433A In Bangladesh, China, French overseas communities of Region 3, Korea (Rep. of), India, Iran (Islamic Republic of), Japan, New Zealand and Pakistan, the band 3 500-3 600 MHz is identified for

International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** in ITU's Radio Regulations Articles also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed $-154.5 \text{ dB(W)/(m}^2 \cdot 4 \text{ kHz)}$ for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3 500-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-12)

5.434 (SUP - WRC-97)

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

5.436 Not used.

5.437 (SUP - WRC-2000)

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

5.439 *Additional allocation:* in Iran (Islamic Republic of), 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** in ITU's Radio Regulations Articles.

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)
- 5.442** In the bands 4 825-4 835 MHz and 4 950-4 990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service. In Region 2 (except Brazil, Cuba, Guatemala, Paraguay, Uruguay and Venezuela), and in Australia, the band 4 825-4 835 MHz is also allocated to the aeronautical mobile service, limited to aeronautical mobile telemetry for flight testing by aircraft stations. Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to the fixed service. (WRC-07)
- 5.443** *Different category of service:* in Argentina, Australia and Canada, the allocation of the bands 4 825-4 835 MHz and 4 950-4 990 MHz to the radio astronomy service is on a primary basis (see No. **3.3.1.5**).
- 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** in ITU's Radio Regulations Articles. 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 band 5 030-5 150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5 010-5 030 MHz shall not exceed -124.5 dB(W/m²) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4 990-5 000 MHz, radionavigation-satellite service systems operating in the band 5 010-5 030 MHz shall comply with the limits in the band 4 990-5 000 MHz defined in Resolution **741 (Rev.WRC-12)**. (WRC-12)
- 5.443C** The use of the frequency band 5 030-5 091 MHz by the aeronautical mobile (R) service is limited

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

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

5.444 The frequency band 5 030-5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. In the frequency band 5 030-5 091 MHz, the requirements of this system shall have priority over other uses of this band. For the use of the frequency band 5 091-5 150 MHz, No. **5.444A** and Resolution **114 (Rev.WRC-12)** apply. (WRC-12)

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

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

- prior to 1 January 2018, the use of the band 5 091-5 150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution **114 (Rev.WRC-03)***;
- after 1 January 2016, no new assignments shall be made to earth stations providing feeder links of non-geostationary mobile-satellite systems;
- after 1 January 2018, the fixed-satellite service will become secondary to the aeronautical radionavigation service. (WRC-07)

5.444B The use of the 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-12)**;
- aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **418 (Rev.WRC-12)**. (WRC-12)

5.445 Not used.

5.446 *Additional allocation:* in the countries listed in No. **5.369**, the band 5 150-5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in No. **5.369** and Bangladesh, the band is also

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

allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1 610-1 626.5 MHz and/or 2 483.5-2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed $-159 \text{ dB(W/m}^2\text{)}$ in any 4 kHz band for all angles of arrival. (WRC-12)

- 5.446A** The use of the bands 5 150-5 350 MHz and 5 470-5 725 MHz by the stations in the mobile, except aeronautical mobile, service shall be in accordance with Resolution **229 (Rev.WRC-12)**. (WRC-12)
- 5.446B** In the band 5 150-5 250 MHz, stations in the mobile service shall not claim protection from earth stations in the fixed-satellite service. No. **5.43A** does not apply to the mobile service with respect to fixed-satellite service earth stations. (WRC-03)
- 5.446C** *Additional allocation:* in Region 1 (except in Algeria, Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan, South Sudan and Tunisia) and in Brazil, the band 5 150-5 250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations (see No. **1.83**), in accordance with Resolution **418 (Rev.WRC-12)**. These stations shall not claim protection from other stations operating in accordance with Article 5. No. **5.43A** does not apply. (WRC-12)
- 5.447** *Additional allocation:* in Côte d'Ivoire, Egypt, Israel, Lebanon, the Syrian Arab Republic and Tunisia, the band 5 150-5 250 MHz is also allocated to the mobile service, on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. In this case, the provisions of Resolution **229 (Rev.WRC-12)** do not apply. (WRC-12)
- 5.447A** The allocation to the fixed-satellite service (Earth-to-space) in the band 5 150-5 250 MHz is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A** in ITU's Radio Regulations Articles.
- 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** in ITU's Radio Regulations Articles. 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 $-164 \text{ dB(W/m}^2\text{)}$ 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** in ITU's Radio Regulations Articles with administrations responsible for non-geostationary-satellite networks operated under No. **5.446** and brought into use prior to 17 November 1995. Satellite networks operated under No. **5.446** brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. **5.447A** and **5.447B**.
- 5.447D** The allocation of the band 5 250-5 255 MHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis. (WRC-97)

- 5.447E** *Additional allocation:* The band 5 250-5 350 MHz is also allocated to the fixed service on a primary basis in the following countries in Region 3: Australia, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Papua New Guinea, the Philippines, Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam. The use of this band by the fixed service is intended for the implementation of fixed wireless access systems and shall comply with Recommendation ITU-R F.1613. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. **5.43A** do not apply to the fixed service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of fixed wireless access systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radiodetermination implementations. (WRC-07)
- 5.447F** In the band 5 250-5 350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU-R M.1638 and ITU-R RS.1632. (WRC-03)
- 5.448** *Additional allocation:* in Azerbaijan, Kyrgyzstan, Romania and Turkmenistan, the band 5 250-5 350 MHz is also allocated to the radionavigation service on a primary basis. (WRC-12)
- 5.448A** The Earth exploration-satellite (active) and space research (active) services in the frequency band 5 250-5 350 MHz shall not claim protection from the radiolocation service. No. **5.43A** does not apply. (WRC-03)
- 5.448B** The Earth exploration-satellite service (active) operating in the band 5 350-5 570 MHz and space research service (active) operating in the band 5 460-5 570 MHz shall not cause harmful interference to the aeronautical radionavigation service in the band 5 350-5 460 MHz, the radionavigation service in the band 5 460-5 470 MHz and the maritime radionavigation service in the band 5 470-5 570 MHz. (WRC-03)
- 5.448C** The space research service (active) operating in the band 5 350-5 460 MHz shall not cause harmful interference to nor claim protection from other services to which this band is allocated. (WRC-03)
- 5.448D** In the frequency band 5 350-5 470 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the aeronautical radionavigation service operating in accordance with No. **5.449**. (WRC-03)
- 5.449** The use of the band 5 350-5 470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.
- 5.450** *Additional allocation:* in Austria, Azerbaijan, Iran (Islamic Republic of), Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 5 470-5 650 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)
- 5.450A** In the band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service

more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU-R M.1638. (WRC-03)

- 5.450B** In the frequency band 5 470-5 650 MHz, stations in the radiolocation service, except ground-based radars used for meteorological purposes in the band 5 600-5 650 MHz, shall not cause harmful interference to, nor claim protection from, radar systems in the maritime radionavigation service. (WRC-03)
- 5.451** *Additional allocation:* in the United Kingdom, the band 5 470-5 850 MHz is also allocated to the land mobile service on a secondary basis. The power limits specified in Nos. **21.2**, **21.3**, **21.4** and **21.5** in ITU's Radio Regulations Articles shall apply in the band 5 725-5 850 MHz.
- 5.452** Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.
- 5.453** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Niger, Nigeria, Oman, Uganda, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Swaziland, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the band 5 650-5 850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution **229 (Rev.WRC-12)** do not apply. (WRC-12)
- 5.454** *Different category of service:* in Azerbaijan, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 5 670-5 725 MHz to the space research service is on a primary basis (see No. **3.3.1.5**). (WRC-12)
- 5.455** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 5 670-5 850 MHz is also allocated to the fixed service on a primary basis. (WRC-07)
- 5.456** *Additional allocation:* in Cameroon, the band 5 755-5 850 MHz is also allocated to the fixed service on a primary basis. (WRC-03)
- 5.457** 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)
- 5.457B** In the bands 5 925-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution **902 (WRC-03)** in

Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Jordan, Kuwait, Libya, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Sudan, South Sudan, Tunisia and Yemen, in the maritime mobile-satellite service on a secondary basis. Such use shall be in accordance with Resolution **902 (WRC-03)**. (WRC-12)

- 5.457C** In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Paraguay, Uruguay and Venezuela), the band 5 925-6 700 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. **1.83**). Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to, nor claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of 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)
- 5.458** 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** in ITU's Radio Regulations Articles. 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** in ITU's Radio Regulations Articles.
- 5.458C** Administrations making submissions in the band 7 025-7 075 MHz (Earth-to-space) for geostationary-satellite systems in the fixed-satellite service after 17 November 1995 shall consult on the basis of relevant ITU-R Recommendations with the administrations that have notified and brought into use non-geostationary-satellite systems in this frequency band before 18 November 1995 upon request of the latter administrations. This consultation shall be with a view to facilitating shared operation of both geostationary-satellite systems in the fixed-satellite service and non-geostationary-satellite systems in this band.
- 5.459** *Additional allocation:* in the Russian Federation, the frequency bands 7 100-7 155 MHz and 7 190-7 235 MHz are also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles. (WRC-97)
- 5.460** The use of the band 7 145-7 190 MHz by the space research service (Earth-to-space) is restricted to deep space; no emissions to deep space shall be effected in the band 7 190-7 235 MHz. Geostationary satellites in the space research service operating in the band 7 190-7 235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. **5.43A** does not apply. (WRC-03)

- 5.461** *Additional allocation:* the bands 7 250-7 375 MHz (space-to-Earth) and 7 900-8 025 MHz (Earth-to-space) are also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. **9.21** in ITU's Radio Regulations Articles.
- 5.461A** The use of the band 7 450-7 550 MHz by the meteorological-satellite service (space-to-Earth) is limited to geostationary-satellite systems. Non-geostationary meteorological-satellite systems in this band notified before 30 November 1997 may continue to operate on a primary basis until the end of their lifetime. (WRC-97)
- 5.461B** The use of the band 7 750-7 900 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems. (WRC-12)
- 5.462** (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 $0^\circ \leq \theta < 5^\circ$ |
| -135 + 0.5 ($\theta - 5$) dB(W/m ²) in a 1 MHz band | for $5^\circ \leq \theta < 25^\circ$ |
| -125 dB(W/m ²) in a 1 MHz band | for $25^\circ \leq \theta \leq 90^\circ$ |
- (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. (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), Costa Rica, Djibouti, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad, Togo, Tunisia and Yemen, the band 8 500-8 750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 5.469** *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Lithuania, Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 8 500-8 750 MHz is also allocated to the land mobile and radionavigation services on a primary basis. (WRC-12)

- 5.469A** In the band 8 550-8 650 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radiolocation service. (WRC-97)
- 5.470** The use of the band 8 750-8 850 MHz by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8 800 MHz.
- 5.471** *Additional allocation:* in Algeria, Germany, Bahrain, Belgium, China, Egypt, the United Arab Emirates, France, Greece, Indonesia, Iran (Islamic Republic of), Libya, the Netherlands, Qatar, Sudan and South Sudan, the bands 8 825-8 850 MHz and 9 000-9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only. (WRC-12)
- 5.472** In the bands 8 850-9 000 MHz and 9 200-9 225 MHz, the maritime radionavigation service is limited to shore-based radars.
- 5.473** *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the bands 8 850-9 000 MHz and 9 200-9 300 MHz are also allocated to the radionavigation service on a primary basis. (WRC-07)
- 5.473A** In the band 9 000-9 200 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, systems identified in No. **5.337** operating in the aeronautical radionavigation service, or radar systems in the maritime radionavigation service operating in this band on a primary basis in the countries listed in No. **5.471**. (WRC-07)
- 5.474** In the band 9 200-9 500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article **31** in ITU's Radio Regulations Articles).
- 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, 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 band 9 800-10 000 MHz to the fixed service is on a primary basis (see No. **5.33**). (WRC-12)
- 5.478** *Additional allocation:* in Azerbaijan, Mongolia, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 9 800-10 000 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)
- 5.478A** The use of the band 9 800-9 900 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 500 MHz that cannot be fully accommodated within the 9 300-9 800 MHz band. (WRC-07)
- 5.478B** In the band 9 800-9 900 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from stations of the fixed service to which this band is allocated on a secondary basis. (WRC-07)
- 5.479** The band 9 975-10 025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.
- 5.480** *Additional allocation:* in Argentina, Brazil, Chile, Costa Rica, Cuba, El Salvador, Ecuador, Guatemala, Honduras, Mexico, Paraguay, the Netherlands Antilles, Peru and Uruguay, the band 10-10.45 GHz is also allocated to the fixed and mobile services on a primary basis. In Venezuela, the band 10-10.45 GHz is also allocated to the fixed service on a primary basis. (WRC-07)
- 5.481** *Additional allocation:* in Germany, Angola, Brazil, China, Costa Rica, Côte d'Ivoire, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Pakistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania, Tanzania, Thailand and Uruguay, the band 10.45-10.5 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 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** in ITU's Radio Regulations Articles. However, in Algeria, Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, Egypt, United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Moldova, Nigeria, Oman, Uzbekistan, Pakistan, Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, Singapore, Tajikistan, Tunisia, Turkmenistan and Viet Nam, this restriction on the fixed and mobile, except aeronautical mobile, services is not applicable. (WRC-07)
- 5.482A** For sharing of the band 10.6-10.68 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile, except aeronautical mobile, services, Resolution **751 (WRC-07)** applies. (WRC-07)
- 5.483** *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, China, Colombia, Korea (Rep. of), Costa Rica, Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of),

Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, Tajikistan, Turkmenistan and Yemen, the band 10.68-10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-12)

- 5.484** In Region 1, the use of the band 10.7-11.7 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.
- 5.484A** The use of the bands 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 13.75-14.5 GHz (Earth-to-space), 17.8-18.6 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), 29.5-30 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12** in ITU's Radio Regulations Articles for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)
- 5.485** In Region 2, in the band 11.7-12.2 GHz, transponders on space stations in the fixed-satellite service may be used additionally for transmissions in the broadcasting-satellite service, provided that such transmissions do not have a maximum e.i.r.p. greater than 53 dBW per television channel and do not cause greater interference or require more protection from interference than the coordinated fixed-satellite service frequency assignments. With respect to the space services, this band shall be used principally for the fixed-satellite service.
- 5.486** *Different category of service:* in Mexico and the United States, the allocation of the band 11.7-12.1 GHz to the fixed service is on a secondary basis.
- 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** in ITU's Radio Regulations Articles 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** in ITU's Radio Regulations Articles 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** in ITU's Radio Regulations Articles. (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** in ITU's Radio Regulations Articles.
- 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** in ITU's Radio Regulations Articles may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference, or require more protection from interference, than the broadcasting-satellite service transmissions operating in conformity with the Plan or the List, as appropriate. (WRC-2000)
- 5.493** The broadcasting-satellite service in the band 12.5-12.75 GHz in Region 3 is limited to a power flux-density not exceeding $-111 \text{ dB(W)/(m}^2 \cdot 27 \text{ MHz)}$ for all conditions and for all methods of modulation at the edge of the service area. (WRC-97)
- 5.494** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Rep., Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Madagascar, Mali, Morocco, Mongolia, Nigeria, Oman, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
- 5.495** *Additional allocation:* in France, Greece, Monaco, Montenegro, Uganda, Romania, Tanzania and Tunisia, the band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-12)
- 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 in ITU's Radio Regulations Articles, for the fixed-satellite service shall apply on the territory of the countries listed in this footnote. (WRC-2000)

- 5.497** The use of the band 13.25-13.4 GHz by the aeronautical radionavigation service is limited to Doppler navigation aids.
- 5.498** (SUP - WRC-97)
- 5.498A** The Earth exploration-satellite (active) and space research (active) services operating in the band 13.25-13.4 GHz shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service. (WRC-97)
- 5.499** *Additional allocation:* in Bangladesh and India, the band 13.25-14 GHz is also allocated to the fixed service on a primary basis. In Pakistan, the band 13.25-13.75 GHz is allocated to the fixed service on a primary basis. (WRC-12)
- 5.500** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Morocco, Mauritania, Niger, Nigeria, Oman, Qatar, the Syrian Arab Republic, Singapore, Sudan, South Sudan, Chad and Tunisia, the band 13.4-14 GHz is also allocated to the fixed and mobile services on a primary basis. In Pakistan, the band 13.4-13.75 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 5.501** *Additional allocation:* in Azerbaijan, Hungary, Japan, Kyrgyzstan, Romania and Turkmenistan, the band 13.4-14 GHz is also allocated to the radionavigation service on a primary basis. (WRC-12)
- 5.501A** The allocation of the band 13.4-13.75 GHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis. (WRC-97)
- 5.501B** In the band 13.4-13.75 GHz, the Earth exploration-satellite (active) and space research (active) services shall not cause harmful interference to, or constrain the use and development of, the radiolocation service. (WRC-97)
- 5.502** In the band 13.75-14 GHz, an earth station of a geostationary fixed-satellite service network shall have a minimum antenna diameter of 1.2 m and an earth station of a non-geostationary fixed-satellite service system shall have a minimum antenna diameter of 4.5 m. In addition, the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services shall not exceed 59 dBW for elevation angles above 2° and 65 dBW at lower angles. Before an administration brings into use an earth station in a geostationary-satellite network in the fixed-satellite service in this band with an antenna diameter smaller than 4.5 m, it shall ensure that the power flux-density produced by this earth station does not exceed:
- $-115 \text{ dB(W/(m}^2 \cdot 10 \text{ MHz))}$ 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;
 - $-115 \text{ dB(W/(m}^2 \cdot 10 \text{ MHz))}$ 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) $4.7D \pm 28$ 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) $49.2 \pm 20 \log(D/4.5)$ 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. **3.3.1.3.1**, **3.3.1.3.2** and **3.3.1.3.0** apply. (WRC-03)

5.504B Aircraft earth stations operating in the aeronautical mobile-satellite service in the band 14-14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M.1643, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz band

located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa. (WRC-03)

- 5.504C** In the band 14-14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Côte d'Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Kuwait, Nigeria, Oman, the Syrian Arab Republic and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **3.3.1.3.1**. (WRC-12)
- 5.505** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Djibouti, Egypt, the United Arab Emirates, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Swaziland, Tanzania, Chad, Viet Nam and Yemen, the band 14-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-12)
- 5.506** The band 14-14.5 GHz may be used, within the fixed-satellite service (Earth-to-space), for feeder links for the broadcasting-satellite service, subject to coordination with other networks in the fixed-satellite service. Such use of feeder links is reserved for countries outside Europe.
- 5.506A** In the band 14-14.5 GHz, ship earth stations with an e.i.r.p. greater than 21 dBW shall operate under the same conditions as earth stations located on board vessels, as provided in Resolution **902 (WRC-03)**. This footnote shall not apply to ship earth stations for which the complete Appendix 4 information has been received by the Bureau prior to 5 July 2003. (WRC-03)
- 5.506B** Earth stations located on board vessels communicating with space stations in the fixed-satellite service may operate in the frequency band 14-14.5 GHz without the need for prior agreement from Cyprus, Greece and Malta, within the minimum distance given in Resolution **902 (WRC-03)** from these countries. (WRC-03)
- 5.507** Not used.
- 5.508** *Additional allocation:* in Germany, France, Italy, Libya, The Former Yugoslav Rep. of Macedonia and the United Kingdom, the band 14.25-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-12)
- 5.508A** In the band 14.25-14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with

No. **3.3.1.3.1.** (WRC-12)

5.509 (SUP - WRC-07)

5.509A In the band 14.3-14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Morocco, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom, Sri Lanka, Tunisia and Viet Nam by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **3.3.1.3.1.** (WRC-12)

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

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

5.511A The band 15.43-15.63 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. Use of the band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth and Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. **9.11A** in ITU's Radio Regulations Articles. The use of the frequency band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth) is limited to feeder links of non-geostationary systems in the mobile-satellite service for which advance publication information has been received by the Bureau prior to 2 June 2000. In the space-to-Earth direction, the minimum earth station elevation angle above and gain towards the local horizontal plane and the minimum coordination distances to protect an earth station from harmful interference shall be in accordance with Recommendation ITU-R S.1341. In order to protect the radio astronomy service in the band 15.35-15.4 GHz, the aggregate power flux-density radiated in the 15.35-15.4 GHz band by all the space stations within any feeder-link of a non-geostationary system in the mobile-satellite service (space-to-Earth) operating in the 15.43-15.63 GHz band shall not exceed the level of -156 dB(W/m²) in a 50 MHz bandwidth, into any radio astronomy observatory site for more than 2% of the time. (WRC-2000)

5.511B (SUP - WRC-97)

5.511C Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R S.1340. The minimum coordination distance required to protect the aeronautical radionavigation stations (No. **4.10** applies in ITU's Radio Regulations Articles) from harmful interference from feeder-link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder-link earth station shall be in accordance with Recommendation ITU-R S.1340. (WRC-97)

5.511D Fixed-satellite service systems for which complete information for advance publication has been

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

5.511E 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 $-156 \text{ dB(W/m}^2)$ in a 50 MHz bandwidth in the frequency band 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2 per cent of the time. (WRC-12)

5.512 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Congo (Rep. of the), Costa Rica, Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), 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, Serbia, Singapore, Somalia, Sudan, South Sudan, Tanzania, Chad, Togo and Yemen, the band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

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

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

5.514 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, El Salvador, the United Arab Emirates, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kuwait, Libya, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Sudan and South Sudan, the 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** in ITU's Radio Regulations Articles shall apply. (WRC-12)

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** in ITU's Radio Regulations Articles.

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

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

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

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

28.45-28.94 GHz (Earth-to-space) in all Regions,
28.94-29.1 GHz (Earth-to-space) in Region 2 and 3,
29.25-29.46 GHz (Earth-to-space) in Region 2,
29.46-30 GHz (Earth-to-space) in all Regions,
48.2-50.2 GHz (Earth-to-space) in Region 2.

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

See Resolution **143 (WRC-03)***. (WRC-03)

- 5.517** In Region 2, use of the fixed-satellite (space-to-Earth) service in the band 17.7-17.8 GHz shall not cause harmful interference to nor claim protection from assignments in the broadcasting-satellite service operating in conformity with the Radio Regulations. (WRC-07)
- 5.518** (SUP - WRC-07)
- 5.519** *Additional allocation:* the bands 18-18.3 GHz in Region 2 and 18.1-18.4 GHz in Regions 1 and 3 are also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Their use is limited to geostationary satellites. (WRC-07)
- 5.520** The use of the band 18.1-18.4 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links of geostationary-satellite systems in the broadcasting-satellite service. (WRC-2000)
- 5.521** *Alternative allocation:* in Germany, Denmark, the United Arab Emirates and Greece, the band 18.1-18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis. The provisions of No. **5.519** also apply. (WRC-03)
- 5.522** (SUP - WRC-2000)
- 5.522A** The emissions of the fixed service and the fixed-satellite service in the band 18.6-18.8 GHz are limited to the values given in Nos. **21.5A** and **21.16.2** in ITU's Radio Regulations Articles, 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** in ITU's Radio Regulations Articles. (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

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

of the provisions of No. **9.11A** and No. **22.2** in ITU's Radio Regulations Articles does not apply. Administrations having geostationary-satellite networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. **9.11A** in ITU's Radio Regulations Articles with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-geostationary-satellite networks shall not cause unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix **4** notification information is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

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

5.523C No. **22.2** in ITU's Radio Regulations Articles 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** in ITU's Radio Regulations Articles, but not subject to the provisions of No. **22.2** in ITU's Radio Regulations Articles. 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** in ITU's Radio Regulations Articles and shall continue to be subject to Articles **9** (except No. **9.11A** in ITU's Radio Regulations Articles) and **11** in ITU's Radio Regulations Articles procedures, and to the provisions of No. **22.2** in ITU's Radio Regulations Articles. (WRC-97)

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

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

where the allocation to the mobile-satellite service is on a primary basis in the latter band. (WRC-12)

- 5.525** In order to facilitate interregional coordination between networks in the mobile-satellite and fixed-satellite services, carriers in the mobile-satellite service that are most susceptible to interference shall, to the extent practicable, be located in the higher parts of the bands 19.7-20.2 GHz and 29.5-30 GHz.
- 5.526** In the bands 19.7-20.2 GHz and 29.5-30 GHz in Region 2, and in the bands 20.1-20.2 GHz and 29.9-30 GHz in Regions 1 and 3, networks which are both in the fixed-satellite service and in the mobile-satellite service may include links between earth stations at specified or unspecified points or while in motion, through one or more satellites for point-to-point and point-to-multipoint communications.
- 5.527** In the bands 19.7-20.2 GHz and 29.5-30 GHz, the provisions of No. **4.10** do not apply with respect to the mobile-satellite service.
- 5.528** The allocation to the mobile-satellite service is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Administrations operating systems in the mobile-satellite service in the band 19.7-20.1 GHz in Region 2 and in the band 20.1-20.2 GHz shall take all practicable steps to ensure the continued availability of these bands for administrations operating fixed and mobile systems in accordance with the provisions of No. **5.524**.
- 5.529** The use of the bands 19.7-20.1 GHz and 29.5-29.9 GHz by the mobile-satellite service in Region 2 is limited to satellite networks which are both in the fixed-satellite service and in the mobile-satellite service as described in No. **5.526**.
- 5.530** (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 $-120.4 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ 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 Recommendation ITU-R BO.1898). (WRC-12)
- 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** The use of the band 21.4-22 GHz is subject to the provisions of Resolution **755 (WRC-12)**. (WRC-12)
- 5.530D** See Resolution 555 (**WRC-12**). (WRC-12)
- 5.531** *Additional allocation:* in Japan, the band 21.4-22 GHz is also allocated to the broadcasting service on a primary basis.

