National Table of Frequency Allocations

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POST AND TELEGRAPH DEPARTMENT
87 Phaholyothin 8 Road, Bangkok 10400, Thailand
Tel: (662) 2710151-60 Fax: (662) 2713514
http://www.ptd.go.th

Foreward

This National Table of Frequency Allocations allocates the electromagnetic spectrum between 9 kHz and 275 GHz (275 - 400 GHz is not allocated at this time) and is based on the provisions of the Radio Regulations (Edition of 1998) of the International Telecommunication Union (ITU). The Table is intended to respond to domestic spectrum requirements of Thailand in which it reflects national spectrum allocation and utilization policies. It should be noted, therefore, that the Table of Frequency Allocations of Thailand differs, where necessary, from the international Table of Frequency Allocations contained in the Radio Regulations.

Portions of this Table and the associated information will be revised from time to time as a result of changes from a world radiocommunication conference (WRC) or a regional radiocommunication conference (RRC) convened by the International Telecommunication Union, as well as changes from domestic spectrum requirements.

More information on the National Table of Frequency Allocations and the Radio Regulations can be obtained by contacting :

Post and Telegraph Department

87 Phaholyothin 8 Rd.

Bangkok 10400

Thailand

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Preamble

The terms and definitions and international footnotes which are relevant to a consideration of the National Table of Frequency Allocations are from Articles S1 and S5 of the Radio Regulations of the International Telecommunication Union.

It should be noted that some of the international footnotes are not applicable to Thailand and will not appear in the national portions of the Table.

The national footnotes have been developed in response to domestic spectrum requirements and reflect national allocation and utilization policies, both short-term and long-term.

In cases where a provision, an appendix, a resolution, an ITU-R Recommendation or a Frequency Plan is referred to in an Article or a footnote, or more comprehensive information is required, the Radio Regulations (Edition of 1998) or the relevant ITU-R Recommendation or a Frequency Plan of the Post and Telegraph Department should be consulted.

Terms and Definitions

Terms and Definitions

Introduction

S1.1 For the purposes of these Regulations, the following terms shall have the meanings defined below. These terms and definitions do not, however, necessarily apply for other purposes. Definitions identical to those contained in the Annex to the Constitution or the Annex to the Convention of the International Telecommunication Union (Geneva, 1992) are marked "(CS)" or "(CV)" respectively.

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 Article.

Section I – General terms

S1.2 ***administration****:* Any governmental department or service responsible for discharging the obligations undertaken in the Constitution of the International Telecommunication Union, in the Convention of the International Telecommunication Union and in the Administrative Regulations (CS 1002).

S1.3 ***telecommunication****:* Any transmission, *emission* or reception of signs, signals, writings, images and sounds or intelligence of any nature by wire, *radio*, optical or other electromagnetic systems (CS).

S1.4 ***radio****:* A general term applied to the use of *radio waves*.

S1.5 ***radio waves*** or ***hertzian waves****:* Electromagnetic waves of frequencies arbitrarily lower than 3 000 GHz, propagated in space without artificial guide.

S1.6 ***radiocommunication****: Telecommunication* by means of *radio waves* (CS) (CV).

S1.7 ***terrestrial radiocommunication****:* Any *radiocommunication* other than *space radiocommunication* or *radio astronomy*.

S1.8 ***space radiocommunication****:* Any *radiocommunication* involving the use of one or more *space stations* or the use of one or more *reflecting satellites* or other objects in space.

S1.9 ***radiodetermination****:* The determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of *radio waves*.

S1.10 ***radionavigation****: Radiodetermination* used for the purposes of navigation, including obstruction warning.

S1.11 ***radiolocation****: Radiodetermination* used for purposes other than those of *radionavigation*.

S1.12 ***radio direction-finding****: Radiodetermination* using the reception of *radio waves* for the purpose of determining the direction of a *station* or object.

S1.13 ***radio astronomy****:* Astronomy based on the reception of *radio waves* of cosmic origin.

S1.14 ***Coordinated Universal Time (UTC)****:* Time scale, based on the second (SI), as defined in ITU-R Recommendation ITU-R TF.460-5.

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

S1.15 ***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*.

Section II – Specific terms related to frequency management

S1.16 ***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.

S1.17 ***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.

S1.18 ***asssignment*** (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.

Section III – Radio services

S1.19 ***radiocommunication service****:* A service as defined in this Section involving the transmission, *emission* and/or reception of *radio waves* for specific *telecommunication* purposes.

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

S1.20 ***fixed service****:* A *radiocommunication service* between specified fixed points.

S1.21 ***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*.

S1.22 ***inter-satellite service****:* A *radiocommunication service* providing links between artificial *satellites*.

S1.23 ***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.

S1.24 ***mobile service****:* A *radiocommunication service* between *mobile* and *land stations*, or between *mobile stations* (CV).

S1.25 ***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.

S1.26 ***land mobile service****:* A *mobile service* between *base stations* and *land mobile stations*, or between *land mobile stations*.

S1.27 ***land mobile-satellite service****:* A *mobile-satellite service* in which *mobile earth stations* are located on land.

S1.28 ***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.

S1.29 ***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.

S1.30 ***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.

S1.31 ***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.

S1.32 ***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.

S1.33 ***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.

S1.34 ***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.

S1.35 ***aeronautical mobile-satellite service:*** A *mobile-satellite service* in which *mobile earth stations* are located on board aircraft; *survival craft stations* and *emergency position-indicating radiobeacon stations* may also participate in this service.

S1.36 ***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.

S1.37 ***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.

S1.38 ***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 (CS).

S1.39 ***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.*

S1.40 ***radiodetermination service:*** A *radiocommunication service* for the purpose of *radiodetermination.*

S1.43 ***radionavigation-satellite service:*** A *radiodetermination-satellite service* used for the purpose of *radionavigation.*

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

S1.44 ***maritime radionavigation service:*** A *radionavigation service* intended for the benefit and for the safe operation of ships.

S1.45 ***maritime radionavigation-satellite service:*** A *radionavigation-satellite service* in which *earth stations* are located on board ships.

S1.46 ***aeronautical radionavigation service:*** A *radionavigation service* intended for the benefit and for the safe operation of aircraft.

S1.47 ***aeronautical radionavigation-satellite service:*** A *radionavigation-satellite service* in which *earth stations* are located on board aircraft.

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* (R): route.

** (OR): off-route

S1.48 ***radiolocation service****:* A *radiodetermination service* for the purpose of *radiolocation.*

S1.49 ***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.

S1.50 ***meteorological aids service****:* A *radiocommunication service* used for meteorological, including hydrological, observations and exploration.

S1.51 ***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.

S1.52 ***meteorological-satellite service****:* An *earth exploration-satellite service* for meteorological purposes.

S1.53 ***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.

S1.54 ***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.

S1.55 ***space research service****:* A *radiocommunication service* in which *spacecraft* or other objects in space are used for scientific or technological research purposes.

S1.56 ***amateur service****:* A *radiocommunication service* for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

S1.57 ***amateur-satellite service****:* A *radiocommunication service* using *space stations* on earth *satellites* for the same purposes as those of the *amateur service*.

S1.58 ***radio astronomy service****:* A service involving the use of *radio astronomy*.