- 5.532** The use of the band 22.21-22.5 GHz by the Earth exploration-satellite (passive) and space research (passive) services shall not impose constraints upon the fixed and mobile, except aeronautical mobile, services.
- 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** in ITU's Radio Regulations Articles do not apply. (WRC-12)
- 5.532B** Use of the band 24.65-25.25 GHz in Region 1 and the band 24.65-24.75 GHz in Region 3 by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5 m. (WRC-12)
- 5.533** The inter-satellite service shall not claim protection from harmful interference from airport surface detection equipment stations of the radionavigation service.
- 5.534** (SUP - WRC-03)
- 5.535** In the band 24.75-25.25 GHz, feeder links to stations of the broadcasting-satellite service shall have priority over other uses in the fixed-satellite service (Earth-to-space). Such other uses shall protect and shall not claim protection from existing and future operating feeder-link networks to such broadcasting satellite stations.
- 5.535A** The use of the band 29.1-29.5 GHz (Earth-to-space) by the fixed-satellite service is limited to geostationary-satellite systems and feeder links to non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. **9.11A** in ITU's Radio Regulations Articles, but not subject to the provisions of No. **22.2** in ITU's Radio Regulations Articles, except as indicated in Nos. **5.523C** and **5.523E** where such use is not subject to the provisions of No. **9.11A** in ITU's Radio Regulations Articles and shall continue to be subject to Articles **9** in ITU's Radio Regulations Articles (except No. **9.11A**) and **11** procedures, and to the provisions of No. **22.2** in ITU's Radio Regulations Articles. (WRC-97)
- 5.536** Use of the 25.25-27.5 GHz band by the inter-satellite service is limited to space research and Earth exploration-satellite applications, and also transmissions of data originating from industrial and medical activities in space.
- 5.536A** Administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account the most recent version of Recommendation ITU-R SA.1862. (WRC-12)
- 5.536B** In Saudi Arabia, Austria, Belgium, Brazil, Bulgaria, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Estonia, Finland, Hungary, India, Iran (Islamic Republic of), Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Liechtenstein, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Sweden, Switzerland,

Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-12)

- 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** in ITU's Radio Regulations Articles.
- 5.537A** In Bhutan, Cameroon, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sudan, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 27.9-28.2 GHz may also be used by high altitude platform stations (HAPS) within the territory of these countries. Such use of 300 MHz of the fixed-service allocation by HAPS in the above countries is further limited to operation in the HAPS-to-ground direction and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services. Furthermore, the development of these other services shall not be constrained by HAPS. See Resolution **145 (Rev.WRC-12)**. (WRC-12)
- 5.538** *Additional allocation:* the bands 27.500-27.501 GHz and 29.999-30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of +10dBW in the direction of adjacent satellites on geostationary-satellite orbit.
- 5.539** The band 27.5-30 GHz may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service.
- 5.540** *Additional allocation:* the band 27.501-29.999 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control.
- 5.541** In the band 28.5-30 GHz, the earth exploration-satellite service is limited to the transfer of data between stations and not to the primary collection of information by means of active or passive sensors.
- 5.541A** Feeder links of non-geostationary networks in the mobile-satellite service and geostationary networks in the fixed-satellite service operating in the band 29.1-29.5 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix 4 coordination information is considered as

having been received by the Bureau after 17 May 1996 and until they are changed by a future competent world radiocommunication conference. Administrations submitting Appendix 4 information for coordination before this date are encouraged to utilize these techniques to the extent practicable. (WRC-2000)

- 5.542** *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Oman, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, South Sudan, Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **21.3** and **21.5** in ITU's Radio Regulations Articles shall apply. (WRC-12)
- 5.543** The band 29.95-30 GHz may be used for space-to-space links in the Earth exploration-satellite service for telemetry, tracking, and control purposes, on a secondary basis.
- 5.543A** In Bhutan, Cameroon, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sudan, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 31-31.3 GHz may also be used by systems using high altitude platform stations (HAPS) in the ground-to-HAPS direction. The use of the band 31-31.3 GHz by systems using HAPS is limited to the territory of the countries listed above and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems, systems in the mobile service and systems operated under No. **5.545**. Furthermore, the development of these services shall not be constrained by HAPS. Systems using HAPS in the band 31-31.3 GHz shall not cause harmful interference to the radio astronomy service having a primary allocation in the band 31.3-31.8 GHz, taking into account the protection criterion as given in Recommendation ITU-R RA.769. In order to ensure the protection of satellite passive services, the level of unwanted power density into a HAPS ground station antenna in the band 31.3-31.8 GHz shall be limited to -106 dB(W/MHz) under clear-sky conditions, and may be increased up to -100 dB(W/MHz) under rainy conditions to mitigate fading due to rain, provided the effective impact on the passive satellite does not exceed the impact under clear-sky conditions. See Resolution **145 (Rev.WRC-12)**. (WRC-12)
- 5.544** In the band 31-31.3 GHz the power flux-density limits specified in Article **21**, Table **21-4** shall apply to the space research service.
- 5.545** *Different category of service:* in Armenia, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 31-31.3 GHz to the space research service is on a primary basis (see No. **5.33**). (WRC-12)
- 5.546** *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Lebanon, Moldova, Mongolia, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, the United Kingdom, South Africa, Tajikistan, Turkmenistan and Turkey, the allocation of the band 31.5-31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**). (WRC-12)

- 5.547** The bands 31.8-33.4 GHz, 37-40 GHz, 40.5-43.5 GHz, 51.4-52.6 GHz, 55.78-59 GHz and 64-66 GHz are available for high-density applications in the fixed service (see Resolution **75 (WRC-2000)***). Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the bands 39.5-40 GHz and 40.5-42 GHz (see No. **5.516B**), administrations should further take into account potential constraints to high-density applications in the fixed service, as appropriate. (WRC-07)
- 5.547A** Administrations should take practical measures to minimize the potential interference between stations in the fixed service and airborne stations in the radionavigation service in the 31.8-33.4 GHz band, taking into account the operational needs of the airborne radar systems. (WRC-2000)
- 5.547B** *Alternative allocation:* in the United States, the band 31.8-32 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-97)
- 5.547C** *Alternative allocation:* in the United States, the band 32-32.3 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-03)
- 5.547D** *Alternative allocation:* in the United States, the band 32.3-33 GHz is allocated to the inter-satellite and radionavigation services on a primary basis. (WRC-97)
- 5.547E** *Alternative allocation:* in the United States, the band 33-33.4 GHz is allocated to the radionavigation service on a primary basis. (WRC-97)
- 5.548** In designing systems for the inter-satellite service in the band 32.3-33 GHz, for the radionavigation service in the band 32-33 GHz, and for the space research service (deep space) in the band 31.8-32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation **707**). (WRC-03)
- 5.549** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan, Sri Lanka, Togo, Tunisia and Yemen, the band 33.4-36 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
- 5.549A** In the band 35.5-36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed $-73.3 \text{ dB(W/m}^2\text{)}$ in this band. (WRC-03)

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

- 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. (WRC-12)
- 5.550A** For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution **752 (WRC-07)** shall apply. (WRC-07)
- 5.551** (SUP - WRC-97)
- 5.551A** (SUP - WRC-03)
- 5.551AA**(SUP - WRC-03)
- 5.551B** (SUP - WRC-2000)
- 5.551C** (SUP - WRC-2000)
- 5.551D** (SUP - WRC-2000)
- 5.551E** (SUP - WRC-2000)
- 5.551F** *Different category of service:* in Japan, the allocation of the band 41.5-42.5 GHz to the mobile service is on a primary basis.(WRC-97)
- 5.551G** (SUP - WRC-03)
- 5.551H** The equivalent power flux-density (epfd) produced in the band 42.5-43.5 GHz by all space stations in any non-geostationary-satellite system in the fixed-satellite service (space-to-Earth), or in the broadcasting-satellite service operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station for more than 2% of the time:
- 230 dB(W/m²) in 1 GHz and –246 dB(W/m²) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and
 - 209 dB(W/m²) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.
- These epfd values shall be evaluated using the methodology given in Recommendation ITU-R S.1586-1 and the reference antenna pattern and the maximum gain of an antenna in the radio astronomy service given in Recommendation ITU-R RA.1631 and shall apply over the whole sky and for elevation angles higher than the minimum operating angle θ_{min} of the radiotelescope (for which a default value of 5° should be adopted in the absence of notified information).
- These values shall apply at any radio astronomy station that either:
- was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or
 - was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply.
- Other radio astronomy stations notified after these dates may seek an agreement with

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

- 5.551I** The power flux-density in the band 42.5-43.5 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth), or the broadcasting-satellite service operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station:
- 137 dB(W/m²) in 1 GHz and –153 dB(W/m²) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and
 - 116 dB(W/m²) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.

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

- was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or
- was notified before the date of receipt of the complete Appendix **4** information for coordination or notification, as appropriate, for the space station to which the limits apply.

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

- 5.552** The allocation of the spectrum for the fixed-satellite service in the bands 42.5-43.5 GHz and 47.2-50.2 GHz for Earth-to-space transmission is greater than that in the band 37.5-39.5 GHz for space-to-Earth transmission in order to accommodate feeder links to broadcasting satellites. Administrations are urged to take all practicable steps to reserve the band 47.2-49.2 GHz for feeder links for the broadcasting-satellite service operating in the band 40.5-42.5 GHz.
- 5.552A** The allocation to the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2-47.5 GHz and 47.9-48.2 GHz is subject to the provisions of Resolution **122 (Rev.WRC-07)**. (WRC-07)
- 5.553** In the bands 43.5-47 GHz and 66-71 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated. (WRC-2000)
- 5.554** In the bands 43.5-47 GHz, 66-71 GHz, 95-100 GHz, 123-130 GHz, 191.8-200 GHz and 252-265 GHz, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service. (WRC-2000)
- 5.554A** The use of the bands 47.5-47.9 GHz, 48.2-48.54 GHz and 49.44-50.2 GHz by the fixed-satellite service (space-to-Earth) is limited to geostationary satellites. (WRC-03)
- 5.555** *Additional allocation:* the band 48.94-49.04 GHz is also allocated to the radio astronomy service on a primary basis. (WRC-2000)

5.555A (SUP - WRC-03)

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

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

5.556A Use of the bands 54.25-56.9 GHz, 57-58.2 GHz and 59-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed $-147 \text{ dB(W/(m}^2 \cdot 100 \text{ MHz))}$ (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. (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 $-147 \text{ dB(W/(m}^2 \cdot 100 \text{ MHz))}$ 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.(WRC-2000)

5.559A (SUP - WRC-07)

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

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

- 5.561A** The 81-81.5 GHz band is also allocated to the amateur and amateur-satellite services on a secondary basis. (WRC-2000)
- 5.561B** In Japan, use of the band 84-86 GHz, by the fixed-satellite service (Earth-to-space) is limited to feeder links in the broadcasting-satellite service using the geostationary-satellite orbit. (WRC-2000)
- 5.562** The use of the band 94-94.1 GHz by the Earth exploration-satellite (active) and space research (active) services is limited to spaceborne cloud radars. (WRC-97)
- 5.562A** In the bands 94-94.1 GHz and 130-134 GHz, transmissions from space stations of the Earth exploration-satellite service (active) that are directed into the main beam of a radio astronomy antenna have the potential to damage some radio astronomy receivers. Space agencies operating the transmitters and the radio astronomy stations concerned should mutually plan their operations so as to avoid such occurrences to the maximum extent possible. (WRC-2000)
- 5.562B** In the bands 105-109.5 GHz, 111.8-114.25 GHz, 155.5-158.5 GHz and 217-226 GHz, the use of this allocation is limited to space-based radio astronomy only. (WRC-2000)
- 5.562C** Use of the band 116-122.25 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 km to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed $-148 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for all angles of arrival. (WRC-2000)
- 5.562D** *Additional allocation:* In Korea (Rep. of), the bands 128-130 GHz, 171-171.6 GHz, 172.2-172.8 GHz and 173.3-174 GHz are also allocated to the radio astronomy service on a primary basis until 2015. (WRC-2000)
- 5.562E** The allocation to the Earth exploration-satellite service (active) is limited to the band 133.5-134 GHz. (WRC-2000)
- 5.562F** In the band 155.5-158.5 GHz, the allocation to the Earth exploration-satellite (passive) and space research (passive) services shall terminate on 1 January 2018. (WRC-2000)
- 5.562G** The date of entry into force of the allocation to the fixed and mobile services in the band 155.5-158.5 GHz shall be 1 January 2018. (WRC-2000)
- 5.562H** Use of the bands 174.8-182 GHz and 185-190 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed $-14 \text{ dB (w/m}^2 \cdot \text{MHz)}$ for all angles of arrival. (WRC-2000)
- 5.563** (SUP - WRC-03)
- 5.563A** In the bands 200-209 GHz, 235-238 GHz, 250-252 GHz and 265-275 GHz, ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents. (WRC-2000)

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

5.564 (SUP - WRC-2000)

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

- radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;
- Earth exploration-satellite service (passive) and space research service (passive): 275-286 GHz, 296-306 GHz, 313-356 GHz, 361-365 GHz, 369-392 GHz, 397-399 GHz, 409-411 GHz, 416-434 GHz, 439-467 GHz, 477-502 GHz, 523-527 GHz, 538-581 GHz, 611-630 GHz, 634-654 GHz, 657-692 GHz, 713-718 GHz, 729-733 GHz, 750-754 GHz, 771-776 GHz, 823-846 GHz, 850-854 GHz, 857-862 GHz, 866-882 GHz, 905-928 GHz, 951-956 GHz, 968-973 GHz and 985-990 GHz.

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

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

6 Brunei Darussalam Footnotes

- BD141B** *Additional allocation:* in Algeria, Saudi Arabia, Australia, Bahrain, Botswana, Brunei Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United Arab Emirates, Eritrea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, Libya, Morocco, Mauritania, Niger, New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, Singapore, Sudan, South Sudan, Tunisia, Viet Nam and Yemen, the band 7 100-7 200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis. (WRC-12)
- BD167** *Alternative allocation:* in Bangladesh, Brunei Darussalam, India, Iran (Islamic Republic of), Pakistan, Singapore and Thailand, the band 50-54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-07)
- BD204** *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Kuwait, Montenegro, Oman, Pakistan, the Philippines, Qatar, Serbia, Singapore, Thailand and Yemen, the band 137-138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. **5.33**). (WRC-07)
- BD221** Stations of the mobile-satellite service in the band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Djibouti, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-12)
- BD276** *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Djibouti, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Jordan, Kenya, Kuwait, Libya, Malaysia, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan,

Switzerland, Tanzania, Thailand, Togo, Turkey and Yemen, the band 430-440 MHz is also allocated to the fixed service on a primary basis and the bands 430-435 MHz and 438-440 MHz are also allocated to the mobile, except aeronautical mobile, service on a primary basis. (WRC-12)

BD422 *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)

BD429 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Egypt, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea and Yemen, the band 3 300-3 400 MHz is also allocated to the fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-12)

BD453 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Niger, Nigeria, Oman, Uganda, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Swaziland, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the band 5 650-5 850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution **229 (Rev.WRC-12)** do not apply. (WRC-12)

BD468 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Costa Rica, Djibouti, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad, Togo, Tunisia and Yemen, the band 8 500-8 750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

BD477 *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, 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 band 9 800-10 000 MHz to the fixed service is on a primary basis (see No. 5.33). (WRC-12)

BD500 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Morocco, Mauritania, Niger, Nigeria, Oman, Qatar, the Syrian Arab Republic, Singapore, Sudan, South Sudan, Chad and Tunisia, the band 13.4-14 GHz is also allocated to the fixed and mobile services on a primary basis. In Pakistan, the band 13.4-13.75 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

BD505 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Djibouti, Egypt, the United Arab Emirates, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Swaziland, Tanzania, Chad, Viet Nam and Yemen, the band 14-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-12)

BD512 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Congo (Rep. of the), Costa Rica, Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), 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, Serbia, Singapore, Somalia, Sudan, South Sudan, Tanzania, Chad, Togo and Yemen, the band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)

BD524 *Additional allocation:* in Afghanistan, Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Costa Rica, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Tanzania, Chad, Togo and Tunisia, the band 19.7-21.2 GHz is also allocated to the fixed and mobile services on a primary basis. This additional use shall not impose any limitation on the power flux-density of space stations in the fixed-satellite service in the band 19.7-21.2 GHz and of space stations in the mobile-satellite service in the band 19.7-20.2 GHz where the allocation to the mobile-satellite service is on a primary basis in the latter band. (WRC-12)

BD542 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Oman, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, South Sudan, Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power

limits specified in Nos. **21.3** and **21.5** shall apply. (WRC-12)

7 Radiofrequency Band Plans

7.1 Public Mobile Telecommunications Services

- 7.1.1 Public Mobile Telecommunication Services (PMTS) involve the operation of mobile telecommunications systems (e.g. base stations, mobile switching centres) required to provide cellular services to the public (including the value added services).
- 7.1.2 In Brunei Darussalam, there are currently two operators which provide PMTS; DST Communications Sdn Bhd and Progresif Cellular Sdn Bhd (formerly known as B-Mobile communication Sdn Bhd).
- 7.1.3 DST Communications Sdn Bhd established in 1995, has grown from providing AMPS analogue type telephone service provider to a GSM service provider. It has further expanded to providing 3G since May 2008. The Spectrum Rights in 1800 MHz band has been awarded to DST in 2013 to allow the deployment of LTE systems and services.
- 7.1.4 B-Mobile Communications Sdn Bhd became Brunei Darussalam's first 3G service provider in 2005. It further expanded in March 2008 by providing 3.5G technology by introducing Mobile Broadband.
- 7.1.5 Progresif Cellular Sdn Bhd is a new entrant in Brunei's mobile telecommunications industry, taking over the operations of the country's second mobile operator (B-Mobile Communications Sdn Bhd) in July 2014.
- 7.1.6 With the growth of PMTS, there has been a decrease in demand for paging services. Currently, Telekom Brunei Sdn Bhd (TelBru) is the sole operator which provides paging services to a handful of customers.
- 7.1.7 Spectrum allocations for Public Mobile Services are illustrated in the tables below:

a) Public Cellular Services

Systems	Frequency Range	Operators
GSM	900 – 910 MHz / 945 – 955 MHz	DataStream Technology Sdn Bhd
3G	1920 – 1940 MHz / 2110 – 2130 MHz	Progresif Celullar Sdn Bhd
	1940 – 1960 MHz / 2130 – 2150 MHz	DataStream Technology Sdn Bhd
LTE	1710 – 1765 MHz / 1805 – 1860 MHz	DataStream Technology Sdn Bhd

SPECTRUM ALLOCATION FOR CELLULAR SYSTEMS



b) Paging

Frequency (MHz)	Main User
158.350	Brunei Shell Petroleum

7.2 Fixed Services

7.2.1 Fixed service is defined by ITU as a radiocommunication service between specified fixed points. Examples of this service are microwave fixed link systems.

7.2.2 There are a number of bands used for microwave fixed link systems. Frequency channels in each band are assigned with close reference to relevant ITU-R Recommendations as shown below:-

Bands	ITU-R Recommendation	Channel Width (MHz)	Distance (Km)
4 GHz	F.1099-4	40	36 Above
Lower 6 GHz	F.383-8	40	21 to 35
Upper 6 GHz	F.384-10	29.65	
7.2 GHz	F.385- 9	14/7	
7.5 GHz	F.385- 9	28/7	
8 GHz	F.386- 8	28	
13 GHz	F.497- 7	28	0.1 to 20
15 GHz	F.636-3	28/14	

RADIO FREQUENCY CHANNEL ARRANGEMENTS FOR MICROWAVE FIXED LINKS OPERATING IN 4 GHz BAND (4430 – 5010 MHz)

Arrangement for links operating with a **40 MHz** channel spacing:
(TR spacing: 300 MHz)

Frequency	4430	4470	4510	4550	4590	4630	4670	4710
Channel	1	2	3	4	5	6	7	8

Frequency	4730	4770	4810	4850	4890	4930	4970	5010
Channel	1'	2'	3'	4'	5'	6'	7'	8'

- Lower half of the band, f_n
- Upper half of the band, f'_n

Reference: Recommendation ITU-R F.497-7

RADIO FREQUENCY CHANNEL ARRANGEMENTS FOR MICROWAVE FIXED LINKS OPERATING IN LOWER 6 GHz BAND (5945.20 – 6404.79 MHz)

Arrangement for links operating with a **29.65 MHz** channel spacing:
 (TR spacing: 252.04 MHz)

Frequency	5945.20	5974.85	6004.5	6034.15	6063.8	6093.45	6123.1	6152.75
Channel	1	2	3	4	5	6	7	8

Frequency	6197.24	6226.89	6256.54	6286.19	6315.84	6345.49	6375.14	6404.79
Channel	1	2	3	4	5	6	7	8

- Lower half of the band, f_n
- Upper half of the band, f'_n

Reference: Recommendation ITU-R F.383-8

RADIO FREQUENCY CHANNEL ARRANGEMENTS FOR MICROWAVE FIXED LINKS OPERATING IN UPPER 6 GHz BAND (6460 – 7080 MHz)

Arrangement for links operating with a **40 MHz** channel spacing:
(TR spacing: 340 MHz)

Frequency	6460	6500	6540	6580	6620	6660	6700	6740
Channel	1	2	3	4	5	6	7	8

Frequency	6800	6840	6880	6920	6960	7000	7040	7080
Channel	1'	2'	3'	4'	5'	6'	7'	8'

- Lower half of the band, fn
- Upper half of the band, f'n

Reference: Recommendation ITU-R F.497-7

RADIO FREQUENCY CHANNEL ARRANGEMENTS FOR MICROWAVE FIXED LINKS OPERATING IN 7.2 GHz BAND (7135 - 7422MHz)

Arrangement for links operating with a **14 MHz** channel spacing:
 (TR spacing: 161 MHz)

Frequency	7135	7149	7163	7177	7191	7205	7219	7233	7247	7261
Channel	1	2	3	4	5	6	7	8	9	10

Frequency	7296	7310	7324	7338	7352	7366	7380	7394	7408	7422
Channel'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'

- Lower half of the band, f_n
- Upper half of the band, f'_n

Reference: Recommendation ITU-R F.385-9

RADIO FREQUENCY CHANNEL ARRANGEMENTS FOR MICROWAVE FIXED LINKS OPERATING IN 7.2 GHz BAND (7128 - 7422MHz)

Arrangement for links operating with a 7 MHz channel spacing:
(TR spacing: 161 MHz)

Frequency	7128	7135	7142	7149	7156	7163	7170	7177	7184	7191	7198	7205	7212	7219	7226	7233	7240	7247	7254	7261
Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Frequency	7289	7296	7303	7310	7317	7324	7331	7338	7345	7352	7359	7366	7373	7380	7387	7394	7401	7408	7415	7422
Channel	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	20'

- Lower half of the band, fn
- Upper half of the band, f'n

Reference: Recommendation ITU-R F.385-9

RADIO FREQUENCY CHANNEL ARRANGEMENTS FOR MICROWAVE FIXED LINKS OPERATING IN 7.5 GHz BAND (7442 - 7715MHz)

Arrangement for links operating with a **28 MHz** channel spacing:
(TR spacing: 161 MHz)

Frequency	7442	7470	7498	7526	7554
Channel	1	2	3	4	5

Frequency	7603	7631	7659	7687	7715
Channel	1'	2'	3'	4'	5'

- Lower half of the band, f_n
- Upper half of the band, f'_n

Reference: Recommendation ITU-R F.385-9

RADIO FREQUENCY CHANNEL ARRANGEMENTS FOR MICROWAVE FIXED LINKS OPERATING IN 7.5 GHz BAND (7428 - 7722MHz)

Arrangement for links operating with a **7 MHz** channel spacing:
 (TR spacing: 161 MHz)

Frequency	7428	7435	7442	7449	7456	7463	7470	7477	7484	7491	7498	7505	7512	7519	7526	7533	7540	7547	7554	7561
Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Frequency	7589	7596	7603	7610	7617	7624	7631	7638	7645	7652	7659	7666	7673	7680	7687	7694	7701	7708	7715	7722
Channel	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	20'

Lower half of the band, fn
 Upper half of the band, f'n

Reference: Recommendation ITU-R F.385-9

RADIO FREQUENCY CHANNEL ARRANGEMENTS FOR MICROWAVE FIXED LINKS OPERATING IN 8 GHz BAND (7926 - 8388MHz)

Arrangement for links operating with a **28 MHz** channel spacing:
(TR spacing: 266 MHz)

Frequency	7926	7954	7982	8010	8038	8066	8094	8122
Channel	1	2	3	4	5	6	7	8

Frequency	8192	8220	8248	8276	8304	8332	8360	8388
Channel	1'	2'	3'	4'	5'	6'	7'	8'

- Lower half of the band, fn
- Upper half of the band, f'n

Reference: Recommendation ITU-R F.386-9

RADIO FREQUENCY CHANNEL ARRANGEMENTS FOR MICROWAVE FIXED LINKS OPERATING IN 13GHz BAND (12768.5 – 13230.5MHz)

Arrangement for links operating with a **28 MHz** channel spacing:
 (TR spacing: 266 MHz)

Frequency	12768.5	12796.5	12824.5	12852.5	12880.5	12908.5	12936.5	12964.5
Channel	1	2	3	4	5	6	7	8

Frequency	13034.5	13062.5	13090.5	13118.5	13146.5	13174.5	13202.5	13230.5
Channel	1'	2'	3'	4'	5'	6'	7'	8'

- Lower half of the band, fn
- Upper half of the band, f'n

Reference: Recommendation ITU-R F.497-7

RADIO FREQUENCY CHANNEL ARRANGEMENTS FOR MICROWAVE FIXED LINKS OPERATING IN 15GHz BAND (14417 – 15327MHz)

Arrangement for links operating with a **28 MHz** channel spacing:
(TR spacing: 490 MHz)

Frequency	14417	14445	14473	14501	14529	14557	14585	14613	14641	14669	14697	14725	14753	14781	14809	14837
Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Frequency	14907	14935	14963	14991	15019	15047	15075	15103	15131	15159	15187	15215	15243	15271	15299	15327
Channel	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'

- Lower half of the band, fn
- Upper half of the band, f'n

Reference: Recommendation ITU-R F.636-3

RADIO FREQUENCY CHANNEL ARRANGEMENTS FOR MICROWAVE FIXED LINKS OPERATING IN 15GHz BAND (14417 – 15341MHz)

Arrangement for links operating with a **14 MHz** channel spacing:
 (TR spacing: 490 MHz)

Frequency	14417	14431	14445	14459	14473	14487	14501	14515	14529	14543	14557	14571	14585	14599	14613	14627	14641	14655	14669	14683	14697	14711	14725	14739	14753	14767	14781	14795	14809	14823	14837	14851
#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Frequency	14907	14921	14935	14949	14963	14977	14991	15005	15019	15033	15047	15061	15075	15089	15103	15117	15131	15145	15159	15173	15187	15201	15215	15229	15243	15257	15271	15285	15299	15313	15327	15341
#	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	24'	25'	26'	27'	28'	29'	30'	31'	32'

- Lower half of the band, fn
- Upper half of the band, f'n

7.2.1

Reference: Recommendation ITU-R F.636-3

RADIO FREQUENCY CHANNEL ARRANGEMENTS FOR MICROWAVE FIXED LINKS OPERATING IN 15GHz BAND (14417 – 15341MHz)

Arrangement for links operating with a **14 MHz** channel spacing:
 (TR spacing: 490 MHz)

14417	14431	14445	14459	14473	14487	14501	14515	14529	14543	14557	14571	14585	14599	14613	14627	14641	14655	14669	14683	14697	14711	14725	14739	14753	14767	14781	14795	14809	14823	14837	14851
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14907	14921	14935	14949	14963	14977	14991	15005	15019	15033	15047	15061	15075	15089	15103	15117	15131	15145	15159	15173	15187	15201	15215	15229	15243	15257	15271	15285	15299	15313	15327	15341
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- Lower half of the band, f_n
- Upper half of the band, f'_n

Reference: Recommendation ITU-R F.636-3

7.3 Land Mobile/Trunked Radio Services

- 7.3.1 Land Mobile/Trunked Radio services provide two-way communications between fixed control point (i.e. base station) and a number of mobile transceiver units (e.g. vehicular or hand-held portable stations). The coverage area of Land Mobile services is either localised or nation-wide.
- 7.3.2 Unlike paging and mobile data services, some of the trunked radio features have not been replaced by cellular services. For example, the ability to make one-to-many group calls using trunked radio is a feature in which cellular networks have yet to offer. One- to-many group calls are crucial for operations that require information to be verbally communicated to all field staff in different locations simultaneously. Today, DST Fascom is the sole operator offering public trunked radio services.
- 7.3.3 One of the trunked radio technology standards adopted in Brunei Darussalam, is Terrestrial Trunk Radio (TETRA).