S1.59 ***safety service****:* Any *radiocommunication service* used permanently or temporarily for the safeguarding of human life and property.

S1.60 ***special service****:* A *radiocommunication service*, not otherwise

defined in this Section, carried on exclusively for specific needs of general utility, and not open to *public correspondence*.

Section IV – Radio stations and systems

S1.61 ***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.

S1.62 ***terrestrial station:*** A *station* effecting *terrestrial radiocommunication*.

In these Regulations, unless otherwise stated, any *station* is a terrestrial station.

S1.63 ***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.

S1.64 ***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.

S1.65 ***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.

S1.66 ***fixed station:*** A *station* in the *fixed service*.

S1.66A ***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.

S1.67 ***mobile station:*** A *station* in the *mobile service* intended to be used while in motion or during halts at unspecified points.

S1.68 ***mobile earth station:*** An *earth station* in the *mobile-satellite service* intended to be used while in motion or during halts at unspecified points.

S1.69 ***land station:*** A *station* in the *mobile service* not intended to be used while in motion.

S1.70 ***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*.

S1.71 ***base station:*** A *land station* in the *land mobile service*.

S1.72 ***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*.

S1.73 ***land mobile station****:* A *mobile station* in the *land mobile service* capable of surface movement within the geographical limits of a country or continent.

S1.74 ***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.

S1.75 ***coast station****:* A *land station* in the *maritime mobile service*.

S1.76 ***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*.

S1.77 ***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*.

S1.78 ***ship earth station****:* A *mobile earth station* in the *maritime mobile-satellite service* located on board ship.

S1.79 ***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.

S1.80 ***port station****:* A *coast station* in the *port operations service*.

S1.81 ***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.

S1.82 ***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*.

S1.83 ***aircraft station****:* A *mobile station* in the *aeronautical mobile service*, other than a *survival craft station*, located on board an aircraft.

S1.84 ***aircraft earth station****:* A *mobile earth station* in the *aeronautical mobile-satellite service* located on board an aircraft.

S1.85 ***broadcasting station****:* A *station* in the *broadcasting service*.

S1.86 ***radiodetermination station****:* A *station* in the *radiodetermination service*.

S1.87 ***radionavigation mobile station****:* A *station* in the *radionavigation service* intended to be used while in motion or during halts at unspecified points.

S1.88 ***radionavigation land station****:* A *station* in the *radionavigation service* not intended to be used while in motion.

S1.89 ***radiolocation mobile station****:* A *station* in the *radiolocation service* intended to be used while in motion or during halts at unspecified points.

S1.90 ***radiolocation land station****:* A *station* in the *radiolocation service* not intended to be used while in motion.

S1.91 ***radio direction-finding station****:* A *radiodetermination station* using *radio direction-finding.*

S1.92 ***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.

S1.93 ***emergency position-indicating radiobeacon station****:* A *station* in the *mobile service* the *emissions* of which are intended to facilitate search and rescue operations.

S1.94 ***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.

S1.95 ***standard frequency and time signal station****:* A *station* in the *standard frequency and time signal service.*

S1.96 ***amateur station****:* A *station* in the *amateur service.*

S1.97 ***radio astronomy station****:* A *station* in the *radio astronomy service.*

S1.98 ***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.*

S1.99 ***ship's emergency transmitter****:* A ship's transmitter to be used exclusively on a distress frequency for distress, urgency or safety purposes.

S1.100 ***radar****:* A *radiodetermination* system based on the comparison of reference signals with radio signals reflected, or retransmitted, from the position to be determined.

S1.101 ***primary radar****:* A *radiodetermination* system based on the comparison of reference signals with radio signals reflected from the position to be determined.

S1.102 ***secondary radar****:* A *radiodetermination* system based on the comparison of reference signals with radio signals retransmitted from the position to be determined.

S1.103 ***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.

S1.104 ***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.

S1.105 ***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.

S1.106 ***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.

S1.107 ***marker beacon****:* A transmitter in the *aeronautical radionavigation service* which radiates vertically a distinctive pattern for providing position information to aircraft.

S1.108 ***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.

S1.109 ***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.

S1.109A ***adaptive system****:* A radiocommunication system which varies its radio characteristics according to channel quality.

S1.110 ***space system****:* Any group of cooperating *earth stations* and/or *space stations* employing *space radiocommunication* for specific purposes.

S1.111 ***satellite system****:* A *space system* using one or more artificial earth *satellites*.

S1.112 ***satellite network****:* A *satellite system* or a part of a *satellite system*, consisting of only one *satellite* and the cooperating *earth stations*.

S1.113 ***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.

S1.114 ***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.

S1.115 ***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.

Section V – Operational terms

S1.116 ***public correspondence****:* Any *telecommunication* which the offices and *stations* must, by reason of their being at the disposal of the public, accept for transmission (CS).

S1.117 ***telegraphy***[1]*:* 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 (CS 1016).

[1] **S1.117.1** A graphic document records information in a permanent form and is capable of being filed and

S1.118 ***telegram****:* Written matter intended to be transmitted by *telegraphy* for delivery to the addressee. This term also includes *radiotelegrams* unless otherwise specified (CS).

In this definition the term *telegraphy* has the same general meaning as defined in the Convention.

S1.119 ***radiotelegram****:* A *telegram*, originating in or intended for a *mobile station* or a *mobile earth station* transmitted on all or part of its route over the *radiocommunication* channels of the *mobile service* or of the *mobile-satellite service*.

S1.120 ***radiotelex call****:* A telex call, originating in or intended for a *mobile station* or a *mobile earth station*, transmitted on all or part of its route over the *radiocommunication* channels of the *mobile service* or the *mobile-satellite service*.

S1.121 ***frequency-shift telegraphy****: Telegraphy* by frequency modulation in which the telegraph signal shifts the frequency of the carrier between predetermined values.

S1.122 ***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.

S1.123 ***telephony****:* A form of *telecommunication* primarily intended for the exchange of information in the form of speech (CS 1017).

S1.124 ***radiotelephone call****:* A telephone call, originating in or intended for a *mobile station* or a *mobile earth station*, transmitted on all or part of its route over the *radiocommunication* channels of the *mobile service* or of the *mobile-satellite service*.

S1.125 ***simplex operation****:* Operating method in which transmission is made possible alternately in each direction of a *telecommunication* channel, for example, by means of manual control[2].

S1.126 ***duplex operation****:* Operating method in which transmission is possible simultaneously in both directions of a *telecommunication* channel[2]

S1.127 ***semi-duplex operation****:* A method which is *simplex operation* at one end of the circuit and *duplex operation* at the other[2].

S1.128 ***television****:* A form of *telecommunication* for the transmission of transient images of fixed or moving objects.

S1.129 ***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.

S1.130 ***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

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[2] **S1.125.1, S1.126.1** and **S1.127.1** In general, *duplex operation* and *semi-duplex operation* require two frequencies in *radiocommunication*; *simplex operation* may use either one or two.

– through a distribution system covering a limited area.

S1.131 ***telemetry****:* The use of *telecommunication* for automatically indicating or recording measurements at a distance from the measuring instrument.