Frequency Range (MHz)
138-142
164-174
380 – 400
410 – 430
440 – 450
470 – 510
800

138-142 MHz Channelling Plan for Brunei Darussalam and Malaysia

Ch Nos	ML TxS	FB TxS	Allocation
001	138.0125	142.6125	BRU
002	138.0250	142.6250	MLA
003	138.0375	142.6375	MLA
004	138.0500	142.6500	BRU
005	138.0625	142.6625	BRU
006	138.0750	142.6750	MLA
007	138.0875	142.6875	BRU
008	138.1000	142.7000	MLA
009	138.1125	142.7125	BRU
010	138.1250	142.7250	MLA
011	138.1375	142.7375	BRU
012	138.1500	142.7500	MLA
013	138.1625	142.7625	BRU
014	138.1750	142.7750	MLA
015	138.1875	142.7875	BRU
016	138.2000	142.8000	MLA
017	138.2125	142.8125	BRU
018	138.2250	142.8250	MLA
019	138.2375	142.8375	MLA
020	138.2500	142.8500	BRU
021	138.2625	142.8625	BRU
022	138.2750	142.8750	MLA
023	138.2875	142.8875	MLA
024	138.3000	142.9000	BRU
025	138.3125	142.9125	MLA
026	138.3250	142.9250	MLA
027	138.3375	142.9375	BRU
028	138.3500	142.9500	BRU
029	138.3625	142.9625	MLA
030	138.3750	142.9750	BRU
031	138.3875	142.9875	MLA
032	138.4000	143.0000	BRU
033	138.4125	143.0125	MLA
034	138.4250	143.0250	MLA
035	138.4375	143.0375	BRU
036	138.4500	143.0500	BRU
037	138.4625	143.0625	MLA

Ch Nos	ML TxS	FB TxS	Allocation
038	138.4750	143.0750	BRU
039	138.4875	143.0875	MLA
040	138.5000	143.1000	BRU
041	138.5125	143.1125	BRU
042	138.5250	143.1250	MLA
043	138.5375	143.1375	MLA
044	138.5500	143.1500	BRU
045	138.5625	143.1625	MLA
046	138.5750	143.1750	MLA
047	138.5875	143.1875	BRU
048	138.6000	143.2000	BRU
049	138.6125	143.2125	MLA
050	138.6250	143.2250	BRU
051	138.6375	143.2375	MLA
052	138.6500	143.2500	BRU
053	138.6625	143.2625	MLA
054	138.6750	143.2750	BRU
055	138.6875	143.2875	MLA
056	138.7000	143.3000	BRU
057	138.7125	143.3125	BRU
058	138.7250	143.3250	MLA
059	138.7375	143.3375	MLA
060	138.7500	143.3500	BRU
061	138.7625	143.3625	MLA
062	138.7750	143.3750	BRU
063	138.7875	143.3875	MLA
064	138.8000	143.4000	BRU
065	138.8125	143.4125	MLA
066	138.8250	143.4250	BRU
067	138.8375	143.4375	MLA
068	138.8500	143.4500	BRU
069	138.8625	143.4625	MLA
070	138.8750	143.4750	MLA
071	138.8875	143.4875	BRU
072	138.9000	143.5000	BRU
073	138.9125	143.5125	MLA
074	138.9250	143.5250	BRU

Ch Nos	ML TxS	FB TxS	Allocation
075	138.9375	143.5375	MLA
076	138.9500	143.5500	BRU
077	138.9625	143.5625	MLA
078	138.9750	143.5750	BRU
079	138.9875	143.5875	BRU
080	139.0000	143.6000	MLA
081	139.0125	143.6125	BRU
082	139.0250	143.6250	MLA
083	139.0375	143.6375	BRU
084	139.0500	143.6500	MLA
085	139.0625	143.6625	BRU
086	139.0750	143.6750	MLA
087	139.0875	143.6875	BRU
088	139.1000	143.7000	MLA
089	139.1125	143.7125	BRU
090	139.1250	143.7250	MLA
091	139.1375	143.7375	BRU
092	139.1500	143.7500	MLA
093	139.1625	143.7625	BRU
094	139.1750	143.7750	MLA
095	139.1875	143.7875	BRU
096	139.2000	143.8000	MLA
097	139.2125	143.8125	BRU
098	139.2250	143.8250	MLA
099	139.2375	143.8375	BRU
100	139.2500	143.8500	MLA
101	139.2625	143.8625	BRU
102	139.2750	143.8750	MLA
103	139.2875	143.8875	BRU
104	139.3000	143.9000	MLA
105	139.3125	143.9125	BRU
106	139.3250	143.9250	MLA
107	139.3375	143.9375	BRU
108	139.3500	143.9500	MLA
109	139.3625	143.9625	BRU
110	139.3750	143.9750	MLA
111	139.3875	143.9875	BRU

Channel Arrangement for 164-174 MHz band for Trunked Radio

Duplex Operation

MLA

BRU/SNG

n	fbs in MHz	fms in MHz	Block
1	164.8375	169.8375	1
2	164.8500	169.8500	
3	164.8625	169.8625	
4	164.8750	169.8750	
5	164.8875	169.8875	2
6	164.9000	169.9000	
7	164.9125	169.9125	
8	164.9250	169.9250	
9	164.9375	169.9375	3
10	164.9500	169.9500	
11	164.9625	169.9625	
12	164.9750	169.9750	
13	164.9875	169.9875	4
14	165.0000	170.0000	
15	165.0125	170.0125	
16	165.0250	170.0250	
17	165.0375	170.0375	5
18	165.0500	170.0500	
19	165.0625	170.0625	
20	165.0750	170.0750	
21	165.0875	170.0875	6
22	165.1000	170.1000	
23	165.1125	170.1125	
24	165.1250	170.1250	
25	165.1375	170.1375	7
26	165.1500	170.1500	
27	165.1625	170.1625	
28	165.1750	170.1750	
29	165.1875	170.1875	8
30	165.2000	170.2000	
31	165.2125	170.2125	
32	165.2250	170.2250	
33	165.2375	170.2375	9
34	165.2500	170.2500	
35	165.2625	170.2625	
36	165.2750	170.2750	

n	fbs in MHz	fms in MHz	Block
37	165.2875	170.2875	10
38	165.3000	170.3000	
39	165.3125	170.3125	
40	165.3250	170.3250	
41	165.3375	170.3375	11
42	165.3500	170.3500	
43	165.3625	170.3625	
44	165.3750	170.3750	
45	165.3875	170.3875	12
46	165.4000	170.4000	
47	165.4125	170.4125	
48	165.4250	170.4250	
49	165.4375	170.4375	13
50	165.4500	170.4500	
51	165.4625	170.4625	
52	165.4750	170.4750	
53	165.4875	170.4875	14
54	165.5000	170.5000	
55	165.5125	170.5125	
56	165.5250	170.5250	
57	165.5375	170.5375	15
58	165.5500	170.5500	
59	165.5625	170.5625	
60	165.5750	170.5750	
61	165.5875	170.5875	16
62	165.6000	170.6000	
63	165.6125	170.6125	
64	165.6250	170.6250	
65	165.6375	170.6375	17
66	165.6500	170.6500	
67	165.6625	170.6625	
68	165.6750	170.6750	
69	165.6875	170.6875	18
70	165.7000	170.7000	
71	165.7125	170.7125	
72	165.7250	170.7250	

n	fbs in MHz	fms in MHz	Block
73	165.7375	170.7375	19
74	165.7500	170.7500	
75	165.7625	170.7625	
76	165.7750	170.7750	
77	165.7875	170.7875	20
78	165.8000	170.8000	
79	165.8125	170.8125	
80	165.8250	170.8250	
81	165.8375	170.8375	21
82	165.8500	170.8500	
83	165.8625	170.8625	
84	165.8750	170.8750	
85	165.8875	170.8875	22
86	165.9000	170.9000	
87	165.9125	170.9125	
88	165.9250	170.9250	
89	165.9375	170.9375	23
90	165.9500	170.9500	
91	165.9625	170.9625	
92	165.9750	170.9750	
93	165.9875	170.9875	24
94	166.0000	171.0000	
95	166.0125	171.0125	
96	166.0250	171.0250	
97	166.0375	171.0375	25
98	166.0500	171.0500	
99	166.0625	171.0625	
100	166.0750	171.0750	
101	166.0875	171.0875	26
102	166.1000	171.1000	
103	166.1125	171.1125	
104	166.1250	171.1250	
105	166.1375	171.1375	27
106	166.1500	171.1500	
107	166.1625	171.1625	
108	166.1750	171.1750	

Channel Arrangement for 164-174 MHz band for Trunked Radio

Duplex Operation

MLA

BRU/SNG

n	fbs in MHz	fms in MHz	Block
109	166.1875	171.1875	28
110	166.2000	171.2000	
111	166.2125	171.2125	
112	166.2250	171.2250	
113	166.2375	171.2375	29
114	166.2500	171.2500	
115	166.2625	171.2625	
116	166.2750	171.2750	30
117	166.2875	171.2875	
118	166.3000	171.3000	
119	166.3125	171.3125	31
120	166.3250	171.3250	
121	166.3375	171.3375	
122	166.3500	171.3500	
123	166.3625	171.3625	32
124	166.3750	171.3750	
125	166.3875	171.3875	
126	166.4000	171.4000	
127	166.4125	171.4125	33
128	166.4250	171.4250	
129	166.4375	171.4375	
130	166.4500	171.4500	
131	166.4625	171.4625	34
132	166.4750	171.4750	
133	166.4875	171.4875	
134	166.5000	171.5000	
135	166.5125	171.5125	35
136	166.5250	171.5250	
137	166.5375	171.5375	
138	166.5500	171.5500	
139	166.5625	171.5625	36
140	166.5750	171.5750	
141	166.5875	171.5875	
142	166.6000	171.6000	
143	166.6125	171.6125	36
144	166.6250	171.6250	

n	fbs in MHz	fms in MHz	Block
145	166.6375	171.6375	37
146	166.6500	171.6500	
147	166.6625	171.6625	
148	166.6750	171.6750	
149	166.6875	171.6875	38
150	166.7000	171.7000	
151	166.7125	171.7125	
152	166.7250	171.7250	39
153	166.7375	171.7375	
154	166.7500	171.7500	
155	166.7625	171.7625	40
156	166.7750	171.7750	
157	166.7875	171.7875	
158	166.8000	171.8000	
159	166.8125	171.8125	41
160	166.8250	171.8250	
161	166.8375	171.8375	
162	166.8500	171.8500	
163	166.8625	171.8625	42
164	166.8750	171.8750	
165	166.8875	171.8875	
166	166.9000	171.9000	
167	166.9125	171.9125	43
168	166.9250	171.9250	
169	166.9375	171.9375	
170	166.9500	171.9500	
171	166.9625	171.9625	44
172	166.9750	171.9750	
173	166.9875	171.9875	
174	167.0000	172.0000	
175	167.0125	172.0125	45
176	167.0250	172.0250	
177	167.0375	172.0375	
178	167.0500	172.0500	
179	167.0625	172.0625	45
180	167.0750	172.0750	

n	fbs in MHz	fms in MHz	Block
181	167.0875	172.0875	46
182	167.1000	172.1000	
183	167.1125	172.1125	
184	167.1250	172.1250	
185	167.1375	172.1375	47
186	167.1500	172.1500	
187	167.1625	172.1625	
188	167.1750	172.1750	48
189	167.1875	172.1875	
190	167.2000	172.2000	
191	167.2125	172.2125	49
192	167.2250	172.2250	
193	167.2375	172.2375	
194	167.2500	172.2500	
195	167.2625	172.2625	50
196	167.2750	172.2750	
197	167.2875	172.2875	
198	167.3000	172.3000	
199	167.3125	172.3125	51
200	167.3250	172.3250	
201	167.3375	172.3375	
202	167.3500	172.3500	
203	167.3625	172.3625	52
204	167.3750	172.3750	
205	167.3875	172.3875	
206	167.4000	172.4000	
207	167.4125	172.4125	53
208	167.4250	172.4250	
209	167.4375	172.4375	
210	167.4500	172.4500	
211	167.4625	172.4625	54
212	167.4750	172.4750	
213	167.4875	172.4875	
214	167.5000	172.5000	
215	167.5125	172.5125	54
216	167.5250	172.5250	

Channel Arrangement for 164-174 MHz band for Trunked Radio

Duplex Operation

MLA

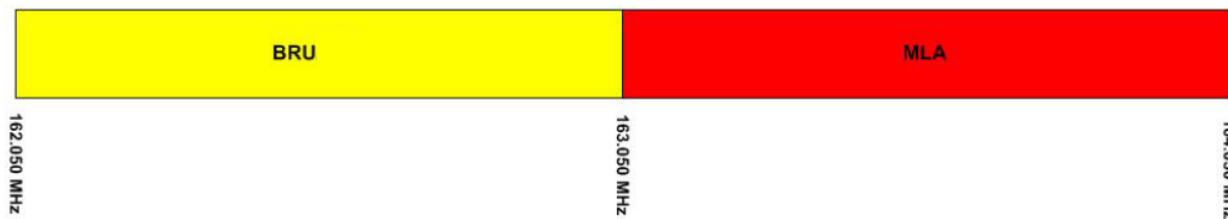
BRU/SNG

n	fbs in MHz	fms in MHz	Block
217	167.5375	172.5375	55
218	167.5500	172.5500	
219	167.5625	172.5625	
220	167.5750	172.5750	
221	167.5875	172.5875	56
222	167.6000	172.6000	
223	167.6125	172.6125	
224	167.6250	172.6250	
225	167.6375	172.6375	57
226	167.6500	172.6500	
227	167.6625	172.6625	
228	167.6750	172.6750	
229	167.6875	172.6875	58
230	167.7000	172.7000	
231	167.7125	172.7125	
232	167.7250	172.7250	
233	167.7375	172.7375	59
234	167.7500	172.7500	
235	167.7625	172.7625	
236	167.7750	172.7750	
237	167.7875	172.7875	60
238	167.8000	172.8000	
239	167.8125	172.8125	
240	167.8250	172.8250	
241	167.8375	172.8375	61
242	167.8500	172.8500	
243	167.8625	172.8625	
244	167.8750	172.8750	
245	167.8875	172.8875	62
246	167.9000	172.9000	
247	167.9125	172.9125	
248	167.9250	172.9250	
249	167.9375	172.9375	63
250	167.9500	172.9500	
251	167.9625	172.9625	
252	167.9750	172.9750	

n	fbs in MHz	fms in MHz	Block
253	167.9875	172.9875	64
254	168.0000	173.0000	
255	168.0125	173.0125	
256	168.0250	173.0250	
257	168.0375	173.0375	65
258	168.0500	173.0500	
259	168.0625	173.0625	
260	168.0750	173.0750	
261	168.0875	173.0875	66
262	168.1000	173.1000	
263	168.1125	173.1125	
264	168.1250	173.1250	
265	168.1375	173.1375	67
266	168.1500	173.1500	
267	168.1625	173.1625	
268	168.1750	173.1750	
269	168.1875	173.1875	68
270	168.2000	173.2000	
271	168.2125	173.2125	
272	168.2250	173.2250	
273	168.2375	173.2375	69
274	168.2500	173.2500	
275	168.2625	173.2625	
276	168.2750	173.2750	
277	168.2875	173.2875	70
278	168.3000	173.3000	
279	168.3125	173.3125	
280	168.3250	173.3250	
281	168.3375	173.3375	71
282	168.3500	173.3500	
283	168.3625	173.3625	
284	168.3750	173.3750	
285	168.3875	173.3875	72
286	168.4000	173.4000	
287	168.4125	173.4125	
288	168.4250	173.4250	

n	fbs in MHz	fms in MHz	Block
289	168.4375	173.4375	73
290	168.4500	173.4500	
291	168.4625	173.4625	
292	168.4750	173.4750	
293	168.4875	173.4875	74
294	168.5000	173.5000	
295	168.5125	173.5125	
296	168.5250	173.5250	
297	168.5375	173.5375	75
298	168.5500	173.5500	
299	168.5625	173.5625	
300	168.5750	173.5750	
301	168.5875	173.5875	76
302	168.6000	173.6000	
303	168.6125	173.6125	
304	168.6250	173.6250	
305	168.6375	173.6375	77
306	168.6500	173.6500	
307	168.6625	173.6625	
308	168.6750	173.6750	
309	168.6875	173.6875	78
310	168.7000	173.7000	
311	168.7125	173.7125	
312	168.7250	173.7250	
313	168.7375	173.7375	79
314	168.7500	173.7500	
315	168.7625	173.7625	
316	168.7750	173.7750	
317	168.7875	173.7875	80
318	168.8000	173.8000	
319	168.8125	173.8125	
320	168.8250	173.8250	
321	168.8375	173.8375	81
322	168.8500	173.8500	
323	168.8625	173.8625	
324	168.8750	173.8750	

Channel Arrangement for 162-164 MHz band between Brunei and Malaysia



Channel Arrangement for 164-174 MHz band for Trunked Radio

Duplex Operation

MLA

BRU/SNG

n	f _{BS} in MHz	f _{MS} in MHz	Block
325	168.8875	173.8875	82
326	168.9000	173.9000	
327	168.9125	173.9125	
328	168.9250	173.9250	
329	168.9375	173.9375	83
330	168.9500	173.9500	
331	168.9625	173.9625	
332	168.9750	173.9750	

Channel Allocation 380-400 MHz Band between Brunei, Malaysia and Singapore

Mobile Transmit	BRU/SNG	MLA	BRU/SNG	MLA
	380.0 – 382.5 MHz BLOCK A	382.5 – 385.0 MHz BLOCK B	385.0 – 387.5 MHz BLOCK C	387.5 – 390.0 MHz BLOCK D

Base Transmit	BRU/SNG	MLA	BRU/SNG	MLA
	390.0 – 392.5 MHz BLOCK A'	392.5 – 395.0 MHz BLOCK B'	395.0 – 397.5 MHz BLOCK C'	397.5 – 400.0 MHz BLOCK D'

* 2.5 MHz spacing

Channel Allocation 410-430 MHz

Mobile Transmit	BRU	MLA	BRU	MLA
	410-412 MHz	412-414 MHz	414-417 MHz	417-420 MHz

Base Transmit	BRU	MLA	BRU	MLA
	420-422 MHz	422-424 MHz	424-427 MHz	427-430 MHz

Channel Allocation 440-450 MHz

440 – 440.5 (0.5MHz)	440.5 – 441 (0.5MHz)	441 – 441.5 (0.5MHz)	441.5 – 442 (0.5MHz)	442 – 443.5 (1.5MHz)	443.5 – 445 (1.5MHz)
BRU	MLA	BRU	MLA	BRU	MLA
445 – 445.5 (0.5MHz)	445.5 – 446 (0.5MHz)	446 - 447 (1.0MHz)		447 - 448.5 (1.5MHz)	448.5 – 450 (1.5MHz)
BRU	MLA	FRS		BRU	MLA

Allocation of Segmentation Edge 440 - 450MHz

No	f lower	fc	f upper	Allocation
1	440.4938	440.5000	440.5063	MLA
2	440.9938	441.0000	441.0063	BRU
3	441.4938	441.5000	441.5063	MLA
4	441.9938	442.0000	442.0063	BRU
5	443.4938	443.5000	443.5063	BRU
6	444.9938	445.0000	445.0063	MLA
7	445.4938	445.5000	445.5063	MLA
8	445.9938	446.0000	446.0063	BRU
9	446.9938	447.0000	447.0063	MLA
10	448.4938	448.5000	448.5063	BRU

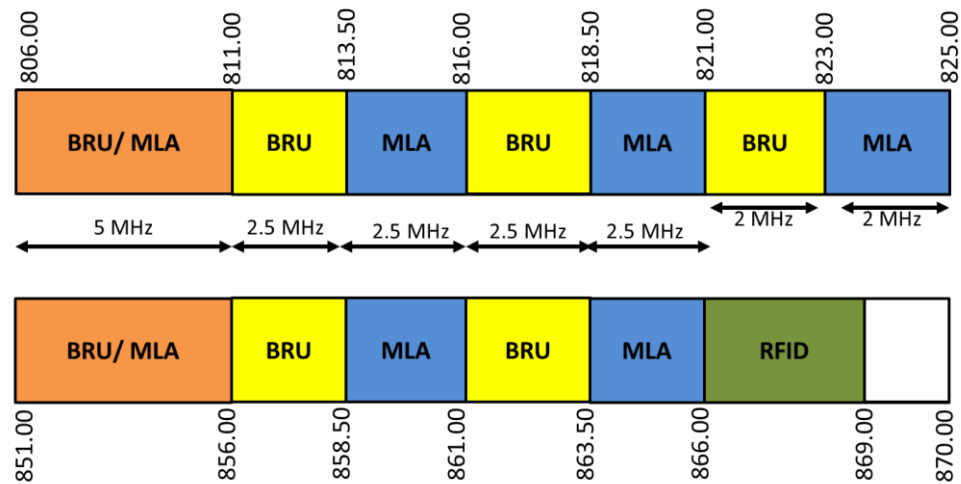
Channel Allocation for 470 – 510MHz

Mobile Transmit	BRU	MLA	BRU	MLA
	470-475 MHz	475-480 MHz	480-485 MHz	485-490 MHz

Base Transmit	BRU	MLA	BRU	MLA
	490-495 MHz	495-500 MHz	500-505 MHz	505-510 MHz

Note: The channel allocation is effective until 1st January 2015. The channel arrangement will be effective after this date.

Channel Allocation 800MHz



7.4 Broadcasting Services

7.4.1 Broadcasting service is defined in the ITU Radio Regulations as “a radio-communication service in which the transmissions are intended for the direct reception by the general public. This service may include sound transmissions, television transmissions or other type of transmission”.

7.4.2 The tables below illustrate the allocations for different broadcasting services:-

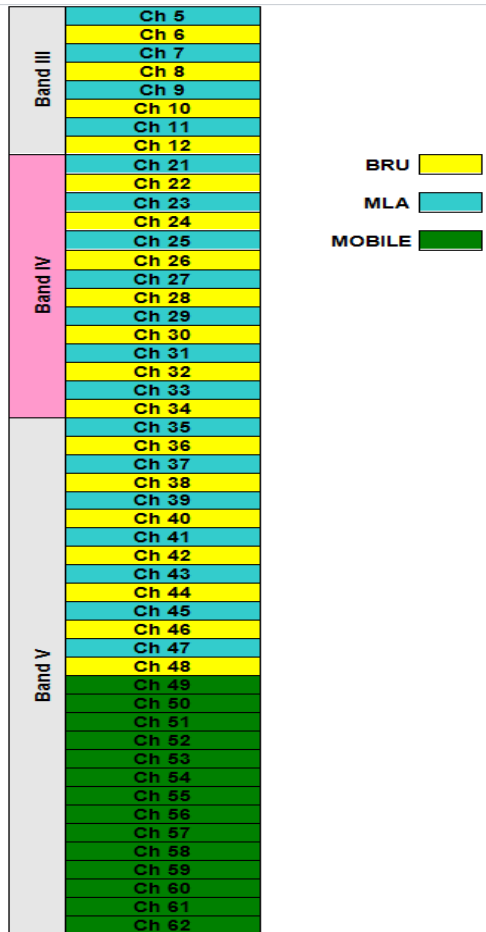
a) FM Broadcasting (87.5 - 108.0 MHz)

Frequency (MHz)	Station
89.1	Al-Quran
90.7 / 98.7	Kristal FM
91.4 / 91.0	Pelangi FM
92.3 / 93.8	National FM
93.3 / 94.9	Nur Islam FM
94.1 / 97.7	Harmoni FM
95.9 / 96.9	Pilihan FM

b) Digital Terrestrial Broadcasting

The table below illustrates the existing agreement between Brunei Darussalam and Malaysia for the channel allocations for Digital Terrestrial Broadcasting and Wireless/Mobile Communication Services in the VHF Band III and UHF Bands IV/V.