S1.132 ***radiotelemetry****: Telemetry* by means of *radio waves*.

S1.133 ***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*.

S1.134 ***telecommand****:* The use of *telecommunication* for the transmission of signals to initiate, modify or terminate functions of equipment at a distance.

S1.135 ***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*.

S1.136 ***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.

Section VI – Characteristics of emissions and radio equipment

S1.137 ***radiation****:* The outward flow of energy from any source in the form of *radio waves*.

S1.138 ***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*.

S1.139 ***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.

S1.140 ***single-sideband emission****:* An amplitude modulated *emission* with one sideband only.

S1.141 ***full carrier single-sideband emission****:* A *single-sideband emission* without reduction of the carrier.

S1.142 ***reduced carrier single-sideband emission****:* A *single-sideband emission* in which the degree of carrier suppression enables the carrier to be reconstituted and to be used for demodulation.

S1.143 ***suppressed carrier single-sideband emission****:* A *single-sideband emission* in which the carrier is virtually suppressed and not intended to be used for demodulation.

S1.144 ***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*.

S1.145 ***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*.

S1.146 ***unwanted emissions****:* Consist of *spurious emissions* and *out-of-band emissions*.

S1.147 ***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.

S1.148 ***assigned frequency****:* The centre of the frequency band assigned to a *station*.

S1.149 ***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.

S1.150 ***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*.

S1.151 ***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.

S1.152 ***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.

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* The terms associated with the definitions given by Nos. **S1.144**, **S1.145** and **S1.146** shall be expressed in the working languages as follows:

Numbers	In French	In English	In Spanish
S1.144	Emission hors bande	Out-of-band emission	Emisión fuera de banda
S1.145	Rayonnement non essentiel	Spurious emission	Emisión no esencial
S1.146	Rayonnements non désirés	Unwanted emissions	Emisiones no deseadas

S1.153 ***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 ß/2 of 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 ß/2 should be taken as 0.5%.

S1.154 ***right-hand*** (clockwise) ***polarized wave****:* An elliptically-or circularly-polarized wave, in which the electric field vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-hand or clockwise direction.

S1.155 ***left-hand*** (anticlockwise) ***polarized wave****:* An elliptically-or circularly-polarized wave, in which the electric field vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a left-hand or anticlockwise direction.

S1.156 ***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* (*P*X or *p*X);

– *mean power* (*P*Y or *p*Y);

– *carrier power* (*P*Z or *p*Z).

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.

S1.157 ***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.

S1.158 ***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.

S1.159 ***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.

S1.160 ***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.

S1.161 ***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).*

S1.162 ***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.

S1.163 ***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.

S1.164 ***tropospheric scatter****:* The propagation of *radio waves* by scattering as a result of irregularities or discontinuities in the physical properties of the troposphere.

S1.165 ***ionospheric scatter****:* The propagation of *radio waves* by scattering as a result of irregularities or discontinuities in the ionization of the ionosphere.

Section VII – Frequency sharing

S1.166 ***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.

S1.167 ***permissible interference***[3]*:* 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.

S1.168 ***accepted interference***[3]*:* *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.

S1.169 ***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).

S1.170 ***protection ratio*** (R.F.)*:* The minimum value of the wanted-to-unwanted signal ratio, usually expressed in decibels, at the receiver input, determined under specified conditions such that a specified reception quality of the wanted signal is achieved at the receiver output.

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[3] **S1.167.1** and **S1.168.1** The terms “permissible interference” and “accepted interference” are used in the coordination of frequency assignments between administrations.

S1.171 ***coordination area****:* The area associated with an *earth station* outside of which a *terrestrial station* sharing the same frequency band neither causes nor is subject to interfering *emissions* greater than a permissible level.

S1.172 ***coordination contour****:* The line enclosing the *coordination area*.

S1.173 ***coordination distance****:* Distance on a given azimuth from an *earth station* beyond which a *terrestrial station* sharing the same frequency band neither causes nor is subject to interfering *emissions* greater than a permissible level.

S1.174 ***equivalent satellite link noise temperature****:* The noise temperature referred to the output of the receiving antenna of the *earth station* corresponding to the radio frequency noise power which produces the total observed noise at the output of the *satellite link* excluding noise due to *interference* coming from *satellite links* using other *satellites* and from terrestrial systems.

S1.175 ***effective boresight area*** (of a steerable satellite beam)*:* An area on the surface of the Earth within which the boresight of a *steerable satellite beam* is intended to be pointed.

There may be more than one unconnected effective boresight area to which a single *steerable satellite beam* is intended to be pointed.

S1.176 ***effective antenna gain contour*** (of a steerable satellite beam)*:* An envelope of antenna gain contours resulting from moving the boresight of a *steerable satellite beam* along the limits of the *effective boresight area*.

Section VIII – Technical terms relating to space

S1.177 ***deep space****:* Space at distances from the Earth equal to, or greater than, 2×10^6 km.

S1.178 ***spacecraft****:* A man-made vehicle which is intended to go beyond the major portion of the Earth's atmosphere.

S1.179 ***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.

S1.180 ***active satellite****:* A *satellite* carrying a *station* intended to transmit or retransmit radiocommunication signals.

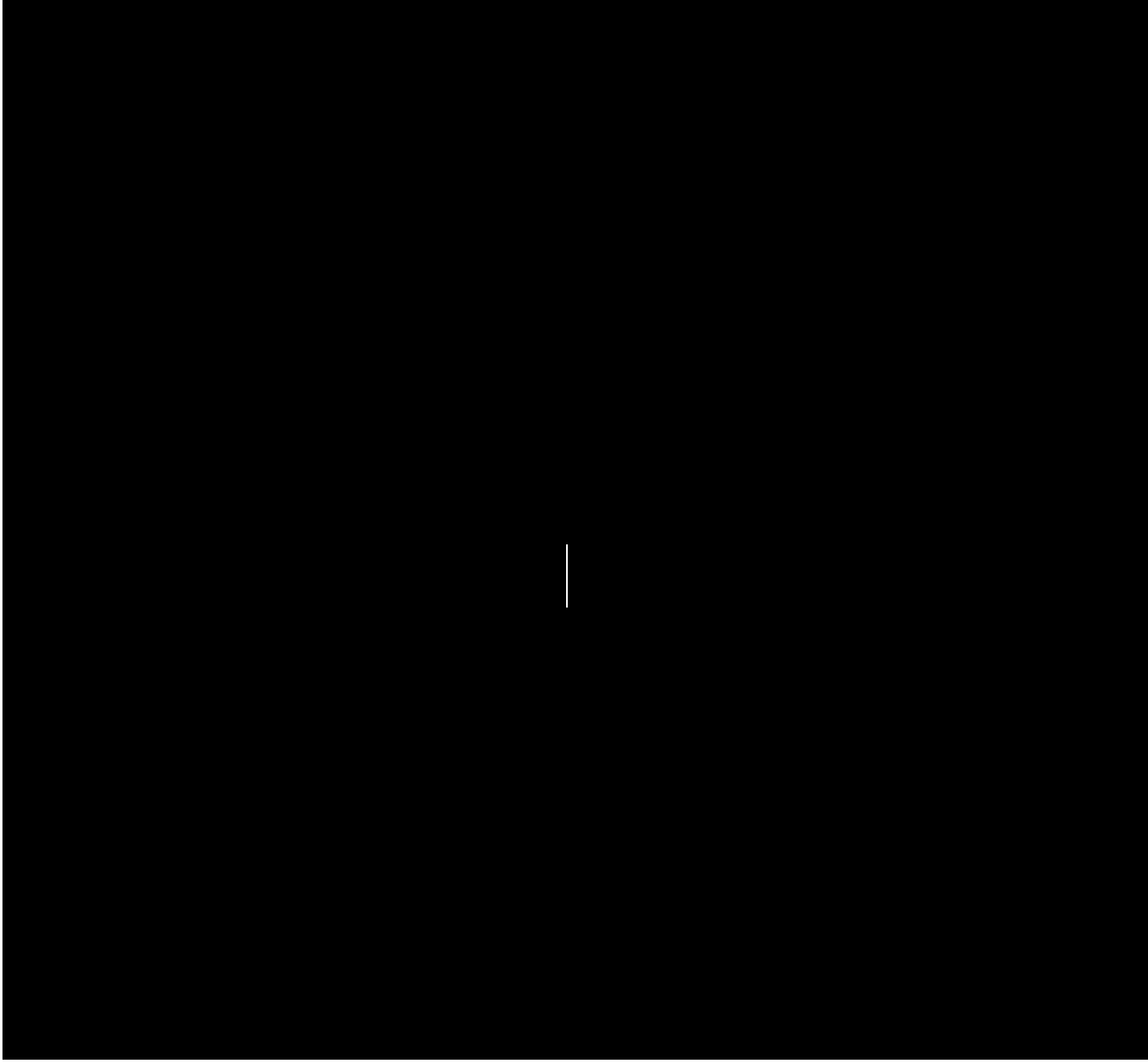
S1.181 ***reflecting satellite****:* A *satellite* intended to reflect radiocommunication signals.

S1.182 ***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*.

S1.183 ***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.

S1.184 ***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

Frequency Allocations



S5.3 *Region 1:* Region 1 includes the area limited on the east by line A (lines A, B and C are defined below) and on the west by line B, excluding any of the territory of the Islamic Republic of Iran which lies between these limits. It also includes the whole of the territory of Armenia, Azerbaijan, Russian Federation, Georgia, Kazakstan, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russian Federation which lies between lines A and C.

S5.4 *Region 2:* Region 2 includes the area limited on the east by line B and on the west by line C.

S5.5 *Region 3:* Region 3 includes the area limited on the east by line C and on the west by line A, except any of the territory of Armenia, Azerbaijan, Russian Federation, Georgia, Kazakstan, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russian Federation. It also includes that part of the territory of the Islamic Republic of Iran lying outside of those limits.

S5.6 The lines A, B and C are defined as follows:

S5.7 *Line A:* Line A extends from the North Pole along meridian 40º East of Greenwich to parallel 40º North; thence by great circle arc to the intersection of meridian 60º East and the Tropic of Cancer; thence along the meridian 60º East to the South Pole.

S5.8 *Line B:* Line B extends from the North Pole along meridian 10º West of Greenwich to its intersection with parallel 72º North; thence by great circle arc to the intersection of meridian 50º West and parallel 40º North; thence by great circle arc to the intersection of meridian 20º West and parallel 10º South; thence along meridian 20º West to the South Pole.

S5.9 *Line C:* Line C extends from the North Pole by great circle arc to the intersection of parallel 65º 30′ North with the international boundary in Bering Strait; thence by great circle arc to the intersection of meridian 165º East of Greenwich and parallel 50º North; thence by great circle arc to the intersection of meridian 170º West and parallel 10º North; thence along parallel 10º North to its intersection with meridian 120º West; thence along meridian 120º West to the South Pole.

S5.10 For the purposes of these Regulations, the term "African Broadcasting Area" means:

S5.11 *a)* African countries, parts of countries, territories and groups of territories situated between the parallels 40º South and 30º North;

S5.12 *b)* islands in the Indian Ocean west of meridian 60º East of Greenwich, situated between the parallel 40º South and the great circle arc joining the points 45º East, 11º 30′ North and 60º East, 15º North;

S5.13 *c)* islands in the Atlantic Ocean east of line B defined in No. **S5.8** of these Regulations, situated between the parallels 40º South and 30º North.

S5.14 The "European Broadcasting Area" is bounded on the west by the western boundary of Region 1, on the east by the meridian 40º East of Greenwich and on the south by the parallel 30º 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, Iraq, Jordan and that part of the territory of Syria, Turkey and Ukraine lying outside the above limits are included in the European Broadcasting Area.

S5.15 The "European Maritime Area" is bounded to the north by a line extending along parallel 72º North from its intersection with meridian 55º East of Greenwich to its

intersection with meridian 5º West, then along meridian 5º West to its intersection with parallel 67º North, thence along parallel 67º North to its intersection with meridian 32º West; to the west by a line extending along meridian 32º West to its intersection with parallel 30º North; to the south by a line extending along parallel 30º North to its intersection with meridian 43º East; to the east by a line extending along meridian 43º East to its intersection with parallel 60º North, thence along parallel 60º North to its intersection with meridian 55º East and thence along meridian 55º East to its intersection with parallel 72º North.

S5.16 1) The "Tropical Zone" (see map in No. **S5.2**) is defined as:

S5.17 *a)* the whole of that area in Region 2 between the Tropics of Cancer and Capricorn;

S5.18 *b)* the whole of that area in Regions 1 and 3 contained between the parallels 30º North and 35º South with the addition of:

S5.19 i) The area contained between the meridians 40º East and 80º East of Greenwich and the parallels 30º North and 40º North;

S5.20 ii) that part of Libya north of parallel 30º North.

S5.21 2) In Region 2, the Tropical Zone may be extended to parallel 33º North, subject to special agreements between the countries concerned in that Region (see Article **S6**).

S5.22 A sub-Region is an area consisting of two or more countries in the same Region.

Section II – Categories of services and allocations

S5.23 *Primary and secondary services*

S5.24 1) Where, in a box of the Table in Section IV of this Article, 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:

S5.25 *a)* services the names of which are printed in "capitals" (example: FIXED); these are called "primary" services;

S5.26 *b)* services the names of which are printed in "normal characters" (example: Mobile); these are called "secondary" services (see Nos. **S5.28** to **S5.31**).

S5.27 2) Additional remarks shall be printed in normal characters (example: MOBILE except aeronautical mobile).

S5.28 3) Stations of a secondary service:

S5.29 *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;

S5.30 *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;

S5.31 *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.

S5.32 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. **S5.28** to **S5.31**).

S5.33 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.

S5.34 *Additional allocations*

S5.35 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. **S5.36**).

S5.36 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.

S5.37 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.

S5.38 *Alternative allocations*

S5.39 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. **S5.40**).

S5.40 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.

S5.41 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.

S5.42 *Miscellaneous provisions*

S5.43 1) Where it is indicated in these Regulations that a service may operate in a specific frequency band subject to not causing harmful interference, this means also that this service cannot claim protection from harmful interference caused by other services to which the band is allocated under Chapter **SII** of these Regulations.