AITI-MCMC AGREEMENT ON DIGITAL SWITCHOVER



7.5 Short Range Devices

- 7.5.1 The term “Short Range Device” (SRD) is intended to cover radio transceivers that have a localised area of operation due to their low output power (i.e. generally 100 mW or less). These include radio-communication equipment such as radio microphones, cordless phones, remote control devices, etc.
- 7.5.2 SRD could be used virtually everywhere and they operate on a wide range of frequencies. Such devices are, however, permitted to operate on a non-interference and non-protection basis. That is, they must share-use the frequencies with other radio applications and they must not cause interference to other radiocommunication networks duly authorised by AITI.
- 7.5.3 Spectrum allocations for SRD which are based on ITU-R Radio Regulations, the availability of equipment in the market and any international standards are illustrated in the table below:-

Technical Regulations for Short Range Radiocommunication Devices					
No	Typical Application Types	Authorised Frequency Bands / Frequencies	Maximum Field Strength / RF Output power	Transmitter Spurious Emissions	Applicable Radio Standards
1	CB Walkie Talkie Transceivers	26.96 – 27.28 MHz	≤ 500 mW (e.r.p.)		
2	Multi-channel Walkie Talkie Transceivers	446.00 – 446.10 MHz 477.00 – 477.25 MHz	≤ 500 mW (e.r.p.)		
3	Induction loop system / RFID	16 – 150 kHz	≤ 66 dB μ A/m @ 3m	≥ 32 dB below carrier at 3 m or EN 300 224-1	EN 300 224-1
		150 – 5000 kHz	≤ 13.5 dB μ A/m @ 10m		
		6765 – 6795 kHz	≤ 42 dB μ A/m @ 10m		
		7400 – 8800 kHz	≤ 9 dB μ A/m @ 10m		
		13.553 – 13.567 MHz	≤ 94 dB μ V/m @ 10m		
4	Radio detection, alarm system	0.016 – 0.150 MHz	≤ 100 dB μ V/m @ 3m	≥ 32 dB below carrier at 3 m or EN 300 330-1	FCC Part 15 or EN 300 330-1
5		13.553 – 13.567 MHz	≤ 94 dB μ V/m @ 10m		
6		868.10 – 869.00 MHz	≤ 65 dB μ V/m @ 10m		
7		10.50 – 10.55 GHz	≤ 117 dB μ V/m @ 10m		
8		26.96 – 27.28 MHz 146.35 – 146.50 MHz 240.15 – 240.30 MHz 300.00 – 300.30 MHz 312.00 – 316.00 MHz	≤ 100 mW (e.r.p.)	≥ 32 dB below carrier at 3 m or EN 300 220-1	FCC Part 15 or EN 300 220-1

Technical Regulations for Short Range Radiocommunication Devices					
No	Typical Application Types	Authorised Frequency Bands / Frequencies	Maximum Field Strength / RF Output power	Transmitter Spurious Emissions	Applicable Radio Standards
		444.40 – 444.80 MHz			
9	Wireless microphone	0.51 – 1.60 MHz	≤ 57 dB μ V/m @ 3m		
10		40.66 – 40.70 MHz	≤ 500 mW (e.r.p.)		
11		88.00 – 108.00 MHz	≤ 60 dB μ V/m @ 10m		
12		180.00 – 200.00 MHz	≤ 122 dB μ V/m @ 10m		
13		470.00 – 742.00 MHz	≤ 10 mW (e.r.p.)		
14	Remote controls of garage door, cameras, toys and miscellaneous devices	26.96 – 27.28 MHz 34.995 – 35.225 MHz	≤ 100 mW (e.r.p.)	≥ 32 dB below carrier at 3 m or EN 300 220-1	FCC Part 15 or EN 300 220-1
		40.665 – 40.695 MHz 72.13 – 72.21 MHz	≤ 100 mW (e.r.p.)		
		40.770 – 40.830 MHz	≤ 500 mW (e.r.p.)		
15	Remote controls of aircraft and glider models, telemetry, detection and alarm systems	26.96 – 27.28 MHz 29.70 – 30.00 MHz	≤ 100 mW (e.r.p.)		
16	Medical and Biological telemetry	40.50 – 41.00 MHz	≤ 0.01 mW (e.r.p.)	≥ 32 dB below carrier at 3 m or	FCC Part 15 or EN 300 220-1

Technical Regulations for Short Range Radiocommunication Devices					
No	Typical Application Types	Authorised Frequency Bands / Frequencies	Maximum Field Strength / RF Output power	Transmitter Spurious Emissions	Applicable Radio Standards
		216.00 – 217.00 MHz	> 25 μ W to \leq 100 mW (e.r.p.)	EN 300 220-1	
		454.00 – 454.50 MHz	\leq 2 mW (e.r.p.)		
		1427.00 – 1432.00 MHz	\leq 100 μ W (e.r.p.)		
17	Wireless modem, data communication system	72.080 MHz 72.200 MHz 72.400 MHz 72.600 MHz	\leq 100 mW (e.r.p.)	\geq 43 dB below carrier over 100 kHz to 2000 MHz; EN 300 390-1 or EN 300 113-1	EN 300 390-1 or EN 300 113-1
18	Short range radar systems such as automatic cruise control and collision warning systems for vehicle	76 – 77 GHz	\leq 37 dBm (e.r.p.) when vehicle is in motion \leq 23.5 dBm (e.r.p.) when vehicle is stationary	FCC Part 15 § 15.253 (c) or EN 301 091	FCC Part 15 or EN 301 091
19	Radio telemetry, telecommand system	433.05 – 434.79 MHz	\leq 10 mW (e.r.p.)	\geq 32 dB below carrier at 3 m or EN 300 220-1	FCC Part 15 or EN 300 220-1
20		26.96 – 27.28 MHz 29.70 – 30.00 MHz	\leq 100 mW (e.r.p.)		

Technical Regulations for Short Range Radiocommunication Devices					
No	Typical Application Types	Authorised Frequency Bands / Frequencies	Maximum Field Strength / RF Output power	Transmitter Spurious Emissions	Applicable Radio Standards
21	Radio Telemetry, Telecommand, RFID system	866 – 869 MHz 923 – 925 MHz	≤ 500 mW (e.r.p.)	≥ 32 dB below carrier at 3 m; EN 300 220-1 or EN 302 208	FCC Part 15 ; EN 300 220-1 or EN 302 208
22	Radio Frequency Identification (RFID) systems	923 – 925 MHz	> 500 mW (e.r.p.) ≤ 2000 mW (e.r.p.)	≥ 32 dB below carrier at 3 m; EN 300 220-1 or EN 302 208	FCC Part 15 ; EN 300 220-1 or EN 302 208
23	Wireless video transmitter and other SRD applications	2.4000 – 2.4835 GHz	≤ 100 mW (e.i.r.p.)	FCC Part 15 § 15.209; § 15.249 (d) or EN 300 440-1	FCC Part 15 or EN 300 440-1
24		10.50 – 10.55 GHz	≤ 117 dB μ V/m @ 10m		
25		24.00 – 24.25 GHz	≤ 100 mW (e.i.r.p.)		
26	Bluetooth	2.4000 – 2.4835 GHz	≤ 100 mW (e.i.r.p.)	FCC Part 15 § 15.209; or EN 300 328	FCC Part 15 § 15.247 or EN 300 328
27	Wireless LAN only	2.4000 – 2.4835 GHz	≤ 200 mW (e.i.r.p.)		

Technical Regulations for Short Range Radiocommunication Devices					
No	Typical Application Types	Authorised Frequency Bands / Frequencies	Maximum Field Strength / RF Output power	Transmitter Spurious Emissions	Applicable Radio Standards
28	SRD applications	5.725 – 5.850 GHz	≤ 100 mW (e.i.r.p.)	FCC Part 15 § 15.209	FCC Part 15 § 15.247 or 15.407
29	Wireless LAN	5.725 – 5.850 GHz	≤ 1000 mW (e.i.r.p.)		
30		5.725 – 5.850 GHz	> 1000 mW (e.i.r.p.) ≤ 4000 mW (e.i.r.p.)		
31	Wireless LAN	5.150 – 5.350 GHz	> 100 mW (e.i.r.p.) ≤ 200 mW (e.i.r.p.)	FCC Part 15 § 15.407 (b) or EN 301 893	FCC Part 15 § 15.407 or EN 301 893
32	Wireless LAN	5.150 – 5.350 GHz	≤ 100 mW (e.i.r.p.)	FCC Part 15 § 15.407 (b) or EN 301 893	FCC Part 15 § 15.407 or EN 301 893
33	Baby Monitor Devices	1880.00 – 1900.00 MHz	≤ 250 mW (e.i.r.p.)		

Technical Regulations for Short Range Radiocommunication Devices					
No	Typical Application Types	Authorised Frequency Bands / Frequencies	Maximum Field Strength / RF Output power	Transmitter Spurious Emissions	Applicable Radio Standards
35	Cordless Telephone or Wireless PABX	1.605 – 1.800 MHz	$\leq 94 \text{ dB}\mu\text{V/m @ 3m}$		
		40.00 – 40.50 MHz	$\leq 57 \text{ dB}\mu\text{V/m @ 3m}$		
		46.50 – 47.00 MHz	$\leq 90 \text{ dB}\mu\text{V/m @ 3m}$		
		49.50 – 50.00 MHz	$\leq 90 \text{ dB}\mu\text{V/m @ 3m}$		
		1880.00 – 1900.00 MHz	$\leq 250 \text{ mW (e.i.r.p.)}$		

7.6 ISM Bands

7.6.1 The industrial, scientific and medical radio bands are defined by ITU-R in Article 5 footnotes 5.138, 5.150 and 5.280 of the Radio Regulations. The use of ISM applications shall be subject to special authorisation by the administration concerned, in agreement with other administrations whose radiocommunication services might be affected.

7.6.2 These bands may also be used for communications devices; however these devices must tolerate any interference from ISM equipments. These bands are typically given over to uses intended for unlicensed operation, since unlicensed operations are typically tolerant to interference.

7.6.3 The table below illustrates the ISM bands:-

Frequency Range (MHz)	Centre Frequency	Remarks
6.765–6.795	6.780 MHz	Subject to local acceptance
13.553–13.567	13.560 MHz	
26.957–27.283	27.120 MHz	
40.66–40.70	40.68 MHz	
433.05–434.79	433.92 MHz	Region 1 only
902–928	915 MHz	Region 2 only
2.400–2.500 GHz	2.450 GHz	
5.725–5.875 GHz	5.800 GHz	
24–24.25 GHz	24.125 GHz	
61–61.5 GHz	61.25 GHz	Subject to local acceptance
122–123 GHz	122.5 GHz	Subject to local acceptance
244–246 GHz	245 GHz	Subject to local acceptance

7.6.4 The table below illustrates the power requirement in a few of the ISM bands:

WLAN			UHF RFIDs		
Frequency Allocations (GHz)	Power Limits (W)	Licence Required	Frequency Allocations (MHz)	Power Limits (W)	Licence Required
2.400 – 2.4835	0.200	No	866 – 869	500	No
5.150 – 5.350	0.200	No	923 – 925	500	No
5.725 – 5.850	1	No		2	Yes
5.725 – 5.850	4	Yes			

7.7 Amateur Radio

7.7.1 The table below illustrates the frequency bands used for Amateur Radio in Brunei Darussalam:-

Frequency Band (MHz)	Max Power Output (Watts)	Remarks
1.800 – 2.000	10	
3.500 – 3.900	150	
7.000- 7.100	150	
10.100 – 10.150	150	Secondary Basis
14.000 – 14.350	150	
18.068 – 18.168	150	
21.000 – 21.450	150	
24.890 – 24.990	150	
28.000 – 29.700	150	
50.000 – 54.000	150	
144.00 – 146.00	150	
146.0125 – 148.000	150	

7.8 Frequencies and Channelling Arrangements in the High-Frequency Bands for the Maritime Mobile Service

PART A – Table of subdivided bands (WRC-07)

In the Table, where appropriate¹, the assignable frequencies in a given band for each usage are:

- indicated by the lowest and highest frequency, in heavy type, assigned in that band;
- regularly spaced, the number of assignable frequencies (*f.*) and the spacing in kHz being indicated in italics.

Table of frequencies (kHz) to be used in the band between 4 000 kHz and 27 500 kHz allocated exclusively to the maritime mobile service

Band (MHz)	4	6	8	12	16	18/19	22	25/26
Limits (kHz)	4 063	6 200	8 195	12 230	16 360	18 780	22 000	25 070
Frequencies assignable to ship stations for oceanographic data transmission <i>c)</i>	4 063.3 to 4 064.8 <i>6 f.</i> <i>0.3 kHz</i>							
Limits (kHz)	4 065	6 200	8 195	12 230	16 360	18 780	22 000	25 070
Frequencies assignable to ship stations for telephony, duplex operation <i>a) i)</i>	4 066.4 to 4 144.4 <i>27 f.</i> <i>3 kHz</i>	6 201.4 to 6 222.4 <i>8 f.</i> <i>3 kHz</i>	8 196.4 to 8 292.4 <i>33 f.</i> <i>3 kHz</i>	12 231.4 to 12 351.4 <i>41 f.</i> <i>3 kHz</i>	16 361.4 to 16 526.4 <i>56 f.</i> <i>3 kHz</i>	18 781.4 to 18 823.4 <i>15 f.</i> <i>3 kHz</i>	22 001.4 to 22 157.4 <i>53 f.</i> <i>3 kHz</i>	25 071.4 to 25 098.4 <i>10 f.</i> <i>3 kHz</i>
Limits (kHz)	4 146	6 224	8 294	12 353	16 528	18 825	22 159	25 100

¹ Within the non-shaded boxes.

**Table of frequencies (kHz) to be used in the band between 4 000 kHz and 27 500 kHz
allocated exclusively to the maritime mobile service (continued)**

Band (MHz)	4	6	8	12	16	18/19	22	25/26
Limits (kHz)	4 146	6 224	8 294	12 353	16 528	18 825	22 159	25 100
Frequencies assignable to ship stations and coast stations for telephony, simplex operation <i>a)</i>	4 147.4 to 4 150.4 <i>2 f.</i> <i>3 kHz</i>	6 225.4 to 6 231.4 <i>3 f.</i> <i>3 kHz</i>	8 295.4 to 8 298.4 <i>2 f.</i> <i>3 kHz</i>	12 354.4 to 12 366.4 <i>5 f.</i> <i>3 kHz</i>	16 529.4 to 16 547.4 <i>7 f.</i> <i>3 kHz</i>	18 826.4 to 18 844.4 <i>7 f.</i> <i>3 kHz</i>	22 160.4 to 22 178.4 <i>7 f.</i> <i>3 kHz</i>	25 101.4 to 25 119.4 <i>7 f.</i> <i>3 kHz</i>
Limits (kHz)	4 152	6 233	8 300	12 368	16 549	18 846	22 180	25 121
Frequencies assignable to ship stations for wide-band telegraphy, facsimile and special transmission systems	4 154 to 4 170 <i>5 f.</i> <i>4 kHz</i>	6 235 to 6 259 <i>7 f.</i> <i>4 kHz</i>	8 302 to 8 338 <i>10 f.</i> <i>4 kHz</i>	12 370 to 12 418 <i>13 f.</i> <i>4 kHz</i>	16 551 to 16 615 <i>17 f.</i> <i>4 kHz</i>	18 848 to 18 868 <i>6 f.</i> <i>4 kHz</i>	22 182 to 22 238 <i>15 f.</i> <i>4 kHz</i>	25 123 to 25 159 <i>10 f.</i> <i>4 kHz</i>
Limits (kHz)	4 172	6 261	8 340	12 420	16 617	18 870	22 240	25 161.25
Frequencies assignable to ship stations for oceanographic data transmission <i>c)</i>		6 261.3 to 6 262.5 <i>5 f.</i> <i>0.3 kHz</i>	8 340.3 to 8 341.5 <i>5 f.</i> <i>0.3 kHz</i>	12 420.3 to 12 421.5 <i>5 f.</i> <i>0.3 kHz</i>	16 617.3 to 16 618.5 <i>5 f.</i> <i>0.3 kHz</i>		22 240.3 to 22 241.5 <i>5 f.</i> <i>0.3 kHz</i>	
Limits (kHz)	4 172	6 262.75	8 341.75	12 421.75	16 618.75	18 870	22 241.75	25 161.25
Frequencies (paired) assignable to ship stations for narrow-band direct-printing (NBDP) telegraphy and data transmission systems at speeds not exceeding 100 Bd for FSK and 200 Bd for PSK <i>d) j) m) p)</i>	4 172.5 to 4 181.5 <i>18 f.</i> <i>0.5 kHz</i>	6 263 to 6 275.5 <i>25 f.</i> <i>0.5 kHz</i>						

**Table of frequencies (kHz) to be used in the band between 4 000 kHz and 27 500 kHz
allocated exclusively to the maritime mobile service (continued)**

Band (MHz)	4	6	8	12	16	18/19	22	25/26
Limits (kHz)	4 181.75	6 275.75	8 341.75	12 421.75	16 618.75	18 870	22 241.75	25 161.25
Calling frequencies assignable to ship stations for A1A or A1B Morse telegraphy g) p)								
Frequencies (paired) assignable to ship stations for NBDP telegraphy and data transmission systems at speeds not exceeding 100 Bd for FSK and 200 Bd for PSK d) m) p)		6 281 to 6 284.5 8 f. 0.5 kHz						
Limits (kHz)	4 202.25	6 300.25	8 396.25	12 559.75	16 784.75	18 892.75	22 351.75	25 192.75
Frequencies (non paired) assignable to ship stations for NBDP telegraphy and data transmission systems at speeds not exceeding 100 Bd for FSK and 200 Bd for PSK and for A1A or A1B Morse telegraphy (working) b) p)	4 202.5 to 4 207 10 f. 0.5 kHz	6 300.5 to 6 311.5 23 f. 0.5 kHz	8 396.5 to 8 414 36 f. 0.5 kHz	12 560 to 12 576.5 34 f. 0.5 kHz	16 785 to 16 804 39 f. 0.5 kHz	18 893 to 18 898 11 f. 0.5 kHz	22 352 to 22 374 45 f. 0.5 kHz	25 193 to 25 208 31 f. 0.5 kHz
Limits (kHz)	4 207.25	6 311.75	8 414.25	12 576.75	16 804.25	18 898.25	22 374.25	25 208.25
Frequencies assignable to ship stations for digital selective calling k) l)	4 207.5 to 4 209 4 f. 0.5 kHz	6 312 to 6 313.5 4 f. 0.5 kHz	8 414.5 to 8 416 4 f. 0.5 kHz	12 577 to 12 578.5 4 f. 0.5 kHz	16 804.5 to 16 806 4 f. 0.5 kHz	18 898.5 to 18 899.5 3 f. 0.5 kHz	22 374.5 to 22 375.5 3 f. 0.5 kHz	25 208.5 to 25 209.5 3 f. 0.5 kHz
Limits (kHz)	4 209.25	6 313.75	8 416.25	12 578.75	16 806.25	18 899.75	22 375.75	25 210

**Table of frequencies (kHz) to be used in the band between 4 000 kHz and 27 500 kHz
allocated exclusively to the maritime mobile service (continued)**

Band (MHz)	4	6	8	12	16	18/19	22	25/26
Limits (kHz)	4 209.25	6 313.75	8 416.25	12 578.75	16 806.25	19 680.25	22 375.75	26 100.25
Frequencies (paired) assignable to coast stations for NBDP and data transmission systems, at speeds not exceeding 100 Bd for FSK and 200 Bd for PSK <i>d) n) o) p)</i>	4 209.5 to 4 219 <i>20 f.</i> <i>0.5 kHz</i>	6 314 to 6 330.5 <i>34 f.</i> <i>0.5 kHz</i>	8 416.5 to 8 436 <i>40 f.</i> <i>0.5 kHz</i>	12 579 to 12 656.5 <i>156 f.</i> <i>0.5 kHz</i>	16 806.5 to 16 902.5 <i>193 f.</i> <i>0.5 kHz</i>	19 680.5 to 19 703 <i>46 f.</i> <i>0.5 kHz</i>	22 376 to 22 443.5 <i>136 f.</i> <i>0.5 kHz</i>	26 100.5 to 26 120.5 <i>41 f.</i> <i>0.5 kHz</i>
Limits (kHz)	4 219.25	6 330.75	8 436.25	12 656.75	16 902.75	19 703.25	22 443.75	26 120.75
Frequencies assignable to coast stations for digital selective calling <i>l)</i>	4 219.5 to 4 220.5 <i>3 f.</i> <i>0.5 kHz</i>	6 331 to 6 332 <i>3 f.</i> <i>0.5 kHz</i>	8 436.5 to 8 437.5 <i>3 f.</i> <i>0.5 kHz</i>	12 657 to 12 658 <i>3 f.</i> <i>0.5 kHz</i>	16 903 to 16 904 <i>3 f.</i> <i>0.5 kHz</i>	19 703.5 to 19 704.5 <i>3 f.</i> <i>0.5 kHz</i>	22 444 to 22 445 <i>3 f.</i> <i>0.5 kHz</i>	26 121 to 26 122 <i>3 f.</i> <i>0.5 kHz</i>
Limits (kHz)	4 221	6 332.5	8 438	12 658.5	16 904.5	19 705	22 445.5	26 122.5
Frequencies assignable to coast stations for wide-band and A1A or A1B Morse telegraphy, facsimile, special and data transmission systems and direct-printing telegraphy systems								
Limits (kHz)	4 351	6 501	8 707	13 077	17 242	19 755	22 696	26 145

**Table of frequencies (kHz) to be used in the band between 4 000 kHz and 27 500 kHz
allocated exclusively to the maritime mobile service (end)**

Band (MHz)	4	6	8	12	16	18/19	22	25/26
Limits (kHz)	4 351	6 501	8 707	13 077	17 242	19 755	22 696	26 145
Frequencies assignable to coast stations for telephony, duplex operation <i>a)</i>	4 352.4 to 4 436.4 <i>29 f.</i> 3 kHz	6 502.4 to 6 523.4 <i>8 f.</i> 3 kHz	8 708.4 to 8 813.4 <i>36 f.</i> 3 kHz	13 078.4 to 13 198.4 <i>41 f.</i> 3 kHz	17 243.4 to 17 408.4 <i>56 f.</i> 3 kHz	19 756.4 to 19 798.4 <i>15 f.</i> 3 kHz	22 697.4 to 22 853.4 <i>53 f.</i> 3 kHz	26 146.4 to 26 173.4 <i>10 f.</i> 3 kHz
Limits (kHz)	4 438	6 525	8 815	13 200	17 410	19 800	22 855	26 175

- a)* See Part B, Section I.
- b)* See Part B, Section III.
- c)* The frequency bands may also be used by buoy stations for oceanographic data transmission and by stations interrogating these buoys.
- d)* See Part B, Section II.
- e)* In the frequency bands to be used by ship stations for A1A Morse telegraphy working at speeds not exceeding 40 Bd, administrations may assign additional frequencies interleaved between the assignable frequencies. Any frequencies so assigned shall be multiples of 100 Hz. Administrations shall ensure a uniform distribution of such assignments within the bands.
- f)* See Part B, Section V.
- g)* See Part B, Section IV.
- h)* (SUP – WRC-07)
- i)* For the use of the carrier frequencies 4 125 kHz, 6 215 kHz, 8 291 kHz, 12 290 kHz and 16 420 kHz in these sub-bands by ship and coast stations for distress and safety purposes, by single-sideband radiotelephony, see Article **31**. (WRC-07)
- j)* For the use of the frequencies 4 177.5 kHz, 6 268 kHz, 8 376.5 kHz, 12 520 kHz and 16 695 kHz in these sub-bands by ship and coast stations for distress and safety purposes, by NBDP telegraphy, see Article **31**.
- k)* For the use of the frequencies 4 207.5 kHz, 6 312 kHz, 8 414.5 kHz, 12 577 kHz and 16 804.5 kHz in these sub-bands by ship and coast stations for distress and safety purposes, by digital selective calling, see Article **31**.
- l)* The following paired frequencies (for ship/coast stations) 4 208/4 219.5 kHz, 6 312.5/6 331 kHz, 8 415/ 8 436.5 kHz, 12 577.5/12 657 kHz, 16 805/16 903 kHz, 18 898.5/19 703.5 kHz, 22 374.5/22 444 kHz and 25 208.5/26 121 kHz are the first choice international frequencies for digital selective calling (see Article **54**).
- m)* Frequencies from these frequency bands may also be used for A1A or A1B Morse telegraphy (working) (see Part B, Section II).

- n) 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 exclusive international frequencies for the transmission of maritime safety information (MSI) (see Articles **31** and **33**).
- o) The frequency 4 209.5 kHz is an exclusive international frequency for the transmission of NAVTEX type information (see Articles **31** and **33**).
- p) These sub-bands, except the frequencies referred to in Notes *j*), *n*) and *o*), may be used for the initial testing and the possible future introduction within the maritime mobile service of new digital technologies. Stations using these sub-bands for this purpose shall not cause harmful interference to, and shall not claim protection from, other stations operating in accordance with Article 5.

PART B – Channelling arrangements (WRC-07)

Section I – Radiotelephony

1 Radiotelephone channelling arrangements for the frequencies to be used by coast and ship stations in the bands allocated to the maritime mobile service are indicated in the following Sub-Sections:

- Sub-Section A* – Table of single-sideband transmitting frequencies (kHz) for duplex (two-frequency) operation;
- Sub-Section B* – Table of single-sideband transmitting frequencies (kHz) for simplex (single-frequency) operation and for intership cross-band (two-frequency) operation;
- Sub-Section C-1* – Table of recommended single-sideband transmitting frequencies (kHz) for ship stations in the band 4 000-4 063 kHz shared with the fixed service;
- Sub-Section C-2* – Table of recommended single-sideband transmitting frequencies (kHz) for ship and coast stations in the band 8 100-8 195 kHz shared with the fixed service.

2 The technical characteristics for single-sideband transmitters are specified in Recommendation ITU-R M.1173.

3 One or more series of frequencies from Sub-Section A (with the exception of those frequencies mentioned in § 5 below) may be assigned to each coast station, which uses these frequencies associated in pairs (see No. **52.226**); each pair consists of a transmitting and a receiving frequency. The series shall be selected with due regard to the areas served and so as to avoid, as far as possible, harmful interference between the services of different coast stations.

4 The frequencies in Sub-Section B are provided for worldwide common use by ships of all categories, according to traffic requirements, for ship transmissions to coast stations and for intership communication. They are also authorized for worldwide common use for transmissions by coast stations (simplex operation) provided the peak envelope power does not exceed 1 kW.

5 The following frequencies in Sub-Section A are allocated for calling purposes:

- Channel No. 421 in the 4 MHz band;
- Channel No. 606 in the 6 MHz band;
- Channel No. 821 in the 8 MHz band;

- Channel No. 1221 in the 12 MHz band;
- Channel No. 1621 in the 16 MHz band;
- Channel No. 1806 in the 18 MHz band;
- Channel No. 2221 in the 22 MHz band;
- Channel No. 2510 in the 25 MHz band.

Calling on the carrier frequencies 12 290 kHz and 16 420 kHz shall be permitted only to and from rescue coordination centres (see No. **30.6.1**), subject to the safeguards of Resolution **352 (WRC-03)** (see Nos. **52.221A** and **52.222A**).

The remaining frequencies in Sub-Sections A, B, C-1 and C-2 are working frequencies. (WRC-03)

5A For the use of the carrier frequencies:

- 4 125 kHz (Channel No. 421);
- 6 215 kHz (Channel No. 606);
- 8 291 kHz (Channel No. 833);
- 12 290 kHz (Channel No. 1221);
- 16 420 kHz (Channel No. 1621);

in Sub-Section A, by coast and ship stations for distress and safety purposes, see Article **31**. (WRC-07)

6 *a)* Maritime radiotelephone stations using single-sideband emissions in the bands between 4 000 kHz and 27 500 kHz exclusively allocated to the maritime mobile service shall operate only on the carrier frequencies shown in the Sub-Sections A and B and, in the case of analogue radiotelephony, shall be in conformity with the technical characteristics specified in Recommendation ITU-R M.1173.

b) Ship stations, when using frequencies for single-sideband emissions in the bands 4 000-4 063 kHz and ship and coast stations, when using frequencies for single-sideband emissions in the band 8 100-8 195 kHz should operate on the carrier frequencies indicated in Sub-Sections C-1 and C-2 respectively. In the case of analogue radiotelephony technical characteristics of the equipment shall be those specified in Recommendation ITU-R M.1173.

c) Stations, when employing the single-sideband mode for analogue radiotelephony, shall use only class J3E emissions. For digital communications, class J2D emissions shall be used. (WRC-03)

7 The channelling plan established in Sub-Section C-2 does not prejudice the rights of administrations to establish, and to notify assignments to stations in the maritime mobile service other than those using radiotelephony in the band 8 100-8 195 kHz, in conformity with the relevant provisions of these Regulations.

8 (SUP - WRC-03)

Sub-Section A

**Table of single-sideband transmitting frequencies (kHz) for duplex
(two-frequency) operation**

Channel No.	4 MHz band			
	Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
401	4 357	4 358.4	4 065	4 066.4
402	4 360	4 361.4	4 068	4 069.4
403	4 363	4 364.4	4 071	4 072.4
404	4 366	4 367.4	4 074	4 075.4
405	4 369	4 370.4	4 077	4 078.4
406	4 372	4 373.4	4 080	4 081.4
407	4 375	4 376.4	4 083	4 084.4
408	4 378	4 379.4	4 086	4 087.4
409	4 381	4 382.4	4 089	4 090.4
410	4 384	4 385.4	4 092	4 093.4
411	4 387	4 388.4	4 095	4 096.4
412	4 390	4 391.4	4 098	4 099.4
413	4 393	4 394.4	4 101	4 102.4
414	4 396	4 397.4	4 104	4 105.4
415	4 399	4 400.4	4 107	4 108.4
416	4 402	4 403.4	4 110	4 111.4
417	4 405	4 406.4	4 113	4 114.4
418	4 408	4 409.4	4 116	4 117.4
419	4 411	4 412.4	4 119	4 120.4
420	4 414	4 415.4	4 122	4 123.4
421	4 417 *	4 418.4 *	4 125 * 4	4 126.4 *
422	4 420	4 421.4	4 128	4 129.4
423	4 423	4 424.4	4 131	4 132.4
424	4 426	4 427.4	4 134	4 135.4
425	4 429	4 430.4	4 137	4 138.4
426	4 432	4 433.4	4 140	4 141.4
427	4 435	4 436.4	4 143	4 144.4
428 1, 3	4 351	4 352.4	—	—
429 1, 3	4 354	4 355.4	—	—

Channel No.	6 MHz band			
	Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
601	6 501	6 502.4	6 200	6 201.4
602	6 504	6 505.4	6 203	6 204.4
603	6 507	6 508.4	6 206	6 207.4
604	6 510	6 511.4	6 209	6 210.4
605	6 513	6 514.4	6 212	6 213.4
606	6 516 *	6 517.4 *	6 215 * 5	6 216.4 *
607	6 519	6 520.4	6 218	6 219.4
608	6 522	6 523.4	6 221	6 222.4

Channel No.	8 MHz band			
	Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
801	8 719	8 720.4	8 195	8 196.4
802	8 722	8 723.4	8 198	8 199.4
803	8 725	8 726.4	8 201	8 202.4
804	8 728	8 729.4	8 204	8 205.4
805	8 731	8 732.4	8 207	8 208.4
806	8 734	8 735.4	8 210	8 211.4
807	8 737	8 738.4	8 213	8 214.4
808	8 740	8 741.4	8 216	8 217.4
809	8 743	8 744.4	8 219	8 220.4
810	8 746	8 747.4	8 222	8 223.4
811	8 749	8 750.4	8 225	8 226.4
812	8 752	8 753.4	8 228	8 229.4
813	8 755	8 756.4	8 231	8 232.4
814	8 758	8 759.4	8 234	8 235.4
815	8 761	8 762.4	8 237	8 238.4
816	8 764	8 765.4	8 240	8 241.4
817	8 767	8 768.4	8 243	8 244.4
818	8 770	8 771.4	8 246	8 247.4
819	8 773	8 774.4	8 249	8 250.4
820	8 776	8 777.4	8 252	8 253.4
821	8 779 *	8 780.4 *	8 255 *	8 256.4 *
822	8 782	8 783.4	8 258	8 259.4
823	8 785	8 786.4	8 261	8 262.4
824	8 788	8 789.4	8 264	8 265.4
825	8 791	8 792.4	8 267	8 268.4
826	8 794	8 795.4	8 270	8 271.4
827	8 797	8 798.4	8 273	8 274.4
828	8 800	8 801.4	8 276	8 277.4
829	8 803	8 804.4	8 279	8 280.4
830	8 806	8 807.4	8 282	8 283.4
831	8 809	8 810.4	8 285	8 286.4
832	8 812	8 813.4	8 288	8 289.4
833	8 291 ⁷	8 292.4	8 291 ⁷	8 292.4
834 3, 6	8 707	8 708.4	–	–
835 3, 6	8 710	8 711.4	–	–
836 3, 6	8 713	8 714.4	–	–
837 3, 6	8 716	8 717.4	–	–

Channel No.	12 MHz band			
	Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
1201	13 077	13 078.4	12 230	12 231.4
1202	13 080	13 081.4	12 233	12 234.4
1203	13 083	13 084.4	12 236	12 237.4
1204	13 086	13 087.4	12 239	12 240.4
1205	13 089	13 090.4	12 242	12 243.4
1206	13 092	13 093.4	12 245	12 246.4
1207	13 095	13 096.4	12 248	12 249.4
1208	13 098	13 099.4	12 251	12 252.4
1209	13 101	13 102.4	12 254	12 255.4
1210	13 104	13 105.4	12 257	12 258.4
1211	13 107	13 108.4	12 260	12 261.4
1212	13 110	13 111.4	12 263	12 264.4
1213	13 113	13 114.4	12 266	12 267.4
1214	13 116	13 117.4	12 269	12 270.4
1215	13 119	13 120.4	12 272	12 273.4
1216	13 122	13 123.4	12 275	12 276.4
1217	13 125	13 126.4	12 278	12 279.4
1218	13 128	13 129.4	12 281	12 282.4
1219	13 131	13 132.4	12 284	12 285.4
1220	13 134	13 135.4	12 287	12 288.4
1221	13 137 *	13 138.4 *	12 290 * 8	12 291.4 *
1222	13 140	13 141.4	12 293	12 294.4
1223	13 143	13 144.4	12 296	12 297.4
1224	13 146	13 147.4	12 299	12 300.4
1225	13 149	13 150.4	12 302	12 303.4
1226	13 152	13 153.4	12 305	12 306.4
1227	13 155	13 156.4	12 308	12 309.4
1228	13 158	13 159.4	12 311	12 312.4
1229	13 161	13 162.4	12 314	12 315.4
1230	13 164	13 165.4	12 317	12 318.4
1231	13 167	13 168.4	12 320	12 321.4

	12 MHz band (end)			
Channel No.	Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
1232	13 170	13 171.4	12 323	12 324.4
1233	13 173	13 174.4	12 326	12 327.4
1234	13 176	13 177.4	12 329	12 330.4
1235	13 179	13 180.4	12 332	12 333.4
1236	13 182	13 183.4	12 335	12 336.4
1237	13 185	13 186.4	12 338	12 339.4
1238	13 188	13 189.4	12 341	12 342.4
1239	13 191	13 192.4	12 344	12 345.4
1240	13 194	13 195.4	12 347	12 348.4
1241	13 197	13 198.4	12 350	12 351.4

	16 MHz band			
Channel No.	Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
1601	17 242	17 243.4	16 360	16 361.4
1602	17 245	17 246.4	16 363	16 364.4
1603	17 248	17 249.4	16 366	16 367.4
1604	17 251	17 252.4	16 369	16 370.4
1605	17 254	17 255.4	16 372	16 373.4
1606	17 257	17 258.4	16 375	16 376.4
1607	17 260	17 261.4	16 378	16 379.4
1608	17 263	17 264.4	16 381	16 382.4
1609	17 266	17 267.4	16 384	16 385.4
1610	17 269	17 270.4	16 387	16 388.4
1611	17 272	17 273.4	16 390	16 391.4
1612	17 275	17 276.4	16 393	16 394.4
1613	17 278	17 279.4	16 396	16 397.4
1614	17 281	17 282.4	16 399	16 400.4
1615	17 284	17 285.4	16 402	16 403.4
1616	17 287	17 288.4	16 405	16 406.4
1617	17 290	17 291.4	16 408	16 409.4
1618	17 293	17 294.4	16 411	16 412.4
1619	17 296	17 297.4	16 414	16 415.4
1620	17 299	17 300.4	16 417	16 418.4

Channel No.	16 MHz band (end)			
	Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
1621	17 302 *	17 303.4 *	16 420 * 9	16 421.4 *
1622	17 305	17 306.4	16 423	16 424.4
1623	17 308	17 309.4	16 426	16 427.4
1624	17 311	17 312.4	16 429	16 430.4
1625	17 314	17 315.4	16 432	16 433.4
1626	17 317	17 318.4	16 435	16 436.4
1627	17 320	17 321.4	16 438	16 439.4
1628	17 323	17 324.4	16 441	16 442.4
1629	17 326	17 327.4	16 444	16 445.4
1630	17 329	17 330.4	16 447	16 448.4
1631	17 332	17 333.4	16 450	16 451.4
1632	17 335	17 336.4	16 453	16 454.4
1633	17 338	17 339.4	16 456	16 457.4
1634	17 341	17 342.4	16 459	16 460.4
1635	17 344	17 345.4	16 462	16 463.4
1636	17 347	17 348.4	16 465	16 466.4
1637	17 350	17 351.4	16 468	16 469.4
1638	17 353	17 354.4	16 471	16 472.4
1639	17 356	17 357.4	16 474	16 475.4
1640	17 359	17 360.4	16 477	16 478.4
1641	17 362	17 363.4	16 480	16 481.4
1642	17 365	17 366.4	16 483	16 484.4
1643	17 368	17 369.4	16 486	16 487.4
1644	17 371	17 372.4	16 489	16 490.4
1645	17 374	17 375.4	16 492	16 493.4
1646	17 377	17 378.4	16 495	16 496.4
1647	17 380	17 381.4	16 498	16 499.4
1648	17 383	17 384.4	16 501	16 502.4
1649	17 386	17 387.4	16 504	16 505.4
1650	17 389	17 390.4	16 507	16 508.4
1651	17 392	17 393.4	16 510	16 511.4
1652	17 395	17 396.4	16 513	16 514.4
1653	17 398	17 399.4	16 516	16 517.4
1654	17 401	17 402.4	16 519	16 520.4
1655	17 404	17 405.4	16 522	16 523.4
1656	17 407	17 408.4	16 525	16 526.4

Channel No.	18/19 MHz band			
	Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
1801	19 755	19 756.4	18 780	18 781.4
1802	19 758	19 759.4	18 783	18 784.4
1803	19 761	19 762.4	18 786	18 787.4
1804	19 764	19 765.4	18 789	18 790.4
1805	19 767	19 768.4	18 792	18 793.4
1806	19 770 *	19 771.4 *	18 795 *	18 796.4 *
1807	19 773	19 774.4	18 798	18 799.4
1808	19 776	19 777.4	18 801	18 802.4
1809	19 779	19 780.4	18 804	18 805.4
1810	19 782	19 783.4	18 807	18 808.4
1811	19 785	19 786.4	18 810	18 811.4
1812	19 788	19 789.4	18 813	18 814.4
1813	19 791	19 792.4	18 816	18 817.4
1814	19 794	19 795.4	18 819	18 820.4
1815	19 797	19 798.4	18 822	18 823.4

Channel No.	22 MHz band			
	Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency (continued)
2201	22 696	22 697.4	22 000	22 001.4
2202	22 699	22 700.4	22 003	22 004.4
2203	22 702	22 703.4	22 006	22 007.4
2204	22 705	22 706.4	22 009	22 010.4
2205	22 708	22 709.4	22 012	22 013.4
2206	22 711	22 712.4	22 015	22 016.4
2207	22 714	22 715.4	22 018	22 019.4
2208	22 717	22 718.4	22 021	22 022.4
2209	22 720	22 721.4	22 024	22 025.4
2210	22 723	22 724.4	22 027	22 028.4
2211	22 726	22 727.4	22 030	22 031.4
2212	22 729	22 730.4	22 033	22 034.4
2213	22 732	22 733.4	22 036	22 037.4
2214	22 735	22 736.4	22 039	22 040.4
2215	22 738	22 739.4	22 042	22 043.4
2216	22 741	22 742.4	22 045	22 046.4
2217	22 744	22 745.4	22 048	22 049.4
2218	22 747	22 748.4	22 051	22 052.4
2219	22 750	22 751.4	22 054	22 055.4
2220	22 753	22 754.4	22 057	22 058.4
2221	22 756 *	22 757.4 *	22 060 *	22 061.4 *
2222	22 759	22 760.4	22 063	22 064.4
2223	22 762	22 763.4	22 066	22 067.4
2224	22 765	22 766.4	22 069	22 070.4
2225	22 768	22 769.4	22 072	22 073.4

Channel No.	22 MHz band (end)			
	Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
2226	22 771	22 772.4	22 075	22 076.4
2227	22 774	22 775.4	22 078	22 079.4
2228	22 777	22 778.4	22 081	22 082.4
2229	22 780	22 781.4	22 084	22 085.4
2230	22 783	22 784.4	22 087	22 088.4
2231	22 786	22 787.4	22 090	22 091.4
2232	22 789	22 790.4	22 093	22 094.4
2233	22 792	22 793.4	22 096	22 097.4
2234	22 795	22 796.4	22 099	22 100.4
2235	22 798	22 799.4	22 102	22 103.4
2236	22 801	22 802.4	22 105	22 106.4
2237	22 804	22 805.4	22 108	22 109.4
2238	22 807	22 808.4	22 111	22 112.4
2239	22 810	22 811.4	22 114	22 115.4
2240	22 813	22 814.4	22 117	22 118.4
2241	22 816	22 817.4	22 120	22 121.4
2242	22 819	22 820.4	22 123	22 124.4
2243	22 822	22 823.4	22 126	22 127.4
2244	22 825	22 826.4	22 129	22 130.4
2245	22 828	22 829.4	22 132	22 133.4
2246	22 831	22 832.4	22 135	22 136.4
2247	22 834	22 835.4	22 138	22 139.4
2248	22 837	22 838.4	22 141	22 142.4
2249	22 840	22 841.4	22 144	22 145.4
2250	22 843	22 844.4	22 147	22 148.4
2251	22 846	22 847.4	22 150	22 151.4
2252	22 849	22 850.4	22 153	22 154.4
2253	22 852	22 853.4	22 156	22 157.4

Channel No.	25/26 MHz band			
	Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
2501	26 145	26 146.4	25 070	25 071.4
2502	26 148	26 149.4	25 073	25 074.4
2503	26 151	26 152.4	25 076	25 077.4
2504	26 154	26 155.4	25 079	25 080.4
2505	26 157	26 158.4	25 082	25 083.4
2506	26 160	26 161.4	25 085	25 086.4
2507	26 163	26 164.4	25 088	25 089.4
2508	26 166	26 167.4	25 091	25 092.4
2509	26 169	26 170.4	25 094	25 095.4
2510	26 172 *	26 173.4 *	25 097 *	25 098.4 *

These coast station frequencies may be paired with a ship station frequency from the Table of simplex frequencies for ship and coast stations (see Sub-Section B) or with a frequency from the band 4 000-4 063 kHz (see Sub-Section C-1) to be selected by the administration concerned.

2 (SUP - WRC-2000)

3 These channels may also be used for simplex (single frequency) operation.

4 For the conditions of use of the carrier frequency 4 125 kHz, see Nos. **52.224** and **52.225**, and Appendix **15**.

5 For the conditions of use of the carrier frequency 6 215 kHz, see Appendix **15**. (WRC-07)

6 These coast station frequencies may be paired with a ship station frequency from the Table of simplex frequencies for ship and coast stations (see Sub-Section B) or with a frequency from the band 8 100-8 195 kHz (see Sub-Section C-2) to be selected by the administration concerned.

7 For the conditions of use of the carrier frequency 8 291 kHz, see Appendix **15**.

8 For the conditions of use of the carrier frequency 12 290 kHz, see Nos. **52.221A** and **52.222A** and Appendix **15**. (WRC-2000)

9 For the conditions of use of the carrier frequency 16 420 kHz, see Nos. **52.221A** and **52.222A** and Appendix **15**. (WRC-2000)

* The frequencies followed by an asterisk are calling frequencies (see Nos. **52.221** and **52.222**).

Sub-Section B

Table of single-sideband transmitting frequencies (kHz) for simplex (single-frequency) operation and for intership cross-band (two-frequency) operation

(See § 4 of Section I of this Appendix)

4 MHz band ¹		6 MHz band		8 MHz band ²		12 MHz band ³	
Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
4 146	4 147.4	6 224	6 225.4	8 294	8 295.4	12 353	12 354.4
4 149	4 150.4	6 227	6 228.4	8 297	8 298.4	12 356	12 357.4
		6 230	6 231.4			12 362	12 363.4
						12 365	12 366.4

¹ These frequencies may be used for duplex operation with coast stations operating on Channel Nos. 428 and 429 (see Sub-Section A).

² These frequencies may be used for duplex operation with coast stations operating on Channel Nos. 834 up to and including 837 (see Sub-Section A).

³ For use of frequencies 12 359 kHz and 16 537 kHz, see Nos. **52.221A** and **52.222A**. (WRC-2000)

³ For use of frequencies 12 359 kHz and 16 537 kHz, see Nos. **52.221A** and **52.222A**. (WRC-2000)

16 MHz band ³		18/19 MHz band		22 MHz band		25/26 MHz band	
Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
16 528	16 529.4	18 825	18 826.4	22 159	22 160.4	25 100	25 101.4
16 531	16 532.4	18 828	18 829.4	22 162	22 163.4	25 103	25 104.4
16 534	16 535.4	18 831	18 832.4	22 165	22 166.4	25 106	25 107.4
		18 834	18 835.4	22 168	22 169.4	25 109	25 110.4
16 540	16 541.4	18 837	18 838.4	22 171	22 172.4	25 112	25 113.4
16 543	16 544.4	18 840	18 841.4	22 174	22 175.4	25 115	25 116.4
16 546	16 547.4	18 843	18 844.4	22 177	22 178.4	25 118	25 119.4

Sub-Section C-1

Table of recommended single-sideband transmitting frequencies (kHz) for ship stations in the band 4 000-4 063 kHz shared with the fixed service

The frequencies in this Sub-Section may be used:

- for supplementing ship-to-shore channels for duplex operation in Sub-Section A;
- for intership simplex (single-frequency) and cross-band operation;
- for cross-band working with coast stations on channels in Sub-Section C-2;
- for duplex operation with coast stations working in the band 4 438-4 650 kHz;
- for duplex operation with Channel Nos. 428 and 429.

Channel No.	Carrier frequency	Assigned frequency	Channel No.	Carrier frequency	Assigned frequency
1	4 000*	4 001.4*	12	4 033	4 034.4
2	4 003*	4 004.4*	13	4 036	4 037.4
3	4 006	4 007.4	14	4 039	4 040.4
4	4 009	4 010.4	15	4 042	4 043.4
5	4 012	4 013.4	16	4 045	4 046.4
6	4 015	4 016.4	17	4 048	4 049.4
7	4 018	4 019.4	18	4 051	4 052.4
8	4 021	4 022.4	19	4 054	4 055.4
9	4 024	4 025.4	20	4 057	4 058.4
10	4 027	4 028.4	21	4 060	4 061.4
11	4 030	4 031.4			

* Administrations are requested to urge ship stations under their jurisdiction to refrain from using the band 4 000-4 005 kHz when navigating in Region 3 (see also No. 5.126).

Sub-Section C-2

Table of recommended single-sideband transmitting frequencies (kHz) for ship and coast stations in the band 8 100-8 195 kHz shared with the fixed service

(See § 7 of Section I of this Appendix)

The frequencies in this Sub-Section may be used:

- for supplementing ship-to-shore and shore-to-ship channels for duplex operation in Sub-Section A;
- for intership simplex (single frequency) and cross-band operation;
- for cross-band working with ship stations on channels in Sub-Section C-1;
- for ship-to-shore or shore-to-ship simplex operation;
- for duplex operation with Channel Nos. 834, 835, 836 and 837.

Channel No.	Carrier frequency	Assigned frequency	Channel No.	Carrier frequency	Assigned frequency
1	8 101	8 102.4	17	8 149	8 150.4
2	8 104	8 105.4	18	8 152	8 153.4
3	8 107	8 108.4	19	8 155	8 156.4
4	8 110	8 111.4	20	8 158	8 159.4
5	8 113	8 114.4	21	8 161	8 162.4
6	8 116	8 117.4	22	8 164	8 165.4
7	8 119	8 120.4	23	8 167	8 168.4
8	8 122	8 123.4	24	8 170	8 171.4
9	8 125	8 126.4	25	8 173	8 174.4
10	8 128	8 129.4	26	8 176	8 177.4
11	8 131	8 132.4	27	8 179	8 180.4
12	8 134	8 135.4	28	8 182	8 183.4
13	8 137	8 138.4	29	8 185	8 186.4
14	8 140	8 141.4	30	8 188	8 189.4
15	8 143	8 144.4	31	8 191	8 192.4
16	8 146	8 147.4			

Section II – Narrow-band direct-printing telegraphy (paired frequencies)

1 Each coast station which uses paired frequencies is assigned one or more frequency pairs from the following series; each pair consists of a transmitting and a receiving frequency.

2 The speed of the narrow-band direct-printing telegraphy and data systems shall not exceed 100 Bd for FSK and 200 Bd for PSK.

Channel No.	4 MHz band ¹		6 MHz band ³		8 MHz band ⁴	
	Transmit	Receive	Transmit	Receive	Transmit	Receive
1	4 210.5	4 172.5	6 314.5	6 263	8 376.5 ²	8 376.5 ²
2	4 211	4 173	6 315	6 263.5	8 417	8 377
3	4 211.5	4 173.5	6 315.5	6 264	8 417.5	8 377.5
4	4 212	4 174	6 316	6 264.5	8 418	8 378
5	4 212.5	4 174.5	6 316.5	6 265	8 418.5	8 378.5
6	4 213	4 175	6 317	6 265.5	8 419	8 379
7	4 213.5	4 175.5	6 317.5	6 266	8 419.5	8 379.5
8	4 214	4 176	6 318	6 266.5	8 420	8 380
9	4 214.5	4 176.5	6 318.5	6 267	8 420.5	8 380.5
10	4 215	4 177	6 319	6 267.5	8 421	8 381
11	4 177.5 ²	4 177.5 ²	6 268 ²	6 268 ²	8 421.5	8 381.5
12	4 215.5	4 178	6 319.5	6 268.5	8 422	8 382
13	4 216	4 178.5	6 320	6 269	8 422.5	8 382.5
14	4 216.5	4 179	6 320.5	6 269.5	8 423	8 383
15	4 217	4 179.5	6 321	6 270	8 423.5	8 383.5
16	4 217.5	4 180	6 321.5	6 270.5	8 424	8 384
17	4 218	4 180.5	6 322	6 271	8 424.5	8 384.5
18	4 218.5	4 181	6 322.5	6 271.5	8 425	8 385
19	4 219	4 181.5	6 323	6 272	8 425.5	8 385.5
20			6 323.5	6 272.5	8 426	8 386
21			6 324	6 273	8 426.5	8 386.5
22			6 324.5	6 273.5	8 427	8 387
23			6 325	6 274	8 427.5	8 387.5
24			6 325.5	6 274.5	8 428	8 388
25			6 326	6 275	8 428.5	8 388.5
26			6 326.5	6 275.5	8 429	8 389
27			6 327	6 281	8 429.5	8 389.5
28			6 327.5	6 281.5	8 430	8 390
29			6 328	6 282	8 430.5	8 390.5
30			6 328.5	6 282.5	8 431	8 391
31			6 329	6 283	8 431.5	8 391.5
32			6 329.5	6 283.5	8 432	8 392
33			6 330	6 284	8 432.5	8 392.5
34			6 330.5	6 284.5	8 433	8 393
35					8 433.5	8 393.5
36					8 434	8 394
37					8 434.5	8 394.5
38					8 435	8 395
39					8 435.5	8 395.5
40					8 436	8 396

- 1 Ship stations may use the coast station receiving frequencies for transmitting A1A or A1B Morse telegraphy (working), with the exception of channel No. 11 (see Appendix 15).
- 2 For the conditions of use of this frequency, see Article 31.
- 3 Ship stations may use the coast station receiving frequencies of channel Nos. 25 up to and including 34 for transmitting A1A or A1B Morse telegraphy (working).
- 4 Ship stations may use the coast station receiving frequencies of channel Nos. 29 up to and including 40 for transmitting A1A or A1B Morse telegraphy (working).

Table of frequencies for two-frequency operation by coast stations (kHz)

Channel No.	12 MHz band ⁵		16 MHz band ⁶		18/19 MHz band	
	Transmit	Receive	Transmit	Receive	Transmit	Receive
1	12 579.5	12 477	16 807	16 683.5	19 681	18 870.5
2	12 580	12 477.5	16 807.5	16 684	19 681.5	18 871
3	12 580.5	12 478	16 808	16 684.5	19 682	18 871.5
4	12 581	12 478.5	16 808.5	16 685	19 682.5	18 872
5	12 581.5	12 479	16 809	16 685.5	19 683	18 872.5
6	12 582	12 479.5	16 809.5	16 686	19 683.5	18 873
7	12 582.5	12 480	16 810	16 686.5	19 684	18 873.5
8	12 583	12 480.5	16 810.5	16 687	19 684.5	18 874
9	12 583.5	12 481	16 811	16 687.5	19 685	18 874.5
10	12 584	12 481.5	16 811.5	16 688	19 685.5	18 875
11	12 584.5	12 482	16 812	16 688.5	19 686	18 875.5
12	12 585	12 482.5	16 812.5	16 689	19 686.5	18 876
13	12 585.5	12 483	16 813	16 689.5	19 687	18 876.5
14	12 586	12 483.5	16 813.5	16 690	19 687.5	18 877
15	12 586.5	12 484	16 814	16 690.5	19 688	18 877.5
16	12 587	12 484.5	16 814.5	16 691	19 688.5	18 878
17	12 587.5	12 485	16 815	16 691.5	19 689	18 878.5
18	12 588	12 485.5	16 815.5	16 692	19 689.5	18 879
19	12 588.5	12 486	16 816	16 692.5	19 690	18 879.5
20	12 589	12 486.5	16 816.5	16 693	19 690.5	18 880
21	12 589.5	12 487	16 817	16 693.5	19 691	18 880.5
22	12 590	12 487.5	16 817.5	16 694	19 691.5	18 881
23	12 590.5	12 488	16 818	16 694.5	19 692	18 881.5
24	12 591	12 488.5	16 695 ²	16 695 ²	19 692.5	18 882
25	12 591.5	12 489	16 818.5	16 695.5	19 693	18 882.5
26	12 592	12 489.5	16 819	16 696	19 693.5	18 883
27	12 592.5	12 490	16 819.5	16 696.5	19 694	18 883.5
28	12 593	12 490.5	16 820	16 697	19 694.5	18 884
29	12 593.5	12 491	16 820.5	16 697.5	19 695	18 884.5
30	12 594	12 491.5	16 821	16 698	19 695.5	18 885
31	12 594.5	12 492	16 821.5	16 698.5	19 696	18 885.5
32	12 595	12 492.5	16 822	16 699	19 696.5	18 886
33	12 595.5	12 493	16 822.5	16 699.5	19 697	18 886.5
34	12 596	12 493.5	16 823	16 700	19 697.5	18 887
35	12 596.5	12 494	16 823.5	16 700.5	19 698	18 887.5
36	12 597	12 494.5	16 824	16 701	19 698.5	18 888
37	12 597.5	12 495	16 824.5	16 701.5	19 699	18 888.5
38	12 598	12 495.5	16 825	16 702	19 699.5	18 889
39	12 598.5	12 496	16 825.5	16 702.5	19 700	18 889.5
40	12 599	12 496.5	16 826	16 703	19 700.5	18 890
41	12 599.5	12 497	16 826.5	16 703.5	19 701	18 890.5
42	12 600	12 497.5	16 827	16 704	19 701.5	18 891
43	12 600.5	12 498	16 827.5	16 704.5	19 702	18 891.5
44	12 601	12 498.5	16 828	16 705	19 702.5	18 892
45	12 601.5	12 499	16 828.5	16 705.5	19 703	18 892.5

- 5 Ship stations may use the coast station receiving frequencies of channel Nos. 58 up to and including 156 for transmitting A1A or A1B Morse telegraphy (working), with the exception of channel No. 87 (see Appendix 15).
- 6 Ship stations may use the coast station receiving frequencies of channel Nos. 71 up to and including 193 for transmitting A1A or A1B Morse telegraphy (working).