S5.44 2) Except if otherwise specified in a footnote, the term "fixed service", where appearing in Section IV of this Article, does not include systems using ionospheric scatter propagation.

S5.45 Not used.

Section III – Description of the Table of Frequency Allocations

S5.46 1) The heading of the Table in Section IV of this Article includes three

columns, each of which corresponds to one of the Regions (see No. **S5.2**). 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.

S5.47 2) The frequency band referred to in each allocation is indicated in the left-hand top corner of the part of the Table concerned.

S5.48 3) Within each of the categories specified in Nos. **S5.25** and **S5.26**, services are listed in alphabetical order according to the French language. The order of listing does not indicate relative priority within each category.

S5.49 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.

S5.50 5) The footnote references which appear in the Table below the allocated service or services apply to the whole of the allocation concerned.

S5.51 6) The footnote references which appear to the right of the name of a service are applicable only to that particular service.

S5.52 7) In certain cases, the names of countries appearing in the footnotes have been simplified in order to shorten the text.

Table of Frequency Allocations

Table of Frequency Allocations

9-110 kHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>Below 9</td><td colspan="2">(Not allocated)
S5.53 S5.54</td></tr>
<tr><td>9-14</td><td colspan="2">RADIONAVIGATION</td></tr>
<tr><td>14-19.95</td><td colspan="2">FIXED
MARITIME MOBILE S5.57
S5.55 S5.56</td></tr>
<tr><td>19.95-20.05</td><td colspan="2">STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)</td></tr>
<tr><td>20.05-70</td><td colspan="2">FIXED
MARITIME MOBILE S5.57
S5.56 S5.58</td></tr>
<tr><td>70-72
RADIONAVIGATION S5.60</td><td rowspan="4">70-90
FIXED
MARITIME MOBILE S5.57
MARITIME RADIO-NAVIGATION S5.60
Radiolocation</td><td>70-72
RADIONAVIGATION S5.60
Fixed
Maritime mobile S5.57
S5.59</td></tr>
<tr><td>72-84
FIXED
MARITIME MOBILE S5.57
RADIONAVIGATION S5.60
S5.56</td><td>72-84
FIXED
MARITIME MOBILE S5.57
RADIONAVIGATION S5.60</td></tr>
<tr><td>84-86
RADIONAVIGATION S5.60</td><td>84-86
RADIONAVIGATION S5.60
Fixed
Maritime mobile S5.57
S5.59</td></tr>
<tr><td>86-90
FIXED
MARITIME MOBILE S5.57
RADIONAVIGATION
S5.56</td><td>S5.61</td><td>86-90
FIXED
MARITIME MOBILE S5.57
RADIONAVIGATION S5.60</td></tr>
<tr><td>90-110</td><td colspan="2">RADIONAVIGATION S5.62
Fixed
S5.64</td></tr>
</table>

Table of Frequency Allocations

9-110 kHz

Allocation to services		
Thailand		**Remark**
Below 9	(Not allocated) S5.53 S5.54	
9 – 14	RADIONAVIGATION	
14 – 19.95	FIXED MARITIME MOBILE S5.57 S5.56	
19.95 – 20.05	STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	
20.05 – 70	FIXED MARITIME MOBILE S5.57 S5.56 T1	
70 – 72	RADIONAVIGATION S5.60 Fixed Maritime mobile S5.57	
72 – 84	FIXED MARITIME MOBILE S5.57 RADIONAVIGATION S5.60	
84 –86	RADIONAVIGATION S5.60 Fixed Maritime mobile S5.57	
86 – 90	FIXED MARITIME MOBILE S5.57 RADIONAVIGATION S5.60	
90 – 110	RADIONAVIGATION S5.62 Fixed S5.64	

110-255 kHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
110-112 FIXED MARITIME MOBILE RADIONAVIGATION S5.64	**110-130** FIXED MARITIME MOBILE MARITIME RADIO-NAVIGATION S5.60 Radiolocation	**110-112** FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5.64
112-115 RADIONAVIGATION S5.60		**112-117.6** RADIONAVIGATION S5.60 Fixed Maritime mobile S5.64 S5.65
115-117.6 RADIONAVIGATION S5.60 Fixed Maritime mobile S5.64 S5.66		
117.6-126 FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5.64		**117.6-126** FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5.64
126-129 RADIONAVIGATION S5.60		**126-129** RADIONAVIGATION S5.60 Fixed Maritime mobile S5.64 S5.65
129-130 FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5.64	S5.61 S5.64	**129-130** FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5.64
130-148.5 FIXED MARITIME MOBILE S5.64 S5.67	**130-160** FIXED MARITIME MOBILE S5.64	**130-160** FIXED MARITIME MOBILE RADIONAVIGATION S5.64
148.5-255 BROADCASTING S5.68 S5.69 S5.70	**160-190** FIXED	**160-190** FIXED Aeronautical radionavigation
	190-200 AERONAUTICAL RADIONAVIGATION	

110 – 200 kHz

Allocation to services		
Thailand		**Remark**
110 – 112	FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5.64	
112 – 117.6	RADIONAVIGATION S5.60 Fixed Maritime mobile S5.64	
117.6 – 126	FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5.64	
126 – 129	RADIONAVIGATION S5.60 Fixed Maritime mobile S5.64	
129 – 130	FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5.64	
130 – 160	FIXED MARITIME MOBILE RADIONAVIGATION S5.64	
160 – 190	FIXED Aeronautical radionavigation	
190 – 200	AERONAUTICAL RADIONAVIGATION	

200-495 kHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td></td><td rowspan="2">200-275
AERONAUTICAL RADIONAVIGATION
Aeronautical mobile</td><td rowspan="3">200-285
AERONAUTICAL RADIONAVIGATION
Aeronautical mobile</td></tr>
<tr><td>255-283.5
BROADCASTING
AERONAUTICAL RADIONAVIGATION
S5.70 S5.71</td></tr>
<tr><td>283.5-315
AERONAUTICAL RADIONAVIGATION
MARITIME RADIONAVIGATION (radiobeacons) S5.73
S5.72 S5.74</td><td>275-285
AERONAUTICAL RADIONAVIGATION
Aeronautical mobile
Maritime radionavigation (radiobeacons)</td></tr>
<tr><td colspan="3">285-315
AERONAUTICAL RADIONAVIGATION
MARITIME RADIONAVIGATION (radiobeacons) S5.73</td></tr>
<tr><td>315-325
AERONAUTICAL RADIONAVIGATION
Maritime radionavigation (radiobeacons) S5.73
S5.72 S5.75</td><td>315-325
MARITIME RADIONAVIGATION (radiobeacons) S5.73
Aeronautical radionavigation</td><td>315-325
AERONAUTICAL RADIONAVIGATION
MARITIME RADIONAVIGATION (radiobeacons) S5.73</td></tr>
<tr><td rowspan="2">325-405
AERONAUTICAL RADIONAVIGATION
S5.72</td><td>325-335
AERONAUTICAL RADIONAVIGATION
Aeronautical mobile
Maritime radionavigation (radiobeacons)</td><td rowspan="2">325-405
AERONAUTICAL RADIONAVIGATION
Aeronautical mobile</td></tr>
<tr><td>335-405
AERONAUTICAL RADIONAVIGATION
Aeronautical mobile</td></tr>
<tr><td>405-415
RADIONAVIGATION S5.76
S5.72</td><td colspan="2">405-415
RADIONAVIGATION S5.76
Aeronautical mobile</td></tr>
<tr><td>415-435
MARITIME MOBILE S5.79
AERONAUTICAL RADIONAVIGATION
S5.72</td><td colspan="2" rowspan="2">415-495
MARITIME MOBILE S5.79 S5.79A
Aeronautical radionavigation S5.80</td></tr>
<tr><td>435-495
MARITIME MOBILE S5.79 S5.79A
Aeronautical radionavigation
S5.72 S5.81 S5.82</td></tr>
<tr><td colspan="3">S5.77 S5.78 S5.81 S5.82</td></tr>
</table>

200 – 495 kHz

Allocation to services		
Thailand		**Remark**
200 – 285	AERONAUTICAL RADIONAVIGATION Aeronautical mobile	
285 – 315	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) S5.73	
315 – 325	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) S5.73	
325 – 405	AERONAUTICAL RADIONAVIGATION Aeronautical mobile	
405 – 415	RADIONAVIGATION S5.76 Aeronautical mobile	
415 – 495	MARITIME MOBILE S5.79 S5.79A Aeronautical radionavigation S5.81 S5.82	

495-1 800 kHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>495-505</td><td colspan="2">MOBILE (distress and calling)
S5.83</td></tr>
<tr><td rowspan="3">505-526.5
MARITIME MOBILE S5.79 S5.79A S5.84
AERONAUTICAL RADIONAVIGATION

S5.72 S5.81</td><td>505-510
MARITIME MOBILE S5.79

S5.81</td><td rowspan="3">505-526.5
MARITIME MOBILE S5.79 S5.79A S5.84
AERONAUTICAL RADIONAVIGATION
Aeronautical mobile
Land mobile

S5.81</td></tr>
<tr><td>510-525
MOBILE S5.79A S5.84
AERONAUTICAL RADIONAVIGATION</td></tr>
<tr><td>525-535
BROADCASTING S5.86
AERONAUTICAL RADIONAVIGATION</td></tr>
<tr><td rowspan="3">526.5-1 606.5
BROADCASTING

S5.87 S5.87A</td><td rowspan="2">535-1 605
BROADCASTING</td><td rowspan="2">526.5-535
BROADCASTING
Mobile
S5.88</td></tr>
<tr><td>535-1 606.5
BROADCASTING</td></tr>
<tr><td>1 605-1 625
BROADCASTING S5.89

S5.90</td><td rowspan="3">1 606.5-1 800
FIXED
MOBILE
RADIOLOCATION
RADIONAVIGATION</td></tr>
<tr><td>1 606.5-1 625
FIXED
MARITIME MOBILE S5.90
LAND MOBILE

S5.92</td><td rowspan="2">1 625-1 705
FIXED
MOBILE
BROADCASTING S5.89
Radiolocation
S5.90</td></tr>
<tr><td>1 625-1 635
RADIOLOCATION

S5.93</td></tr>
<tr><td>1 635-1 800
FIXED
MARITIME MOBILE S5.90
LAND MOBILE

S5.92 S5.96</td><td>1 705-1 800
FIXED
MOBILE
RADIOLOCATION
AERONAUTICAL RADIONAVIGATION</td><td>S5.91</td></tr>
</table>

495 – 1 800 kHz

Allocation to services		
Thailand		**Remark**
495 – 505	MOBILE (distress and calling) S5.83	
505 – 526.5	MARITIME MOBILE S5.79 S5.79A S5.84 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Land mobile S5.81	
526.5 – 1 606.5	BROADCASTING T2	Sound Broadcasting
1 606.5 – 1 800	FIXED MOBILE RADIOLOCATION RADIONAVIGATION	

1 800-2 194 kHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>1 800-1 810
RADIOLOCATION
S5.93</td><td>1 800-1 850
AMATEUR</td><td rowspan="2">1 800-2 000
AMATEUR
FIXED
MOBILE except aeronautical mobile
RADIONAVIGATION
Radiolocation</td></tr>
<tr><td>1 810-1 850
AMATEUR
S5.98 S5.99 S5.100 S5.101</td></tr>
<tr><td>1 850-2 000
FIXED
MOBILE except aeronautical mobile
S5.92 S5.96 S5.103</td><td>1 850-2 000
AMATEUR
FIXED
MOBILE except aeronautical mobile
RADIOLOCATION
RADIONAVIGATION
S5.102</td><td>S5.97</td></tr>
<tr><td>2 000-2 025
FIXED
MOBILE except aeronautical mobile (R)
S5.92 S5.103</td><td colspan="2" rowspan="3">2 000-2 065
FIXED
MOBILE</td></tr>
<tr><td>2 025-2 045
FIXED
MOBILE except aeronautical mobile (R)
Meteorological aids S5.104
S5.92 S5.103</td></tr>
<tr><td rowspan="2">2 045-2 160
FIXED
MARITIME MOBILE
LAND MOBILE
S5.92</td></tr>
<tr><td colspan="2">2 065-2 107
MARITIME MOBILE S5.105
S5.106</td></tr>
<tr><td>2 160-2 170
RADIOLOCATION
S5.93 S5.107</td><td colspan="2">2 107-2 170
FIXED
MOBILE</td></tr>
<tr><td>2 170-2 173.5</td><td colspan="2">MARITIME MOBILE</td></tr>
<tr><td>2 173.5-2 190.5</td><td colspan="2">MOBILE (distress and calling)
S5.108 S5.109 S5.110 S5.111</td></tr>
<tr><td>2 190.5-2 194</td><td colspan="2">MARITIME MOBILE</td></tr>
</table>

1 800 – 2 194 kHz

Allocation to services		
Thailand		**Remark**
1 800 – 1 825	AMATEUR S5.97	
1 825 – 2 000	FIXED MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation S5.97	
2 000 – 2 065	FIXED MOBILE	
2 065 – 2 107	MARITIME MOBILE S5.106	
2 107 – 2 170	FIXED MOBILE	
2 170 – 2 173.5	MARITIME MOBILE	
2 173.5 – 2 190.5	MOBILE (distress and calling) S5.108 S5.109 S5.110 S5.111	
2 190.5 – 2 194	MARITIME MOBILE	