Table of frequencies for two-frequency operation by coast stations (kHz)

Channel No.	12 MHz band ⁵ (cont.)		16 MHz band ⁶ (cont.)	
	Transmit	Receive	Transmit	Receive
46	12 602	12 499.5	16 829	16 706
47	12 602.5	12 500	16 829.5	16 706.5
48	12 603	12 500.5	16 830	16 707
49	12 603.5	12 501	16 830.5	16 707.5
50	12 604	12 501.5	16 831	16 708
51	12 604.5	12 502	16 831.5	16 708.5
52	12 605	12 502.5	16 832	16 709
53	12 605.5	12 503	16 832.5	16 709.5
54	12 606	12 503.5	16 833	16 710
55	12 606.5	12 504	16 833.5	16 710.5
56	12 607	12 504.5	16 834	16 711
57	12 607.5	12 505	16 834.5	16 711.5
58	12 608	12 505.5	16 835	16 712
59	12 608.5	12 506	16 835.5	16 712.5
60	12 609	12 506.5	16 836	16 713
61	12 609.5	12 507	16 836.5	16 713.5
62	12 610	12 507.5	16 837	16 714
63	12 610.5	12 508	16 837.5	16 714.5
64	12 611	12 508.5	16 838	16 715
65	12 611.5	12 509	16 838.5	16 715.5
66	12 612	12 509.5	16 839	16 716
67	12 612.5	12 510	16 839.5	16 716.5
68	12 613	12 510.5	16 840	16 717
69	12 613.5	12 511	16 840.5	16 717.5
70	12 614	12 511.5	16 841	16 718
71	12 614.5	12 512	16 841.5	16 718.5
72	12 615	12 512.5	16 842	16 719
73	12 615.5	12 513	16 842.5	16 719.5
74	12 616	12 513.5	16 843	16 720
75	12 616.5	12 514	16 843.5	16 720.5
76	12 617	12 514.5	16 844	16 721
77	12 617.5	12 515	16 844.5	16 721.5
78	12 618	12 515.5	16 845	16 722
79	12 618.5	12 516	16 845.5	16 722.5
80	12 619	12 516.5	16 846	16 723
81	12 619.5	12 517	16 846.5	16 723.5
82	12 620	12 517.5	16 847	16 724
83	12 620.5	12 518	16 847.5	16 724.5
84	12 621	12 518.5	16 848	16 725
85	12 621.5	12 519	16 848.5	16 725.5
86	12 622	12 519.5	16 849	16 726
87	12 520 ²	12 520 ²	16 849.5	16 726.5
88	12 622.5	12 520.5	16 850	16 727
89	12 623	12 521	16 850.5	16 727.5
90	12 623.5	12 521.5	16 851	16 728
91	12 624	12 522	16 851.5	16 728.5
92	12 624.5	12 522.5	16 852	16 729
93	12 625	12 523	16 852.5	16 729.5
94	12 625.5	12 523.5	16 853	16 730
95	12 626	12 524	16 853.5	16 730.5

Table of frequencies for two-frequency operation by coast stations (kHz)

Channel No.	12 MHz band ⁵ (cont.)		16 MHz band ⁶ (cont.)	
	Transmit	Receive	Transmit	Receive
96	12 626.5	12 524.5	16 854	16 731
97	12 627	12 525	16 854.5	16 731.5
98	12 627.5	12 525.5	16 855	16 732
99	12 628	12 526	16 855.5	16 732.5
100	12 628.5	12 526.5	16 856	16 733
101	12 629	12 527	16 856.5	16 733.5
102	12 629.5	12 527.5	16 857	16 739
103	12 630	12 528	16 857.5	16 739.5
104	12 630.5	12 528.5	16 858	16 740
105	12 631	12 529	16 858.5	16 740.5
106	12 631.5	12 529.5	16 859	16 741
107	12 632	12 530	16 859.5	16 741.5
108	12 632.5	12 530.5	16 860	16 742
109	12 633	12 531	16 860.5	16 742.5
110	12 633.5	12 531.5	16 861	16 743
111	12 634	12 532	16 861.5	16 743.5
112	12 634.5	12 532.5	16 862	16 744
113	12 635	12 533	16 862.5	16 744.5
114	12 635.5	12 533.5	16 863	16 745
115	12 636	12 534	16 863.5	16 745.5
116	12 636.5	12 534.5	16 864	16 746
117	12 637	12 535	16 864.5	16 746.5
118	12 637.5	12 535.5	16 865	16 747
119	12 638	12 536	16 865.5	16 747.5
120	12 638.5	12 536.5	16 866	16 748
121	12 639	12 537	16 866.5	16 748.5
122	12 639.5	12 537.5	16 867	16 749
123	12 640	12 538	16 867.5	16 749.5
124	12 640.5	12 538.5	16 868	16 750
125	12 641	12 539	16 868.5	16 750.5
126	12 641.5	12 539.5	16 869	16 751
127	12 642	12 540	16 869.5	16 751.5
128	12 642.5	12 540.5	16 870	16 752
129	12 643	12 541	16 870.5	16 752.5
130	12 643.5	12 541.5	16 871	16 753
131	12 644	12 542	16 871.5	16 753.5
132	12 644.5	12 542.5	16 872	16 754
133	12 645	12 543	16 872.5	16 754.5
134	12 645.5	12 543.5	16 873	16 755
135	12 646	12 544	16 873.5	16 755.5
136	12 646.5	12 544.5	16 874	16 756
137	12 647	12 545	16 874.5	16 756.5
138	12 647.5	12 545.5	16 875	16 757
139	12 648	12 546	16 875.5	16 757.5
140	12 648.5	12 546.5	16 876	16 758
141	12 649	12 547	16 876.5	16 758.5
142	12 649.5	12 547.5	16 877	16 759
143	12 650	12 548	16 877.5	16 759.5
144	12 650.5	12 548.5	16 878	16 760
145	12 651	12 549	16 878.5	16 760.5

Table of frequencies for two-frequency operation by coast stations (kHz)

Channel No.	12 MHz band ⁵ (end)		16 MHz band ⁶ (end)	
	Transmit	Receive	Transmit	Receive
146	12 651.5	12 549.5	16 879	16 761
147	12 652	12 555	16 879.5	16 761.5
148	12 652.5	12 555.5	16 880	16 762
149	12 653	12 556	16 880.5	16 762.5
150	12 653.5	12 556.5	16 881	16 763
151	12 654	12 557	16 881.5	16 763.5
152	12 654.5	12 557.5	16 882	16 764
153	12 655	12 558	16 882.5	16 764.5
154	12 655.5	12 558.5	16 883	16 765
155	12 656	12 559	16 883.5	16 765.5
156	12 656.5	12 559.5	16 884	16 766
157			16 884.5	16 766.5
158			16 885	16 767
159			16 885.5	16 767.5
160			16 886	16 768
161			16 886.5	16 768.5
162			16 887	16 769
163			16 887.5	16 769.5
164			16 888	16 770
165			16 888.5	16 770.5
166			16 889	16 771
167			16 889.5	16 771.5
168			16 890	16 772
169			16 890.5	16 772.5
170			16 891	16 773
171			16 891.5	16 773.5
172			16 892	16 774
173			16 892.5	16 774.5
174			16 893	16 775
175			16 893.5	16 775.5
176			16 894	16 776
177			16 894.5	16 776.5
178			16 895	16 777
179			16 895.5	16 777.5
180			16 896	16 778
181			16 896.5	16 778.5
182			16 897	16 779
183			16 897.5	16 779.5
184			16 898	16 780
185			16 898.5	16 780.5
186			16 899	16 781
187			16 899.5	16 781.5
188			16 900	16 782
189			16 900.5	16 782.5
190			16 901	16 783
191			16 901.5	16 783.5
192			16 902	16 784
193			16 902.5	16 784.5

Table of frequencies for two-frequency operation by coast stations (kHz)

Channel No.	22 MHz band ⁷		25/26 MHz band	
	Transmit	Receive	Transmit	Receive
1	22 376.5	22 284.5	26 101	25 173
2	22 377	22 285	26 101.5	25 173.5
3	22 377.5	22 285.5	26 102	25 174
4	22 378	22 286	26 102.5	25 174.5
5	22 378.5	22 286.5	26 103	25 175
6	22 379	22 287	26 103.5	25 175.5
7	22 379.5	22 287.5	26 104	25 176
8	22 380	22 288	26 104.5	25 176.5
9	22 380.5	22 288.5	26 105	25 177
10	22 381	22 289	26 105.5	25 177.5
11	22 381.5	22 289.5	26 106	25 178
12	22 382	22 290	26 106.5	25 178.5
13	22 382.5	22 290.5	26 107	25 179
14	22 383	22 291	26 107.5	25 179.5
15	22 383.5	22 291.5	26 108	25 180
16	22 384	22 292	26 108.5	25 180.5
17	22 384.5	22 292.5	26 109	25 181
18	22 385	22 293	26 109.5	25 181.5
19	22 385.5	22 293.5	26 110	25 182
20	22 386	22 294	26 110.5	25 182.5
21	22 386.5	22 294.5	26 111	25 183
22	22 387	22 295	26 111.5	25 183.5
23	22 387.5	22 295.5	26 112	25 184
24	22 388	22 296	26 112.5	25 184.5
25	22 388.5	22 296.5	26 113	25 185
26	22 389	22 297	26 113.5	25 185.5
27	22 389.5	22 297.5	26 114	25 186
28	22 390	22 298	26 114.5	25 186.5
29	22 390.5	22 298.5	26 115	25 187
30	22 391	22 299	26 115.5	25 187.5
31	22 391.5	22 299.5	26 116	25 188
32	22 392	22 300	26 116.5	25 188.5
33	22 392.5	22 300.5	26 117	25 189
34	22 393	22 301	26 117.5	25 189.5
35	22 393.5	22 301.5	26 118	25 190
36	22 394	22 302	26 118.5	25 190.5
37	22 394.5	22 302.5	26 119	25 191
38	22 395	22 303	26 119.5	25 191.5
39	22 395.5	22 303.5	26 120	25 192
40	22 396	22 304	26 120.5	25 192.5
41	22 396.5	22 304.5		
42	22 397	22 305		
43	22 397.5	22 305.5		
44	22 398	22 306		
45	22 398.5	22 306.5		
46	22 399	22 307		
47	22 399.5	22 307.5		
48	22 400	22 308		
49	22 400.5	22 308.5		
50	22 401	22 309		

⁷ Ship stations may use the coast station receiving frequencies of channels No. 68 up to and including 135 for transmitting A1A or A1B Morse telegraphy (working).

Table of frequencies for two-frequency operation by coast stations (kHz)

Channel No.	22 MHz band ⁷ (cont.)	
	Transmit	Receive
51	22 401.5	22 309.5
52	22 402	22 310
53	22 402.5	22 310.5
54	22 403	22 311
55	22 403.5	22 311.5
56	22 404	22 312
57	22 404.5	22 312.5
58	22 405	22 313
59	22 405.5	22 313.5
60	22 406	22 314
61	22 406.5	22 314.5
62	22 407	22 315
63	22 407.5	22 315.5
64	22 408	22 316
65	22 408.5	22 316.5
66	22 409	22 317
67	22 409.5	22 317.5
68	22 410	22 318
69	22 410.5	22 318.5
70	22 411	22 319
71	22 411.5	22 319.5
72	22 412	22 320
73	22 412.5	22 320.5
74	22 413	22 321
75	22 413.5	22 321.5
76	22 414	22 322
77	22 414.5	22 322.5
78	22 415	22 323
79	22 415.5	22 323.5
80	22 416	22 324
81	22 416.5	22 324.5
82	22 417	22 325
83	22 417.5	22 325.5
84	22 418	22 326
85	22 418.5	22 326.5
86	22 419	22 327
87	22 419.5	22 327.5
88	22 420	22 328
89	22 420.5	22 328.5
90	22 421	22 329
91	22 421.5	22 329.5
92	22 422	22 330
93	22 422.5	22 330.5
94	22 423	22 331
95	22 423.5	22 331.5
96	22 424	22 332
97	22 424.5	22 332.5
98	22 425	22 333
99	22 425.5	22 333.5
100	22 426	22 334
101	22 426.5	22 334.5
102	22 427	22 335
103	22 427.5	22 335.5
104	22 428	22 336
105	22 428.5	22 336.5

Table of frequencies for two-frequency operation by coast stations (kHz)

Channel No.	22 MHz band ⁷ (end)	
	Transmit	Receive
106	22 429	22 337
107	22 429.5	22 337.5
108	22 430	22 338
109	22 430.5	22 338.5
110	22 431	22 339
111	22 431.5	22 339.5
112	22 432	22 340
113	22 432.5	22 340.5
114	22 433	22 341
115	22 433.5	22 341.5
116	22 434	22 342
117	22 434.5	22 342.5
118	22 435	22 343
119	22 435.5	22 343.5
120	22 436	22 344
121	22 436.5	22 344.5
122	22 437	22 345
123	22 437.5	22 345.5
124	22 438	22 346
125	22 438.5	22 346.5
126	22 439	22 347
127	22 439.5	22 347.5
128	22 440	22 348
129	22 440.5	22 348.5
130	22 441	22 349
131	22 441.5	22 349.5
132	22 442	22 350
133	22 442.5	22 350.5
134	22 443	22 351
135	22 443.5	22 351.5

**Section III – Narrow-band direct-printing telegraphy
(non-paired frequencies)**

- 1 One or more frequencies are assigned to each ship station as transmitting frequencies.
- 2 All frequencies in this Appendix may also be used by ship stations for transmitting A1A or A1B Morse telegraphy (working).
- 3 All frequencies appearing in this Appendix may be used for NBDP duplex operation.

The corresponding coast station frequencies should be selected by the administration concerned from the sub-bands for coast station wideband telegraphy, A1A or A1B Morse telegraphy, facsimile, special and data transmission systems and direct-printing telegraphy systems.

- 4 The speed of the narrow-band direct-printing telegraphy and data systems shall not exceed 100 Bd for FSK and 200 Bd for PSK.

Table of ship station transmitting frequencies (kHz)

Frequency bands								
Channel No.	4 MHz	6 MHz	8 MHz	12 MHz	16 MHz	18/19 MHz	22 MHz	25/26 MHz
1		6 300.5	8 396.5	12 560	16 785	18 893	22 352	25 193
2		6 301	8 397	12 560.5	16 785.5	18 893.5	22 352.5	25 193.5
3		6 301.5	8 397.5	12 561	16 786	18 894	22 353	25 194
4		6 302	8 398	12 561.5	16 786.5	18 894.5	22 353.5	25 194.5
5		6 302.5	8 398.5	12 562	16 787	18 895	22 354	25 195
6	4 205	6 303	8 399	12 562.5	16 787.5	18 895.5	22 354.5	25 195.5
7	4 205.5	6 303.5	8 399.5	12 563	16 788	18 896	22 355	25 196
8	4 206	6 304	8 400	12 563.5	16 788.5	18 896.5	22 355.5	25 196.5
9	4 206.5	6 304.5	8 400.5	12 564	16 789	18 897	22 356	25 197
10	4 207	6 305	8 401	12 564.5	16 789.5	18 897.5	22 356.5	25 197.5
11		6 305.5	8 401.5	12 565	16 790	18 898	22 357	25 198
12		6 306	8 402	12 565.5	16 790.5		22 357.5	25 198.5
13		6 306.5	8 402.5	12 566	16 791		22 358	25 199
14		6 307	8 403	12 566.5	16 791.5		22 358.5	25 199.5
15		6 307.5	8 403.5	12 567	16 792		22 359	25 200
16		6 308	8 404	12 567.5	16 792.5		22 359.5	25 200.5
17		6 308.5	8 404.5	12 568	16 793		22 360	25 201
18		6 309	8 405	12 568.5	16 793.5		22 360.5	25 201.5
19		6 309.5	8 405.5	12 569	16 794		22 361	25 202
20		6 310	8 406	12 569.5	16 794.5		22 361.5	25 202.5
21		6 310.5	8 406.5	12 570	16 795		22 362	25 203
22		6 311	8 407	12 570.5	16 795.5		22 362.5	25 203.5
23		6 311.5	8 407.5	12 571	16 796		22 363	25 204
24			8 408	12 571.5	16 796.5		22 363.5	25 204.5
25			8 408.5	12 572	16 797		22 364	25 205
26			8 409	12 572.5	16 797.5		22 364.5	25 205.5
27			8 409.5	12 573	16 798		22 365	25 206
28			8 410	12 573.5	16 798.5		22 365.5	25 206.5
29			8 410.5	12 574	16 799		22 366	25 207
30			8 411	12 574.5	16 799.5		22 366.5	25 207.5
31			8 411.5	12 575	16 800		22 367	25 208
32			8 412	12 575.5	16 800.5		22 367.5	
33			8 412.5	12 576	16 801		22 368	
34			8 413	12 576.5	16 801.5		22 368.5	
35			8 413.5		16 802		22 369	
36			8 414		16 802.5		22 369.5	
37					16 803		22 370	
38					16 803.5		22 370.5	
39					16 804		22 371	
40							22 371.5	
41							22 372	
42							22 372.5	
43							22 373	
44							22 373.5	
45							22 374	

Section IV – Morse telegraphy (calling)

**Table of calling frequencies assignable to ship stations for A1A or A1B
Morse telegraphy at speeds not exceeding 40 Bd* (kHz)**

Group	Channel series	4 MHz band	6 MHz band	8 MHz band	12 MHz band	16 MHz band	22 MHz band	25/26 MHz band
I	1	4 182	6 277	8 366	12 550	16 734	22 279.5	Channel A 25 171.5 Groups I and II
	2	4 182.5	6 277.5	8 366.5	12 550.5	16 734.5	22 280	
Common channel	3	4 184	6 276	8 368	12 552	16 736	22 280.5	Common channel C 25 172
	4	4 184.5	6 276.5	8 369	12 553.5	16 738	22 281	
II	5	4 183	6 278	8 367	12 551	16 735	22 281.5	Channel A 25 171.5 Groups I and II
	6	4 183.5	6 278.5	8 367.5	12 551.5	16 735.5	22 282	
III	7	4 185	6 279	8 368.5	12 552.5	16 736.5	22 282.5	Channel B 25 172.5
	8	4 185.5	6 279.5	8 369.5	12 553	16 737	22 283	
IV	9	4 186	6 280	8 370	12 554	16 737.5	22 283.5	Groups III and IV
	10	4 186.5	6 280.5	8 370.5	12 554.5	16 738.5	22 284	

* Channel width in every band: 0.5 kHz.

NOTES

- 1 Only the common channels in the 4, 6, 8, 12 and 16 MHz for A1A Morse telegraphy are harmonically related.
- 2 Administrations should assign the frequencies as they appear in this Appendix only to ship stations equipped with cristal controlled oscillators.
- 3 However, administrations may subdivide each appropriate group channel and common channel into specific calling frequencies on every full 100 Hz in the channel and assign these discrete frequencies to ships with synthetized transmitters.

Examples of subdivision of channels (centre frequencies are underlined)

4 181.8	6 276.8	8 365.8	12 549.8	16 733.8	22 279.3	25 171.3
4 181.9	6 276.9	8 365.9	12 549.9	16 733.9	22 279.4	25 171.4
<u>4 182</u>	<u>6 277</u>	<u>8 366</u>	<u>12 550</u>	<u>16 734</u>	<u>22 279.5</u>	<u>25 171.5</u>
4 182.1	6 277.1	8 366.1	12 550.1	16 734.1	22 279.6	25 171.6
4 182.2	6 277.2	8 366.2	12 550.2	16 734.2	22 279.7	25 171.7

- 4 Administrations should avoid as far as possible, assigning the two frequencies at 100 Hz from the harmonically related common channel.
- 5 In the 22 MHz bands and 25/26 MHz bands the channels are not harmonically related to those in the 4 to 16 MHz bands. However, the principle of subdivision of channels into specific calling frequencies on 100 Hz applies.

Section V – Morse telegraphy (working)

**Table of working frequencies (kHz) assignable to ship stations
for A1A or A1B Morse telegraphy at speeds
not exceeding 40 Bd**

(See also Part A, Note e))

Frequency bands							
Channel No.	4 MHz	6 MHz	8 MHz	12 MHz	16 MHz	22 MHz	25/26 MHz
1	4 187	6 285	8 342	12 422	16 619	22 242	25 161.5
2	4 187.5	6 285.5	8 342.5	12 422.5	16 619.5	22 242.5	25 162
3	4 188	6 286	8 343	12 423	16 620	22 243	25 162.5
4	4 188.5	6 286.5	8 343.5	12 423.5	16 620.5	22 243.5	25 163
5	4 189	6 287	8 344	12 424	16 621	22 244	25 163.5
6	4 189.5	6 287.5	8 344.5	12 424.5	16 621.5	22 244.5	25 164
7	4 190	6 288	8 345	12 425	16 622	22 245	25 164.5
8	4 190.5	6 288.5	8 345.5	12 425.5	16 622.5	22 245.5	25 165
9	4 191	6 289	8 346	12 426	16 623	22 246	25 165.5
10	4 191.5	6 289.5	8 346.5	12 426.5	16 623.5	22 246.5	25 166
11	4 192	6 290	8 347	12 427	16 624	22 247	25 166.5
12	4 192.5	6 290.5	8 347.5	12 427.5	16 624.5	22 247.5	25 167
13	4 193	6 291	8 348	12 428	16 625	22 248	25 167.5
14	4 193.5	6 291.5	8 348.5	12 428.5	16 625.5	22 248.5	25 168
15	4 194	6 292	8 349	12 429	16 626	22 249	25 168.5
16	4 194.5	6 292.5	8 349.5	12 429.5	16 626.5	22 249.5	25 169
17	4 195	6 293	8 350	12 430	16 627	22 250	25 169.5
18	4 195.5	6 293.5	8 350.5	12 430.5	16 627.5	22 250.5	25 170
19	4 196	6 294	8 351	12 431	16 628	22 251	25 170.5
20	4 196.5	6 294.5	8 351.5	12 431.5	16 628.5	22 251.5	25 171
21	4 197	6 295	8 352	12 432	16 629	22 252	
22	4 197.5	6 295.5	8 352.5	12 432.5	16 629.5	22 252.5	
23	4 198	6 296	8 353	12 433	16 630	22 253	
24	4 198.5	6 296.5	8 353.5	12 433.5	16 630.5	22 253.5	
25	4 199	6 297	8 354	12 434	16 631	22 254	
26	4 199.5	6 297.5	8 354.5	12 434.5	16 631.5	22 254.5	
27	4 200	6 298	8 355	12 435	16 632	22 255	
28	4 200.5	6 298.5	8 355.5	12 435.5	16 632.5	22 255.5	
29	4 201	6 299	8 356	12 436	16 633	22 256	
30	4 201.5	6 299.5	8 356.5	12 436.5	16 633.5	22 256.5	
31	4 202	6 300	8 357	12 437	16 634	22 257	
32			8 357.5	12 437.5	16 634.5	22 257.5	
33			8 358	12 438	16 635	22 258	
34			8 358.5	12 438.5	16 635.5	22 258.5	
35			8 359	12 439	16 636	22 259	
36			8 359.5	12 439.5	16 636.5	22 259.5	
37			8 360	12 440	16 637	22 260	
38			8 360.5	12 440.5	16 637.5	22 260.5	
39			8 361	12 441	16 638	22 261	
40			8 361.5	12 441.5	16 638.5	22 261.5	
41			8 362	12 442	16 639	22 262	
42			8 362.5	12 442.5	16 639.5	22 262.5	
43			8 363	12 443	16 640	22 263	
44			8 363.5	12 443.5	16 640.5	22 263.5	
45			8 364	12 444	16 641	22 264	

Frequency bands (cont.)							
Channel No.	4 MHz	6 MHz	8 MHz	12 MHz	16 MHz	22 MHz	25/26 MHz
46			8 364.5	12 444.5	16 641.5	22 264.5	
47			8 365	12 445	16 642	22 265	
48			8 365.5	12 445.5	16 642.5	22 265.5	
49			8 371	12 446	16 643	22 266	
50			8 371.5	12 446.5	16 643.5	22 266.5	
51			8 372	12 447	16 644	22 267	
52			8 372.5	12 447.5	16 644.5	22 267.5	
53			8 373	12 448	16 645	22 268	
54			8 373.5	12 448.5	16 645.5	22 268.5	
55			8 374	12 449	16 646	22 269	
56			8 374.5	12 449.5	16 646.5	22 269.5	
57			8 375	12 450	16 647	22 270	
58			8 375.5	12 450.5	16 647.5	22 270.5	
59			8 376	12 451	16 648	22 271	
60				12 451.5	16 648.5	22 271.5	
61				12 452	16 649	22 272	
62				12 452.5	16 649.5	22 272.5	
63				12 453	16 650	22 273	
64				12 453.5	16 650.5	22 273.5	
65				12 454	16 651	22 274	
66				12 454.5	16 651.5	22 274.5	
67				12 455	16 652	22 275	
68				12 455.5	16 652.5	22 275.5	
69				12 456	16 653	22 276	
70				12 456.5	16 653.5	22 276.5	
71				12 457	16 654	22 277	
72				12 457.5	16 654.5	22 277.5	
73				12 458	16 655	22 278	
74				12 458.5	16 655.5	22 278.5	
75				12 459	16 656	22 279	
76				12 459.5	16 656.5		
77				12 460	16 657		
78				12 460.5	16 657.5		
79				12 461	16 658		
80				12 461.5	16 658.5		
81				12 462	16 659		
82				12 462.5	16 659.5		
83				12 463	16 660		
84				12 463.5	16 660.5		
85				12 464	16 661		
86				12 464.5	16 661.5		
87				12 465	16 662		
88				12 465.5	16 662.5		
89				12 466	16 663		
90				12 466.5	16 663.5		
91				12 467	16 664		
92				12 467.5	16 664.5		
93				12 468	16 665		
94				12 468.5	16 665.5		
95				12 469	16 666		

Frequency Bands (end)							
Channel No.	4 MHz	6 MHz	8 MHz	12 MHz	16 MHz	22 MHz	25/26 MHz
96				12 469.5	16 666.5		
97				12 470	16 667		
98				12 470.5	16 667.5		
99				12 471	16 668		
100				12 471.5	16 668.5		
101				12 472	16 669		
102				12 472.5	16 669.5		
103				12 473	16 670		
104				12 473.5	16 670.5		
105				12 474	16 671		
106				12 474.5	16 671.5		
107				12 475	16 672		
108				12 475.5	16 672.5		
109				12 476	16 673		
110				12 476.5	16 673.5		
111					16 674		
112					16 674.5		
113					16 675		
114					16 675.5		
115					16 676		
116					16 676.5		
117					16 677		
118					16 677.5		
119					16 678		
120					16 678.5		
121					16 679		
122					16 679.5		
123					16 680		
124					16 680.5		
125					16 681		
126					16 681.5		
127					16 682		
128					16 682.5		
129					16 683		

7.9 Table of transmitting frequencies in the VHF maritime mobile band

NOTE A – For assistance in understanding the Table, see Notes *a)* to *q)* below. (WRC-07)

NOTE B – The Table below defines the channel numbering for maritime VHF communications based on 25 kHz channel spacing and use of several duplex channels, but also allows the use of 12.5 kHz channel spacing. The channel numbering for 12.5 kHz channels and the conversion of two-frequency channels for single-frequency operation shall be in accordance with Recommendation ITU-R M.1084-4 Annex 4, Tables 1 and 3. (WRC-07)

Channel designator	Notes	Transmitting frequencies (MHz)		Inter-ship	Port operations and ship movement		Public correspondence
		From ship stations	From coast stations		Single frequency	Two frequency	
60	<i>m), o)</i>	156.025	160.625			x	X
01	<i>m), o)</i>	156.050	160.650			x	x
61	<i>m), o)</i>	156.075	160.675		x	x	x
02	<i>m), o)</i>	156.100	160.700		x	x	x
62	<i>m), o)</i>	156.125	160.725		x	x	x
03	<i>m), o)</i>	156.150	160.750		x	x	x
63	<i>m), o)</i>	156.175	160.775		x	x	x
04	<i>m), o)</i>	156.200	160.800		x	x	x
64	<i>m), o)</i>	156.225	160.825		x	x	x
05	<i>m), o)</i>	156.250	160.850		x	x	x
65	<i>m), o)</i>	156.275	160.875		x	x	x
06	<i>f)</i>	156.300		x			
66	<i>m), o)</i>	156.325	160.925			x	x
07	<i>m), o)</i>	156.350	160.950			x	x
67	<i>h)</i>	156.375	156.375	x	x		
08		156.400		x			
68		156.425	156.425		x		
09	<i>i)</i>	156.450	156.450	x	x		
69		156.475	156.475	x	x		
10	<i>h), q)</i>	156.500	156.500	x	x		
70	<i>f), j)</i>	156.525	156.525	Digital selective calling for distress, safety and calling			
11	<i>q)</i>	156.550	156.550		x		
71		156.575	156.575		x		
12		156.600	156.600		x		

72	<i>i)</i>	156.625		x			
13	<i>k)</i>	156.650	156.650	x	x		
73	<i>h), i)</i>	156.675	156.675	x	x		
14		156.700	156.700		x		
74		156.725	156.725		x		
15	<i>g)</i>	156.750	156.750	x	x		
75	<i>n)</i>	156.775	156.775		x		
16	<i>f)</i>	156.800	156.800	DISTRES S, SAFETY AND CALLING			
76	<i>n)</i>	156.825	156.825		x		
17	<i>g)</i>	156.850	156.850	x	x		
77		156.875		x			
18	<i>m)</i>	156.900	161.500		x	x	x
78	<i>m)</i>	156.925	161.525			x	x
19	<i>m)</i>	156.950	161.550			x	x
79	<i>m)</i>	156.975	161.575			x	x
20	<i>m)</i>	157.000	161.600			x	x
80	<i>m)</i>	157.025	161.625			x	x
21	<i>m)</i>	157.050	161.650			x	x
81	<i>m)</i>	157.075	161.675			x	x
22	<i>m)</i>	157.100	161.700		x	x	x
82	<i>m), o)</i>	157.125	161.725		x	x	x
23	<i>m), o)</i>	157.150	161.750		x	x	x
83	<i>m), o)</i>	157.175	161.775		x	x	x
24	<i>m), o)</i>	157.200	161.800		x	x	x
84	<i>m), o)</i>	157.225	161.825		x	x	x
25	<i>m), o)</i>	157.250	161.850		x	x	x
85	<i>m), o)</i>	157.275	161.875		x	x	x
26	<i>m), o)</i>	157.300	161.900		x	x	x
86	<i>m), o)</i>	157.325	161.925		x	x	x
27		157.350	161.950			x	x
87		157.375	157.375		x		
28		157.400	162.000			x	x
88		157.425	157.425		x		
AIS 1	<i>f), l), p)</i>	161.975	161.975				
AIS 2	<i>f), l), p)</i>	162.025	162.025				

Notes referring to the Table

- a) Administrations may designate frequencies in the inter-ship, port operations and ship movement services for use by light aircraft and helicopters to communicate with ships or participating coast stations in predominantly maritime support operations under the conditions specified in Nos. **51.69, 51.73, 51.74, 51.75, 51.76, 51.77** and **51.78**. However, the use of the channels which are shared with public correspondence shall be subject to prior agreement between interested and affected administrations.
- b) The channels of the present Appendix, with the exception of channels 06, 13, 15, 16, 17, 70, 75 and 76, may also be used for high-speed data and facsimile transmissions, subject to special arrangement between interested and affected administrations.
- c) The channels of the present Appendix, but preferably channel 28 and with the exception of channels 06, 13, 15, 16, 17, 70, 75 and 76, may be used for direct-printing telegraphy and data transmission, subject to special arrangement between interested and affected administrations.
- d) The frequencies in this table may also be used for radiocommunications on inland waterways in accordance with the conditions specified in No. **5.226**.
- e) Administrations may apply 12.5 kHz channel interleaving on a non-interference basis to 25 kHz channels, in accordance with the most recent version of Recommendation ITU-R M.1084, provided:
- it shall not affect the 25 kHz channels of the present Appendix maritime mobile distress and safety frequencies, especially the channels 06, 13, 15, 16, 17, and 70, nor the technical characteristics set forth in Recommendation ITU-R M.489-2 for those channels;
 - implementation of 12.5 kHz channel interleaving and consequential national requirements shall be subject to coordination with affected administrations. (WRC-07)

Specific notes

- f) The frequencies 156.300 MHz (channel 06), 156.525 MHz (channel 70), 156.800 MHz (channel 16), 161.975 MHz (AIS 1) and 162.025 MHz (AIS 2) may also be used by aircraft stations for the purpose of search and rescue operations and other safety-related communication. (WRC-07)
- g) Channels 15 and 17 may also be used for on-board communications provided the effective radiated power does not exceed 1 W, and subject to the national regulations of the administration concerned when these channels are used in its territorial waters.
- h) Within the European Maritime Area and in Canada, these frequencies (channels 10, 67, 73) may also be used, if so required, by the individual administrations concerned, for communication between ship stations, aircraft stations and participating land stations engaged in coordinated search and rescue and anti-pollution operations in local areas, under the conditions specified in Nos. **51.69, 51.73, 51.74, 51.75, 51.76, 51.77** and **51.78**.
- i) The preferred first three frequencies for the purpose indicated in Note a) are 156.450 MHz (channel 09), 156.625 MHz (channel 72) and 156.675 MHz (channel 73).
- j) Channel 70 is to be used exclusively for digital selective calling for distress, safety and calling.
- k) Channel 13 is designated for use on a worldwide basis as a navigation safety communication channel,

primarily for intership navigation safety communications. It may also be used for the ship movement and port operations service subject to the national regulations of the administrations concerned.

- l)* These channels (AIS 1 and AIS 2) are used for an automatic identification system (AIS) capable of providing worldwide operation, unless other frequencies are designated on a regional basis for this purpose. Such use should be in accordance with the most recent version of Recommendation ITU-R M.1371. (WRC-07)
- m)* These channels may be operated as single frequency channels, subject to coordination with affected administrations. (WRC-07)
- n)* The use of these channels (75 and 76) should be restricted to navigation-related communications only and all precautions should be taken to avoid harmful interference to channel 16, e.g. by limiting the output power to 1 W or by means of geographical separation.
- o)* These channels may be used to provide bands for new technologies, subject to coordination with affected administrations. Stations using these channels or bands for new technologies shall not cause harmful interference to, and shall not claim protection from, other stations operating in accordance with Article 5. The design of such systems shall be such as to preclude the possibility of interference to the detection of AIS signals on 161.975 or 162.025 MHz. (WRC-07)
- p)* Additionally, AIS 1 and AIS 2 may be used by the mobile-satellite service (Earth-to-space) for the reception of AIS transmissions from ships. (WRC-07)
- q)* When using these channels (10 and 11) all precautions should be taken to avoid harmful interference to channel 70. (WRC-07)

Provisions and associated Frequency Allotment Plan for the aeronautical mobile (OR) service in the bands allocated exclusively to that service between 3 025 kHz and 18 030 kHz

(See Article 43)

PART I – General provisions, definitions

26/1 The provisions of this Appendix shall apply to the aeronautical mobile (OR) service in the following frequency bands:

3 025-3 155 kHz	8 965- 9 040 kHz
3 900-3 950 kHz (Region 1 only)	11 175-11 275 kHz
4 700-4 750 kHz	13 200-13 260 kHz
5 680-5 730 kHz	15 010-15 100 kHz
6 685-6 765 kHz	17 970-18 030 kHz.

26/2 For the purpose of this Appendix, the terms used comprise the following:

8 26/2.1 **Frequency Allotment Plan**

The Plan for the aeronautical mobile (OR) service contained in Part III of this Appendix.

9 26/2.2 **Allotment in the aeronautical mobile (OR) service**

A frequency allotment in the aeronautical mobile (OR) service which comprises:

- a frequency channel from the channels appearing in the channelling arrangement in No. 26/3;
- a bandwidth of up to 2.8 kHz, situated wholly within the frequency channel concerned;
- a power within the limits laid down in No. 26/4.4 or specified against the allotted frequency channel;
- an allotment area which is the area in which the aeronautical station can be situated and which coincides with all or part of the territory of the country, or of the geographical area, as indicated against the frequency channel concerned in the Frequency Allotment Plan.

**PART II – Technical bases used for the establishment of the Frequency Allotment Plan
for the aeronautical mobile (OR) service in the bands allocated exclusively to that service
between 3 025 kHz and 18 030 kHz**

10 26/3 **Channelling arrangement**

26/3.1 The channelling arrangement for the frequencies to be used by aeronautical stations in the aeronautical mobile (OR) service in the bands allocated exclusively to that service between 3 025 kHz and 18 030 kHz is indicated in Table 1.

TABLE 1

Frequency band 3 025-3 155 kHz: 43 + 1 channels

3 023 ¹	3 026	3 029	3 032	3 035	3 038	3 041	3 044	3 047	3 050
3 053	3 056	3 059	3 062	3 065	3 068	3 071	3 074	3 077	3 080
3 083	3 086	3 089	3 092	3 095	3 098	3 101	3 104	3 107	3 110
3 113	3 116	3 119	3 122	3 125	3 128	3 131	3 134	3 137	3 140
3 143	3 146	3 149	3 152						

Frequency band 3 900-3 950 kHz (Region 1 only): 16 channels

3 900	3 903	3 906	3 909	3 912	3 915	3 918	3 921	3 924	3 927
3 930	3 933	3 936	3 939	3 942	3 945				

Frequency band 4 700-4 750 kHz: 16 channels

4 700	4 703	4 706	4 709	4 712	4 715	4 718	4 721	4 724	4 727
4 730	4 733	4 736	4 739	4 742	4 745				

Frequency band 5 680-5 730 kHz: 15 + 1 channels

5 680 ¹	5 684	5 687	5 690	5 693	5 696	5 699	5 702	5 705	5 708
5 711	5 714	5 717	5 720	5 723	5 726				

Frequency band 6 685-6 765 kHz: 26 channels

6 685	6 688	6 691	6 694	6 697	6 700	6 703	6 706	6 709	6 712
6 715	6 718	6 721	6 724	6 727	6 730	6 733	6 736	6 739	6 742
6 745	6 748	6 751	6 754	6 757	6 760				

Frequency band 8 965-9 040 kHz: 25 channels

8 965	8 968	8 971	8 974	8 977	8 980	8 983	8 986	8 989	8 992
8 995	8 998	9 001	9 004	9 007	9 010	9 013	9 016	9 019	9 022
9 025	9 028	9 031	9 034	9 037					

Frequency band 11 175-11 275 kHz: 33 channels

11 175	11 178	11 181	11 184	11 187	11 190	11 193	11 196	11 199	11 202
11 205	11 208	11 211	11 214	11 217	11 220	11 223	11 226	11 229	11 232
11 235	11 238	11 241	11 244	11 247	11 250	11 253	11 256	11 259	11 262
11 265	11 268	11 271							

Frequency band 13 200-13 260 kHz: 20 channels

13 200	13 203	13 206	13 209	13 212	13 215	13 218	13 221	13 224	13 227
13 230	13 233	13 236	13 239	13 242	13 245	13 248	13 251	13 254	13 257

Frequency band 15 010-15 100 kHz: 30 channels

15 010	15 013	15 016	15 019	15 022	15 025	15 028	15 031	15 034	15 037
15 040	15 043	15 046	15 049	15 052	15 055	15 058	15 061	15 064	15 067
15 070	15 073	15 076	15 079	15 082	15 085	15 088	15 091	15 094	15 097

Frequency band 17 970-18 030 kHz: 20 channels

17 970	17 973	17 976	17 979	17 982	17 985	17 988	17 991	17 994	17 997
18 000	18 003	18 006	18 009	18 012	18 015	18 018	18 021	18 024	18 027

11¹ For use of the carrier (reference) frequencies 3 023 kHz and 5 680 kHz, see No. **26**/3.4.

ARTICLE 2

Frequency allotment Plan (in numerical order of frequencies)

General Notes:

27/214 1 Class of stations: FD

Classes of emission: see Nos. **27/56** to **27/59**.

Power: Unless otherwise indicated in the Plan, the power values for aeronautical and aircraft stations are those shown in Nos. **27/60** to **27/68**.

Hours: H24, unless otherwise indicated.

27/215 2 A frequency allotted on a “day-time basis” may be used during the period one hour after sunrise to one hour before sunset

27/216 3 A “common channel” is a channel allotted in common to two or more areas within interference distance of each other and its use is subject to agreement between the administrations concerned.

27/217 4 The world-wide frequency allotments appearing in the Tables at No. **27/213** and Nos. **27/218** to **27/231**, except for carrier (reference) frequencies 3 023 kHz and 5 680 kHz, are reserved for assignment by administrations to stations operating under authority granted by the administration concerned, for the purpose of serving one or more aircraft operating agencies. Such assignments are to provide communications between an appropriate aeronautical station and an aircraft station anywhere in the world for exercising control over regularity of flight and for safety of aircraft. World-wide frequencies are not to be assigned by administrations for MWARA, RDARA and VOLMET purposes. Where the operational area of an aircraft lies wholly within a RDARA or Sub-RDARA boundary, frequencies allotted to those RDARAs and Sub-RDARAs shall be used.

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
2 851	M AFI R 2A 3B 3C 9C 11B 13E 13F 14	CC 3B 3C CC 13E 13F C001/2A
2 854	M SAT R 3A 3B 6E 10B	CC 3A 3B
2 857	R 2B 2C 6B 13J	CC 2B 2C
2 860	R 1B 3A 3C 9B 10B 12E 12J 13I V VAFI	CC 3A 3C CC 12E 12J C001/1B
2 863	R 2A 2C 7B 13C 13J 13K V VPAC	CC 2A 2C CC 13C 13J 13K
2 866	R 2C 3C 4B 6D 10A	C001/3C
2 869	M CEP R 2A 2B 3A 6G 10E 13C 14G	CC 2A 2B 3A C009/6G
2 872	M NAT R 3B 6A 6E 13G	CC 6A 6E
2 875	R 2A 2B 3A 6G 10A 12G	CC 2A 2B 3A C009/6G
2 878	M AFI R 3B 3C 11B 13I 13J 14	CC 3B3C CC 13I 13J
2 881	R 1B 2A 2B 3A 6C V VSAM	CC 2A 2B 3A C001/1B
2 884	R 2C 3B 6D	C001/3B
2 887	M CAR R 2A 2B 3A 7E 13I 14C	CC 2A2B 3A C001/2A 2B 3A
2 890	R 1B 6G 13J	
2 893	R 2C 3 4B 10D 12F	CC 2C 3
2 896	R 2A 2B 3A 6G	CC 2A 2B 3A C009/6G
2 899	M NAT R 5D 6G 13H	
2 902	R 2B 2C 3B 6G 12J	CC 2B 2C 3B C009/6G
2 905	R 3A 3C 5C 9B V VNAT	CC 3A 3C
2 908	R 2B 2C 3B 13M	CC 2B 2C 3B

* See page AP27-78.

(See cont.)

(Cont.)

Frequency (kHz)	Authorized area of use*		Remarks*
1	2		3
2 911	R	3A 5B 6G 10A	C001/3A C010/6G
2 914	R	2B 2C 3B 13D	CC 2B 2C 3B
2 917	R	2A 6E 6G	C010/6G
2 920	R	2B 2C 6B 12C 13J	CC 2B 2C
2 923	R	3A 6A	C001/3A
2 926	R	2A 2C 4A 6F 10C 12J	CC 2A 2C C001/4A
2 929	R	2B 9B	C001/9B
2 932	M R	NP 2A 2C 13K	CC 2A 2C
2 935	M R	SAT 3 10D	
2 938	R	2 6G	C009/6G
2 941	R	2A 6F	
2 944	M R	MID SAM 10A 10E 14G	
2 947	R	6A	
2 950	R V	2 3C 7C 10F 12A 14A 14D VCAR	CC 2 3C CC 14A 14D
2 953	R	4A 6G	
2 956	R V	6C 7F 10A 12E 12F 12G 12H 13F VMID	CC 12E 12F 12G 12H
2 959	R	3A	
2 962	M R	NAT 6G	
2 965	R V	1E 7B 10C 12F 12J 13H VSEA	CC 12F 12J
2 968	R	3B 5B 6G	C001/3B C009/6G
2 971	M R	NAT 5D 6G 13G	
2 974	R	1D 3C	
2 977	R	1C 6G 13M	

* See page AP27-78.

(See cont.)

(Cont.)

Frequency (kHz)	Authorized area of use*		Remarks*
1	2		3
2 980	R	1D 3C 12C	
2 983	R	1C 6G 13D	
2 986	R	3C 5A 13N	
2 989	R	1D 6G	
2 992	M R	MID 10A 10E 13C	
2 995	R	6G	
2 998	M R V	CWP 7D 12E 12F 12G 12H 13F VEUR	CC 12E 12F 12G 12H
3 001	R	6A 6E	CC 6A 6E
3 004	M R	NCA 11B 13K	
3 007	W	WORLDWIDE	C100/II III
3 010	W	WORLDWIDE	C100/I IV
3 013	W	WORLDWIDE	C100/II V
3 016	M R	EANAT 9D 13G	
3 019	M R	NCA 11B 13K	

27/219

Frequency (kHz)	Authorized area of use*		Remarks*
1	2		3
3 023	W	WORLDWIDE (R) and (OR)	See Part II, Section II, Article 3

* See page AP27-78.

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
3 401	R 2B 2C 3B 9B 12C 13K	CC 2B 2C 3B C001/9B
3 404	R 3A 3C 9C 9D 10B V VAFI	CC 3A 3C CC 9C 9D
3 407	R 2B 2C 3B 7C 12D 14D	CC 2B 2C 3B
3 410	R 1D 3C 11B 13J	
3 413	M CEP R 3B 6G 13C 14A 14E V VEUR	CC 14A 14E C009/6G
3 416	R 1D 2A 2B 3A 6D	CC 2A 2B 3A C001/2A 2B 3A
3 419	M AFI R 3B 3C 9B 10D 12J 13I	CC 3B 3C
3 422	R 2A 2B 3A 6G	CC 2A 2B 3A C001/6G C004/6G
3 425	M AFI R 3B 3C 9B 10D 13D	CC 3B 3C
3 428	R 2B 2C 11B 13J	CC 2B 2C
3 431	R 3A 3B 5B 6G	CC 3A 3B C001/3A 3B C009/6G
3 434	R 2A 2C 6F 11B 13G	CC 2A 2C
3 437	R 3B 4A 6G 13M	C001/3B
3 440	R 2A 2C 6F 12	CC 2A 2C
3 443	R 3A 3B 4B 6E 11B 13N	CC 3A 3B
3 446	R 1D 6G 10E 13F 14	
3 449	R 2B 2C 6G 10A 13M	CC 2B 2C C001/6G C004/6G
3 452	M SAT R 3A 3C 5A 5C 14C	CC 3A 3C CC 5A 5C
3 455	M CAR CWP R 2A 2C 7B 13H	CC 2A 2C
3 458	R 1B 10D 13C 13J 13K V VSEA	CC 13C 13J 13K C001/1B
3 461	R 7F 9C 12E 12F 12G 12H 14 V VNCA	CC 12E 12F 12G 12H
3 464	R 1C 6G 12C 13K	

* See page AP27-78.

(See cont.)

(Cont.)

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
3 467	M AFI MID SP R 10B 13D	CC AFI MID
3 470	M SEA R 1C 10A 13G	
3 473	M MID R 1B 6C 10E 13C	C001/1B
3 476	M INO NAT R 9B 13F	C001/9B
3 479	M EUR SAM R 6A 6B 14	
3 482	R 5D 6G	
3 485	M EA SEA R 7E 13H V VNAT	CC EA SEA
3 488	R 1B 5B 6B 10B 12E 12F 12G 12H 14B 14F	CC 12E 12F 12G 12H CC 14B 14F C001/1B
3 491	M EA R 1E 4A 10C 13E	CC 1E 4A
3 494	W WORLDWIDE	C100/II
3 497	W WORLDWIDE	C100/II

* See page AP27-78.

Frequency (kHz)	Authorized area of use*		Remarks*
1	2		3
4 651	R	1D 6C 6G 10B 10E 13E 13F	CC 13E 13F C001/6G
4 654	W	WORLDWIDE	C100/I II
4 657	M R	AFI CEP 2A 2C 3B 6A 6E 13H	CC 2A 2C C001/2A 2C CC 6A 6E C001/6A 6E
4 660	R	2B 2C 9B 10C 13D 13M	CC 2B 2C CC 13D 13M
4 663	R V	6G 10F 13E 13F 13K VNCA	CC 13E 13F 13K C001/6G
4 666	M R	CWP 1C 10B 10D 10E	CC 10B 10D 10E
4 669	M R	MID SAM 6G 10C 10D	CC 10C 10D C001/6G
4 672	R	2A 2B 3A 4A 6G 11B 13K	CC 2A 2B 3A C001/4A C001/6G
4 675	M R	NAT 6A 6E 9C 13G	CC 6A 6E C001/13G
4 678	M R	NCA 10D 13I 14A 14G	CC 14A 14G C001/14A 14G
4 681	R	2B 2C 3B 10B 12E	CC 2B 2C 3B
4 684	R	3A 3C 10E 13J 14B 14C	CC 3A 3C CC 14B 14C C001/14B 14C
4 687	W	WORLDWIDE	C100/I II III
4 690	R	2A 2B 3A 6G 10B 13M	CC 2A 2B 3A C001/6G
4 693	R	2B 2C 3 10B 12C 13I 14D	CC 2B 2C 3 C001/14D
4 696	R	2 6G 9 10 13J	C001/6G

* See page AP27-78.

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
5 451	R 10F 11B 12F 12H 13I 13J	CC 12F 12H CC 13I 13J
5 454	R 10 12E 13F 13J	
5 457	R 10C 13N	
5 460	R 10B 10E 12C 13D	
5 463	R 11B 13H 13K 13M	
5 466	R 10B 13I	
5 469	R 11B 13G	
5 472	R 10A 10D 13H	
5 475	R 10A 10D 12E 12F 13G	CC 12E 12F

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
5 481	R 2A 2C 4B 6G 7D 9C 10C 10E 12E 12J 13E 13F 13K 14D 14G	CC 2A 2C CC 10C 10E CC 12E 12J CC 13E 13F CC 14D 14G
5 484	R 1B 3A 3C 6A 9B 10A 10D 12C 12G 13H	CC 3A 3C
5 487	R 2C 6G 10C 12E	
5 490	R 2A 2B 3A 6D 10A 10D 12C 13C	CC 2A 2B 3A
5 493	M AFI R 3B 6G	C002/6G
5 496	R 2A 2B 3A 6F 10A 10D 12C 12J 13I	CC 2A 2B 3A
5 499	R 3B 6G V VAFI	C002/6G
5 502	R 2A 2B 3A 6B 10C 12C 13M	CC 2A 2B 3A
5 505	R 3B 6G	C003/6G
5 508	R 2B 2C 6F 7 9B 11B 12F 13N	CC 2B 2C
5 511	R 3A 5B 6G	C002/6G

* See page AP27-78.

(See cont.)

(Cont.)