2 194-3 230 kHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>2 194-2 300
FIXED
MOBILE except aeronautical mobile (R)
S5.92 S5.103 S5.112</td><td colspan="2">2 194-2 300
FIXED
MOBILE
S5.112</td></tr>
<tr><td>2 300-2 498
FIXED
MOBILE except aeronautical mobile (R)
BROADCASTING S5.113
S5.103</td><td colspan="2">2 300-2 495
FIXED
MOBILE
BROADCASTING S5.113</td></tr>
<tr><td>2 498-2 501
STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)</td><td colspan="2">2 495-2 501
STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)</td></tr>
<tr><td>2 501-2 502</td><td colspan="2">STANDARD FREQUENCY AND TIME SIGNAL
Space Research</td></tr>
<tr><td>2 502-2 625
FIXED
MOBILE except aeronautical mobile (R)
S5.92 S5.103 S5.114</td><td colspan="2">2 502-2 505
STANDARD FREQUENCY AND TIME SIGNAL</td></tr>
<tr><td>2 625-2 650
MARITIME MOBILE
MARITIME RADIONAVIGATION
S5.92</td><td colspan="2" rowspan="3">2 505-2 850
FIXED
MOBILE</td></tr>
<tr><td>2 650-2 850
FIXED
MOBILE except aeronautical mobile (R)
S5.92 S5.103</td></tr>
<tr><td>2 850-3 025</td><td colspan="2">AERONAUTICAL MOBILE (R)
S5.111 S5.115</td></tr>
<tr><td>3 025-3 155</td><td colspan="2">AERONAUTICAL MOBILE (OR)</td></tr>
<tr><td>3 155-3 200</td><td colspan="2">FIXED
MOBILE except aeronautical mobile (R)
S5.116 S5.117</td></tr>
<tr><td>3 200-3 230</td><td colspan="2">FIXED
MOBILE except aeronautical mobile (R)
BROADCASTING S5.113
S5.116</td></tr>
</table>

2 194 – 3 230 kHz

Allocation to services		
Thailand		**Remark**
2 194 – 2 300	FIXED MOBILE	
2 300 – 2 495	FIXED MOBILE BROADCASTING S5.113	
2 495 – 2 501	STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)	
2 501 – 2 502	STANDARD FREQUENCY AND TIME SIGNAL Space Research	
2 502 – 2 505	STANDARD FREQUENCY AND TIME SIGNAL	
2 505 – 2 850	FIXED MOBILE	
2 850 – 3 025	AERONAUTICAL MOBILE (R) S5.111 S5.115	
3 025 – 3 155	AERONAUTICAL MOBILE (OR)	
3 155 – 3 200	FIXED MOBILE except aeronautical mobile (R) S5.116	
3 200 – 3 230	FIXED MOBILE except aeronautical mobile (R) BROADCASTING S5.113 S5.116	

3 230-5 003 kHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>3 230-3 400</td><td colspan="2">FIXED
MOBILE except aeronautical mobile
BROADCASTING S5.113
S5.116 S5.118</td></tr>
<tr><td>3 400-3 500</td><td colspan="2">AERONAUTICAL MOBILE (R)</td></tr>
<tr><td>3 500-3 800
AMATEUR S5.120
FIXED
MOBILE except aeronautical mobile
S5.92</td><td>3 500-3 750
AMATEUR S5.120
S5.119</td><td rowspan="3">3 500-3 900
AMATEUR S5.120
FIXED
MOBILE</td></tr>
<tr><td>3 800-3 900
FIXED
AERONAUTICAL MOBILE (OR)
LAND MOBILE</td><td rowspan="3">3 750-4 000
AMATEUR S5.120
FIXED
MOBILE except aeronautical mobile (R)</td></tr>
<tr><td>3 900-3 950
AERONAUTICAL MOBILE (OR)
S5.123</td><td>3 900-3 950
AERONAUTICAL MOBILE
BROADCASTING</td></tr>
<tr><td>3 950-4 000
FIXED
BROADCASTING
S5.122 S5.124 S5.125</td><td>3 950-4 000
FIXED
BROADCASTING
S5.126</td></tr>
<tr><td>4 000-4 063</td><td colspan="2">FIXED
MARITIME MOBILE S5.127
S5.126</td></tr>
<tr><td>4 063-4 438</td><td colspan="2">MARITIME MOBILE S5.79A S5.109 S5.110 S5.130 S5.131 S5.132
S5.128 S5.129</td></tr>
<tr><td colspan="2">4 438-4 650
FIXED
MOBILE except aeronautical mobile (R)</td><td>4 438-4 650
FIXED
MOBILE except aeronautical mobile</td></tr>
<tr><td>4 650-4 700</td><td colspan="2">AERONAUTICAL MOBILE (R)</td></tr>
<tr><td>4 700-4 750</td><td colspan="2">AERONAUTICAL MOBILE (OR)</td></tr>
<tr><td>4 750-4 850
FIXED
AERONAUTICAL MOBILE (OR)
LAND MOBILE
BROADCASTING S5.113</td><td>4 750-4 850
FIXED
MOBILE except aeronautical mobile (R)
BROADCASTING S5.113</td><td>4 750-4 850
FIXED
BROADCASTING S5.113
Land mobile</td></tr>
<tr><td>4 850-4 995</td><td colspan="2">FIXED
LAND MOBILE
BROADCASTING S5.113</td></tr>
<tr><td>4 995-5 003</td><td colspan="2">STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)</td></tr>
</table>

3 230 – 5 003 kHz

Allocation to services		
Thailand		**Remark**
3 230 – 3 400	FIXED MOBILE except aeronautical mobile BROADCASTING S5.113 S5.116	
3 400 – 3 500	AERONAUTICAL MOBILE (R)	
3 500 – 3 540	AMATEUR S5.120 T3	
3 540 – 3 900	FIXED MOBILE	
3 900 – 3 950	AERONAUTICAL MOBILE BROADCASTING	
3 950 – 4 000	FIXED BROADCASTING S5.126	
4 000 – 4 063	FIXED MARITIME MOBILE S5.127 S5.126	
4 063 – 4 438	MARITIME MOBILE S5.79A S5.109 S5.110 S5.130 S5.131 S5.132 S5.129	
4 438 – 4 650	FIXED MOBILE except aeronautical mobile	
4 650 – 4 700	AERONAUTICAL MOBILE (R)	
4 700 – 4 750	AERONAUTICAL MOBILE (OR)	
4 750 – 4 850	FIXED BROADCASTING S5.113 Land mobile	
4 850 – 4 995	FIXED LAND MOBILE BROADCASTING S5.113	
4 995 – 5 003	STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)	

5 003-7 350 kHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
5 003-5 005	STANDARD FREQUENCY AND TIME SIGNAL Space research	
5 005-5 060	FIXED BROADCASTING S5.113	
5 060-5 250	FIXED Mobile except aeronautical mobile S5.133	

5 003 – 7 350 kHz

Allocation to services		
Thailand		**Remark**
5 003 – 5 005	STANDARD FREQUENCY AND TIME SIGNAL Space research	
5 005 – 5 060	FIXED BROADCASTING S5.113	
5 060 – 5 250	FIXED Mobile except aeronautical mobile	
5 250 – 5 450	FIXED MOBILE except aeronautical mobile	
5 450 – 5 480	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	
5 480 – 5 680	AERONAUTICAL MOBILE (R) S5.111 S5.115	
5 680 – 5 730	AERONAUTICAL MOBILE (OR) S5.111 S5.115	
5 730 – 5 900	FIXED Mobile except aeronautical mobile (R)	
5 900 – 5 950	BROADCASTING S5.134	
5 950 – 6 200	BROADCASTING	
6 200 – 6 525	MARITIME MOBILE S5.109 S5.110 S5.130 S5.132 S5.137	
6 525 – 6 685	AERONAUTICAL MOBILE (R)	
6 685 – 6 765	AERONAUTICAL MOBILE (OR)	
6 765 – 7 000	FIXED Land mobile S5.138	
7 000 – 7 100	AMATEUR S5.120 AMATEUR-SATELLITE	
7 100 – 7 300	BROADCASTING	
7 300 – 7 350	BROADCASTING S5.134	