Frequency (kHz)	Authorized area of use*		Remarks*
1	2		3
5 514	R	2C 3B 3C 6E 11B 13C	CC 3B 3C
5 517	R	3A 6G	C002/6G
5 520	M R	CAR 2B 2C 3B 6D 7E	CC 2B 2C 3B
5 523	R	2A 6G 9B 11B 12G 13I	
5 526	M R	SAM 2B 2C 3B 5D 6E 10F 14	CC 2B 2C 3B
5 529	W	WORLDWIDE	C100/I II
5 532	W	WORLDWIDE	C100/I V
5 535	W	WORLDWIDE	C100/I IV
5 538	W	WORLDWIDE	C100/II V
5 541	W	WORLDWIDE	C100/I IV
5 544	W	WORLDWIDE	C100/II V
5 547	M R	CEP 2A 4A 6G 7F 13H 13K	
5 550	M R	CAR 2B 2C 3B 5D 6C 6E 14G	CC 2B 2C 3B
5 553	R	6G 10B 13C	
5 556	R	2 3 12F	CC 2 3
5 559	M R	SP 2A 4A 6G 10E 12G 13J	
5 562	R	2C 3B 3C 10C 12D 13D	CC 3B 3C
5 565	M R	SAT 6G 9B 10A	
5 568	R	1B 3A 3C 5B 6D 7F 10B 12 13J	CC 3A 3C
5 571	R	6G 11B 13C	
5 574	M R	CEP 2B 2C 4B 6D 13G	CC 2B 2C
5 577	R	1C 5A 6G 7B 10E 13C 13J 13K	CC 13C 13J 13K
5 580	R V	3A 3B 6A 6C 14G VCAR	CC 3A 3B
5 583	R	1E 5A 5C 6G 7B 9 10B 12E 12F 12H 13E 13F	CC 5A 5C CC 12E 12F 12H CC 13E 13F
5 586	R	2C 3C 10D	

* See page AP27-78.

(See cont.)

(Cont.)

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
5 589	R 12C V VMID	
5 592	R 6G 7C 9D V VNAT	
5 595	R 1C 2B 6B 10C 12E	
5 598	M NAT R 6G	
5 601	R 3A 3B 6A V VSAM	CC 3A 3B
5 604	R 2A 2C 4B 6G 10 12A 12E 12F 13E 13F 13K 14	CC 2A 2C CC 12E 12F CC 13E 13F
5 607	R 2B	
5 610	R 6G	
5 613	R 2B 12C	
5 616	M NAT R 6G	
5 619	R 2B 12J	
5 622	R 1D 6G	
5 625	R 3A 5B 6B 10D	
5 628	M NP R 1D 6G	C003/6G
5 631	R 6D 10A	
5 634	M INO R 6G	C002/6G
5 637	R 1D 3C	
5 640	R 6G V VEUR	C002/6G
5 643	M SP R 3C	
5 646	M NCA R 12G	
5 649	M NAT SEA	
5 652	M AFI CWP	
5 655	M EA SEA	CC EA SEA
5 658	M AFI MID	CC AFI MID

* See page AP27-78.

(See cont.)

Band 5 480-5 680 kHz **5.6 MHz**

(Cont.)

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
5 661	M CWP EUR	
5 664	M NCA	
5 667	M MID	
5 670	M EA	
5 673	V VSEA	
5 676	V VNCA	

27/224

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
5 680	W WORLDWIDE (R) and (OR)	See Part II, Section II, Article 3

27/225

Band 6 525-6 685 kHz **6.6 MHz**

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
6 526	R 2A 2B 3A 4A 6F 12G 14F	CC 2A 2B 3A
6 529	R 3B 6G	
6 532	M CWP R 2A 2B 3A 4A 12F	CC 2A 2B 3A
6 535	M SAT R 2C 5D 6G 9D 10A 10D 12C 12J 14B	
6 538	R 3A 3B 9B 11B V VAFI	CC 3A 3B
6 541	R 2C 6G 10C 13C 14C	
6 544	R 1C 3A 3B 5A 5C 6C 10D	CC 3A 3B CC 5A 5C

* See page AP27-78.

(See cont.)

(Cont.)

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
6 547	R 2A 2C 5D 6G 9B 10B 10E 12E 12J 13F 13K 14A	CC 2A 2C CC 12E 12J
6 550	R 1B 3A 3C 5B 6D 11B 13J	CC 3A 3C
6 553	R 2A 2C 4B 6G 9 10 12E 12F 13E 13F 13K 14A	CC 2A 2C CC 12E 12F CC 13E 13F
6 556	M SEA R 1 3A 3C 10C 13C	CC 3A 3C
6 559	M AFI R 2A 3B 6G 11B 13J 14D	
6 562	M CWP R 2B 2C 10D 13C	CC 2B 2C
6 565	R 2A 4 6G 11B 14E	
6 568	R 2B 2C 3B 6D 7C 10C 13C	CC 2B 2C 3B
6 571	M EA R 12C	
6 574	M AFI R 2A 6G 10B 13I 13M 14D	
6 577	M CAR R 2B 2C 3B 4B 6D 13E	CC 2B 2C 3B
6 580	R 6G 7E 9C 10A 13C 13J 13K 14 V VEUR	CC 13C 13J 13K
6 583	R 2 3 6E	CC 2 3
6 586	M CAR R 2C 6G 7 13G 14C	
6 589	R 3	
6 592	M NCA R 12C	
6 595	R 1B 3B 3C 5B 6D	CC 3B 3C
6 598	M EUR R 4B 6G 9B 10B 10E 12E 13H	
6 601	R 2	
6 604	R 1D 6G 7C 10A 13N 14B V VNAT	
6 607	R 3A 6A 6B	
6 610	R 1D 6G 14F	
6 613	R 3A 6A 6B 13G	

* See page AP27-78.

(See cont.)

(Cont.)

Frequency (kHz)	Authorized area of use*		Remarks*
1	2		3
6 616	R	4A 6G 12G 14E	
6 619	R	3A 6B	
6 622	M R	NAT 6G 7F 9B 12C 13D	
6 625	M R	MID 3B	
6 628	M R	NAT 6G 7E 12C 13D 13M 14	CC 13D 13M
6 631	M R	MID 3B 6C	
6 634	R	6G	
6 637	W	WORLDWIDE	C100/I II III
6 640	W	WORLDWIDE	C100/II V
6 643	W	WORLDWIDE	C100/I IV
6 646	W	WORLDWIDE	C100/II V
6 649	M R	SAM 3A 6G	
6 652	R	6G 7B	
6 655	M R	NP 2B 6E	
6 658	R	3C 6A	
6 661	M R	NP 2B 6E	
6 664	R	3C 5A	
6 667	R	1E 2B 6F	
6 670	R	3C	
6 673	M R	AFI CEP 2A 6G 10F 12D 13D 14B	
6 676	V	VSEA	
6 679	V	VPAC	
6 682	R	6G	

* See page AP27-78.

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
8 816	R 4A 6G 12C 13J 14A	
8 819	R 2B 2C 9B 10 13C	CC 2B 2C
8 822	R 2A 3B 5A 5C 11B 13G 14	CC 5A 5C C005/2A
8 825	M NAT R 6G 13H 14F	
8 828	R 1D 13N V VPAC	
8 831	M NAT R 6G 13F 14F	
8 834	R 2B 2C 6C 7C 10 13C	CC 2B 2C
8 837	R 3A 3C 4A 9B 10B 13M	CC 3A 3C
8 840	R 1C 6	
8 843	M CEP R 5D 6G 10E 13C 13J 13K 14D	CC 13C 13J 13K
8 846	M CAR R 2 3 7F 9	CC 2 3
8 849	R 13K V VSEA	
8 852	R 3B 3C 9 12E V VAFI	CC 3B 3C
8 855	M SAM R 2 10A 14	
8 858	R 4A 6G 10D 13E 13F 14D	CC 13E 13F
8 861	M SAT R 3A 3B 6E 9B	CC 3A 3B C011/6E
8 864	M NAT R 2B 6B 6F 7E 13F	CC 6B 6F
8 867	M SP R 6G 10C 13D 13M	CC 13D 13M
8 870	R 5 6G 14 V VNAT	C004/6G
8 873	R 4 6G 9C 9D 12E 12F 13I	CC 9C 9D CC 12E 12F
8 876	R 2A 10A 12D 14G	

* See page AP27-78.

(See cont.)

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
8 879	M INO NAT R 3B	
8 882	R 2C 6D	
8 885	R 5 6B 11B 13G 14C	
8 888	R 2 6G 7	C009/6G
8 891	M NAT R 6A 14E	
8 894	M AFI R 3C 12F 14A	
8 897	M EA	
8 900	R 3A 10D 13G 14B	
8 903	M AFI CWP R 10B 13M	
8 906	M NAT R 6A 6E 7B 9B 13H	CC 6A 6E
8 909	R 2A 6E	
8 912	R 5B 6G 11B 13D 14C	C004/6G
8 915	R 3C 5A	
8 918	M CAR MID R 6C	
8 921	W WORLDWIDE	C100/I III
8 924	W WORLDWIDE	C100/I IV
8 927	W WORLDWIDE	C100/II V
8 930	W WORLDWIDE	C100/I III
8 933	W WORLDWIDE	C100/II V
8 936	W WORLDWIDE	C100/I II
8 939	R 2A 2C 6F 10B 13C	CC 2A 2C
8 942	M SEA R 3A	
8 945	R 10F 13K 14E V VMID	
8 948	R 6A 12C	
8 951	M MID	
8 954	R 3 10E 12J 14B	
8 957	R 3B 6D 12C 13D 14G V VEUR	
8 960	R 6G 7F	

* See page AP27-78.

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
10 006	R 6A 10 13G	
10 009	R 2B 2C 7B 9B 13K	CC 2B 2C
10 012	R 5 10 13J	
10 015	R 2 6C 12D	
10 018	M MID R 6G 9 13J 13K	CC 13J 13K C003/6G
10 021	R 1 6B 12C 13G	
10 024	M SAM R 2B 2C 3B 9B	CC 2B 2C 3B
10 027	W WORLDWIDE	C100/I II
10 030	W WORLDWIDE	C100/I IV
10 033	W WORLDWIDE	C100/II V
10 036	R 1E 6E 13G 13H	CC 13G 13H
10 039	R 3B 3C 4A 9B 12C	CC 3B 3C
10 042	M EA R 9C 10F 13C 13J 13K	CC 13C 13J 13K
10 045	R 2 3A 11B 13H 14	CC 2 3A
10 048	M NP R 2A 5D 13A 13B	CC 13A 13B
10 051	R 6A 6E 13I V VNAT	CC 6A 6E
10 054	R 2A 2C 6G 12	CC 2A 2C C004/6G
10 057	M CEP R 3A V VAFI	
10 060	R 1D 6F 13K	
10 063	R 4B 6G 12E	C004/6G
10 066	M SEA R 1B 10A 13M	
10 069	W WORLDWIDE	C100/I IV
10 072	W WORLDWIDE	C100/I III
10 075	W WORLDWIDE	C100/II V
10 078	W WORLDWIDE	C100/I III
10 081	M CWP R 4A 6A 7C 13F	C006/6A
10 084	M EUR SP R 6E 13D	

Band 10 005-10 100 kHz **10 MHz**

(Cont.)

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
10 087	R 3 14 V VSAM	
10 090	R 12E 12F V VNCA	CC 12E 12F
10 093	R 5B 6B 11B 13N	
10 096	M NCA SAM R 7D	

27/228

Band 11 275-11 400 kHz **11.3 MHz**

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
11 276	R 2A 2C 6G 10E 13J	CC 2A 2C C002/6G
11 279	M NAT R 2B 6F 9C	
11 282	M CEP R 4A 6G 13H	C003/6G
11 285	R 2A 3B 7	CC 2A 3B
11 288	R 5A 6G 11B	
11 291	M SAT R 3B 3C	CC 3B 3C
11 294	R 2A 6G 7C	C002/6G
11 297	R 2 12F	
11 300	M AFI R 6G 13H	C002/6G
11 303	R 3C 13E	
11 306	R 6G 7E 11B	
11 309	M NAT R 3A 6D	
11 312	R 5 9C 9D	CC 9C 9D
11 315	R 6G V VCAR	
11 318	R 3 4A 13D	

* See page AP27-78.

(See cont.)

Band 11 275-11 400 kHz **11.3 MHz**

(Cont.)

Frequency (kHz)	Authorized area of use*	Remarks*
1	2	3
11 321	R 6A 13F	
11 324	R 3A 3C 4B 12C	CC 3A 3C
11 327	M SP R 3B 5 13C	
11 330	M AFI NP R 3A 13F	
11 333	R 2B 2C 10	CC 2B 2C
11 336	M NAT R 3	
11 339	R 2B 6B 9 13K	
11 342	W WORLDWIDE	C100/II III
11 345	W WORLDWIDE	C100/I IV
11 348	W WORLDWIDE	C100/II V
11 351	W WORLDWIDE	C100/I III
11 354	W WORLDWIDE	C100/II V
11 357	R 6A 6E 10A	CC 6A 6E
11 360	M SAM R 2 3 14	CC 2 3
11 363	R 1 6E 10A	
11 366	R 1C 6B 6F 13K	CC 6B 6F
11 369	R 6G 13G	
11 372	R 2C 3B 6D	
11 375	M MID R 10A 13C	
11 378	R 3C 13M V VEUR	
11 381	R 6 12E 12J	CC 12E 12J
11 384	M CWP R 1D 12J	
11 387	M CAR V VSEA	
11 390	R 2 10	
11 393	R 9B 12E V VMID	
11 396	M CAR EA SEA	CC EA SEA

* See page AP27-78.

Frequency (kHz)	Authorized area of use*		Remarks*
1	2		3
13 261	V	VAFI	
13 264	R V	14 VEUR	
13 267	R	3 13H	
13 270	R V	6G VNAT	
13 273	M	AFI	
13 276	R V	6G VNAT	
13 279	V	VNCA VSAM	
13 282	V	VPAC	
13 285	R V	10 VSEA	
13 288	M	AFI EUR MID	CC AFI EUR MID
13 291	M R	NAT 6	
13 294	M	AFI	
13 297	M	CAR EA SAM	CC CAR SAM
13 300	M R	CEP CWP NP SP 4	CC CEP CWP NP SP
13 303	M	EA NCA	CC EA NCA
13 306	M	INO NAT	
13 309	M R	EA SEA 13C 13K	CC EA SEA CC 13C 13K
13 312	M R	MID 11B	
13 315	M	NCA SAT	
13 318	M R	SEA 13	
13 321	R	2 3	CC 2 3
13 324	W	WORLDWIDE	C100/I III
13 327	W	WORLDWIDE	C100/I IV
13 330	W	WORLDWIDE	C100/II V
13 333	W	WORLDWIDE	C100/I III
13 336	W	WORLDWIDE	C100/I IV
13 339	W	WORLDWIDE	C100/II V
13 342	W	WORLDWIDE	C100/I III

* See page AP27-78.

(See cont.)

Band 13 260-13 360 kHz **13.3 MHz**

(Cont.)

Frequency (kHz)	Authorized area of use*		Remarks*
1	2		3
13 345	W	WORLDWIDE	C100/I IV
13 348	W	WORLDWIDE	C100/II V
13 351	W	WORLDWIDE	C100/I III
13 354	R	5 7	CC 5 7
13 357	M R	SAT 2	

27/230

Band 17 900-17 970 kHz **18 MHz**

Frequency (kHz)	Authorized area of use*		Remarks*
1	2		3
17 901	R	12	
17 904	M R	CEP CWP NP SP 4	CC CEP CWP NP SP
17 907	M	CAR EA SAM SEA	CC CAR SAM CC EA SEA
17 910	R	10	
17 913	R	6G 13	
17 916	W	WORLDWIDE	C100/I III
17 919	W	WORLDWIDE	C100/II IV
17 922	W	WORLDWIDE	C100/I III
17 925	W	WORLDWIDE	C100/II V
17 928	W	WORLDWIDE	C100/III IV
17 931	W	WORLDWIDE	C100/I V
17 934	W	WORLDWIDE	C100/II III
17 937	W	WORLDWIDE	C100/IV V
17 940	W	WORLDWIDE	C100/II III
17 943	R	6	
17 946	M R	NAT 14	
17 949	R	5	

* See page AP27-78.

(See cont.)

Band 17 900-17 970 kHz

18 MHz

(Cont.)

Frequency (kHz)	Authorized area of use*		Remarks*
1	2		3
17 952	R	3	
17 955	M R	SAT 6B	
17 958	M	NCA	
17 961	M	AFI EUR INO MID	CC AFI EUR INO MID
17 964	R	2 11B	
17 967	R	5 13A 13B 13E 13F	CC 13A 13B 13E 13F

27/231

Band 21 924-22 000 kHz

22 MHz

Frequency (kHz)	Authorized area of use*		Remarks*
1	2		3
21 940	W	WORLDWIDE	C100/I
21 943	W	WORLDWIDE	C100/V
21 946	W	WORLDWIDE	C100/I
21 949	W	WORLDWIDE	C100/III
21 952	W	WORLDWIDE	C100/I
21 955	W	WORLDWIDE	C100/IV
21 958	W	WORLDWIDE	C100/I
21 961	W	WORLDWIDE	C100/V
21 964	W	WORLDWIDE	C100/II
21 967	W	WORLDWIDE	C100/I
21 970	W	WORLDWIDE	C100/III
21 973	W	WORLDWIDE	C100/I
21 976	W	WORLDWIDE	C100/IV
21 979	W	WORLDWIDE	C100/I
21 982	W	WORLDWIDE	C100/V
21 985	W	WORLDWIDE	C100/II
21 988	W	WORLDWIDE	C100/I
21 991	W	WORLDWIDE	C100/IV
21 994	W	WORLDWIDE	C100/V
21 997	W	WORLDWIDE	C100/I

* See page AP27-78.

Explanation of symbols and abbreviations

Column 2	M = MWARA R = RDARA V = VOLMET W = worldwide
Column 3	CC = common channel to
C001/...	Restricted to daytime only, in the area indicated after the slant stroke
C002/6G	In area 6G, operation is restricted to east of 95° E
C003/6G	In area 6G, operation is restricted to west of 95° E
C004/6G	Use limited to east of 110° E
C005/2A	Use limited to north of 60° N
C006/6A	Use limited to east of 75° E
C007	Not used
C008	Not used
C009/6G	In area 6G, use limited to east of 110° E and south of 25° N
C010/6G	In area 6G, use limited to east of 118° E and north of 40° N
C011/6E	In area 6E, use is limited to south of 20° N
C100/...	Worldwide Allotment Area is indicated after the symbol. For assignment procedure see No. 27/217.

ARTICLE 3

Frequencies for common use

27/232 1 The carrier (reference) frequencies 3 023 kHz and 5 680 kHz are intended for common use on a world-wide basis.

27/233 2 The use of these frequencies in any part of the world is authorized:

2.1 aboard aircraft for:

- a) communications with approach and aerodrome control;
- b) communication with an aeronautical station when other frequencies of the station are either unavailable or unknown;

2.2 at aeronautical stations for aerodrome and approach control under the following conditions:

- a) with mean power limited to a value of not more than 20 W in the antenna circuit;
- b) special attention must be given in each case to the type of antenna used in order to avoid harmful interference;
- c) the power of aeronautical stations which use these frequencies in accordance with the above conditions may be increased to the extent necessary to meet certain operational requirements subject to coordination between the administrations directly concerned and those whose services may be adversely affected.

27/234 3 Notwithstanding these provisions, the frequency 5 680 kHz may also be used at aeronautical stations for communication with aircraft stations when other frequencies of the aeronautical stations are either unavailable or unknown. However, this use shall be restricted to such areas and conditions that harmful interference cannot be caused to other authorized operations of stations in the aeronautical mobile service.

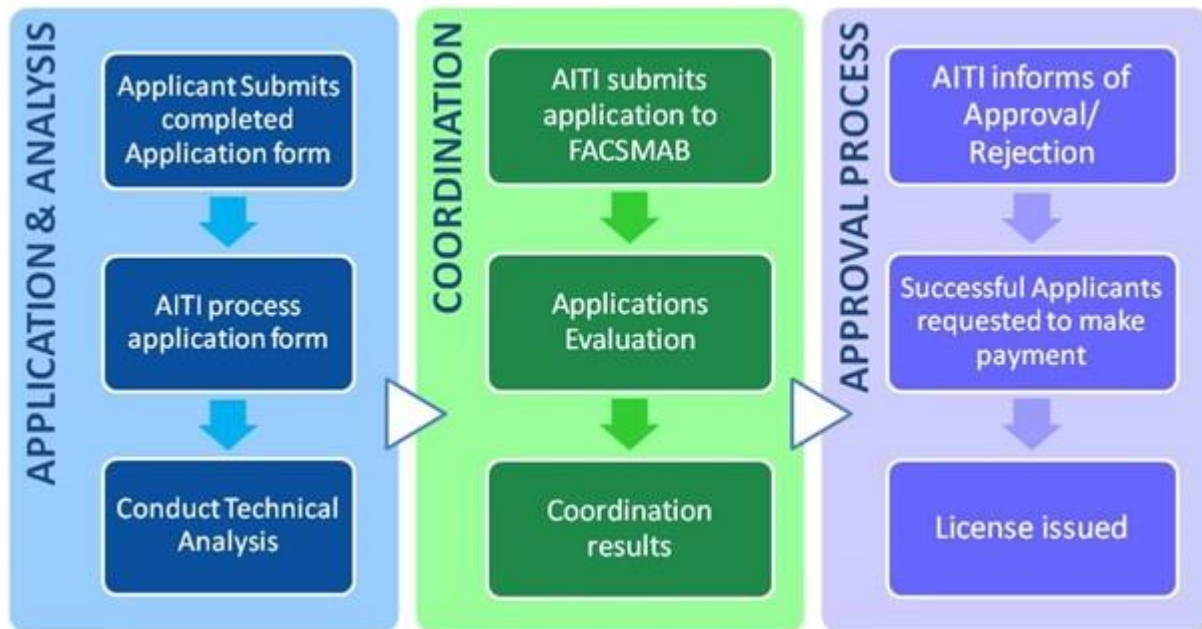
27/235 4 Additional particulars regarding the use of these channels for the above purposes may be recommended by the meetings of ICAO.

27/236 5 Frequencies 3 023 kHz and 5 680 kHz may also be used by stations of other mobile services participating in coordinated air-surface search and rescue operations, including communications between these stations and participating land stations. Aeronautical stations are authorized to use these frequencies to establish communications with such stations.

27/237 6 These channels may be used for A1A, A1B or A3E emissions, in accordance with special arrangements. Such channels shall not be subdivided.

27/238 7 All stations participating directly in coordinated search and rescue operations and using frequencies 3 023 kHz and 5 680 kHz shall transmit solely on the upper sideband except in the cases provided for in No. **27/57**.

12 Frequency Application Flowchart



- i. Applicant must fill in Frequency Application form attached with cover letter.
- ii. AITI will only process complete application form with signature together with required documents (i.e. Technical Parameter and Network Diagram).
- iii. AITI will conduct technical analysis and simulation based on the applicant submission to ensure that no interference occurs to existing radiocommunication equipment in Brunei Darussalam.
- iv. AITI will submit the application to FACSMAB for approval on the coordination with other countries to ensure management of interference on a regional level.
- v. AITI will inform the applicant if the application is rejected or approved.
- vi. Successful applicant will be requested to make payment, in order for AITI to issue License.

13 Spectrum Fee

APPLICATION AND PROCESSING FEES FOR USE OF RADIO FREQUENCY

No.	Bandwidth	Fee payable per frequency
1.	Temporary use	\$100
2.	All other frequencies –	
	(a) bandwidth of 25 kHz or less	\$290
	(b) bandwidth of more than 25 kHz but less than 500 kHz	\$450
	(c) bandwidth of 500 kHz or more but less than 1 MHz	\$700
	(d) bandwidth of 1 MHz or more but less than 20 MHz	\$900
	(e) bandwidth of 20 MHz or more	\$1,200
3.	Satellite frequencies	
	Uplink	\$500
	Downlink	\$500

ANNUAL FEES FOR USE OF RADIO FREQUENCY

DIVISION 1

BROADCASTING, CELLULAR, LAND MOBILE OR TRUNKED RADIO WIRELESS BROADBAND ACCESS

The annual fee for radio frequency spectrum will be calculated using the following formula:

$$\text{Annual radio frequency spectrum fee} = (\text{Unit Price}) (B) (K1)$$

where,

$$\text{Unit Price} = \$1,000$$

$$B = B_{UP} + B_{DOWN} \text{ (assigned bandwidth in MHz or spectrum size in MHz)}$$

$$K1 = \text{Band factor}$$

1.0	for TV band
6.0	for Radio band
8.0	for 2.3 / 2.5 GHz band (WBA)
10.0	for 1.7 to 2.1 GHz band (Cellular and WBA) and land mobile or trunked radio (non-localised use)
12.0	for 700 MHz to 900 MHz band (Cellular and WBA)

Duplex/Simplex: For simplex channel, unit price will be half of equivalent duplex channel.

ANNUAL FEES FOR USE OF RADIO FREQUENCY

DIVISION 2

MICROWAVE, SATELLITE UPLINK AND DOWNLINK AND RADAR

Annual fee per hop = Unit Price (F1) (F2) (N)

where,

Unit Price = \$500

F1 = Band factor

1.2 = 1 – 4 GHz band

1.0 = 5 – 8 GHz band

0.8 = 9 – 14 GHz band

0.7 = 15 – 18 GHz band

0.5 = 19 GHz and above

F2 = Bandwidth factor

2 = $x \leq 7$ MHz

4 = $7 \text{ MHz} < x \leq 14$ MHz

6 = $14 \text{ MHz} < x \leq 28$ MHz

8 = above 28 MHz

N = Total number of RF Channels

**LAND MOBILE, TRUNKED RADIO, TELEMETRY, FIXED POINT-TO-POINT, AERONAUTICAL AND
MARITIME (LOCALISED USE)**

Annual fee per channel = \$75 per 12.5 kHz of occupied bandwidth

FIXED FEE: HIGH FREQUENCY (3 MHz – 30 MHz)

Annual fee per channel = \$50

**FEES FOR TEMPORARY FREQUENCY FOR PUBLIC TELECOMMUNICATION INFRASTRUCTURE
AND SERVICE**

The formula is B\$1,000.00 per 1 MHz occupied bandwidth

FEES FOR TEMPORARY FREQUENCY FOR OTHERS

	Bandwidth (x)	Fee payable per frequency for 0-90 days
a)	$x \leq 25 \text{ kHz}$	\$100
b)	$25 \text{ kHz} < x < 500 \text{ kHz}$	\$150
c)	$500 \text{ kHz} \leq x < 1 \text{ MHz}$	\$200
d)	$1 \text{ MHz} \leq x < 20 \text{ MHz}$	\$400
e)	$x \leq 20 \text{ MHz}$	\$700

**Authority for Info-communications Technology Industry
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