7 350-13 360 kHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
7 350-8 100	FIXED Land mobile S5.144	
8 100-8 195	FIXED MARITIME MOBILE	
8 195-8 815	MARITIME MOBILE S5.109 S5.110 S5.132 S5.145 S5.111	
8 815-8 965	AERONAUTICAL MOBILE (R)	
8 965-9 040	AERONAUTICAL MOBILE (OR)	
9 040-9 400	FIXED	
9 400-9 500	BROADCASTING S5.134 S5.146	
9 500-9 900	BROADCASTING S5.147	
9 900-9 995	FIXED	
9 995-10 003	STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) S5.111	
10 003-10 005	STANDARD FREQUENCY AND TIME SIGNAL Space research S5.111	
10 005-10 100	AERONAUTICAL MOBILE (R) S5.111	
10 100-10 150	FIXED Amateur S5.120	
10 150-11 175	FIXED Mobile except aeronautical mobile (R)	
11 175-11 275	AERONAUTICAL MOBILE (OR)	
11 275-11 400	AERONAUTICAL MOBILE (R)	
11 400-11 600	FIXED	
11 600-11 650	BROADCASTING S5.134 S5.146	
11 650-12 050	BROADCASTING S5.147	
12 050-12 100	BROADCASTING S5.134 S5.146	
12 100-12 230	FIXED	
12 230-13 200	MARITIME MOBILE S5.109 S5.110 S5.132 S5.145	
13 200-13 260	AERONAUTICAL MOBILE (OR)	
13 260-13 360	AERONAUTICAL MOBILE (R)	

7 350 – 13 360 kHz

Allocation to services		
Thailand		**Remark**
7 350 – 8 100	FIXED Land mobile S5.144	
8 100 – 8 195	FIXED MARITIME MOBILE	
8 195 – 8 815	MARITIME MOBILE S5.109 S5.110 S5.132 S5.145 S5.111	
8 815 – 8 965	AERONAUTICAL MOBILE (R)	
8 965 – 9 040	AERONAUTICAL MOBILE (OR)	
9 040 – 9 400	FIXED	
9 400 – 9 500	BROADCASTING S5.134	
9 500 – 9 900	BROADCASTING S5.147	
9 900 – 9 995	FIXED	
9 995 – 10 003	STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) S5.111	
10 003 – 10 005	STANDARD FREQUENCY AND TIME SIGNAL Space research S5.111	
10 005 – 10 100	AERONAUTICAL MOBILE (R) S5.111	
10 100 – 10 150	FIXED Amateur S5.120	
10 150 – 11 175	FIXED Mobile except aeronautical mobile (R)	
11 175 – 11 275	AERONAUTICAL MOBILE (OR)	
11 275 – 11 400	AERONAUTICAL MOBILE (R)	
11 400 – 11 600	FIXED	
11 600 – 11 650	BROADCASTING S5.134	
11 650 – 12 050	BROADCASTING S5.147	
12 050 – 12 100	BROADCASTING S5.134	
12 100 – 12 230	FIXED	
12 230 – 13 200	MARITIME MOBILE S5.109 S5.110 S5.132 S5.145	
13 200 – 13 260	AERONAUTICAL MOBILE (OR)	
13 260 – 13 360	AERONAUTICAL MOBILE (R)	

13 360-18 030 kHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
13 360-13 410	FIXED RADIO ASTRONOMY S5.149	
13 410-13 570	FIXED Mobile except aeronautical mobile (R) S5.150	
13 570-13 600	BROADCASTING S5.134 S5.151	
13 600-13 800	BROADCASTING	
13 800-13 870	BROADCASTING S5.134 S5.151	
13 870-14 000	FIXED Mobile except aeronautical mobile (R)	
14 000-14 250	AMATEUR S5.120 AMATEUR-SATELLITE	
14 250-14 350	AMATEUR S5.120 S5.152	
14 350-14 990	FIXED Mobile except aeronautical mobile (R)	
14 990-15 005	STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) S5.111	
15 005-15 010	STANDARD FREQUENCY AND TIME SIGNAL Space research	
15 010-15 100	AERONAUTICAL MOBILE (OR)	
15 100-15 600	BROADCASTING	
15 600-15 800	BROADCASTING S5.134 S5.146	
15 800-16 360	FIXED S5.153	
16 360-17 410	MARITIME MOBILE S5.109 S5.110 S5.132 S5.145	
17 410-17 480	FIXED	
17 480-17 550	BROADCASTING S5.134 S5.146	
17 550-17 900	BROADCASTING	
17 900-17 970	AERONAUTICAL MOBILE (R)	
17 970-18 030	AERONAUTICAL MOBILE (OR)	

13 360 – 18 030 kHz

Allocation to services		
Thailand		**Remark**
13 360 – 13 410	FIXED RADIO ASTRONOMY S5.149	
13 410 – 13 570	FIXED Mobile except aeronautical mobile (R) S5.150	
13 570 – 13 600	BROADCASTING S5.134	
13 600 – 13 800	BROADCASTING	
13 800 – 13 870	BROADCASTING S5.134	
13 870 – 14 000	FIXED Mobile except aeronautical mobile (R)	
14 000 – 14 250	AMATEUR S5.120 AMATEUR-SATELLITE	
14 250 – 14 350	AMATEUR S5.120	
14 350 – 14 990	FIXED Mobile except aeronautical mobile (R)	
14 990 – 15 005	STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) S5.111	
15 005 – 15 010	STANDARD FREQUENCY AND TIME SIGNAL Space research	
15 010 – 15 100	AERONAUTICAL MOBILE (OR)	
15 100 – 15 600	BROADCASTING	
15 600 – 15 800	BROADCASTING S5.134	
15 800 – 16 360	FIXED S5.153	
16 360 – 17 410	MARITIME MOBILE S5.109 S5.110 S5.132 S5.145	
17 410 – 17 480	FIXED	
17 480 – 17 550	BROADCASTING S5.134	
17 550 – 17 900	BROADCASTING	
17 900 – 17 970	AERONAUTICAL MOBILE (R)	
17 970 – 18 030	AERONAUTICAL MOBILE (OR)	

18 030-23 350 kHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
18 030-18 052	FIXED	
18 052-18 068	FIXED Space research	
18 068-18 168	AMATEUR S5.120 AMATEUR-SATELLITE S5.154	
18 168-18 780	FIXED Mobile except aeronautical mobile	
18 780-18 900	MARITIME MOBILE	
18 900-19 020	BROADCASTING S5.134 S5.146	
19 020-19 680	FIXED	
19 680-19 800	MARITIME MOBILE S5.132	
19 800-19 990	FIXED	
19 990-19 995	STANDARD FREQUENCY AND TIME SIGNAL Space research S5.111	
19 995-20 010	STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) S5.111	
20 010-21 000	FIXED Mobile	
21 000-21 450	AMATEUR S5.120 AMATEUR-SATELLITE	
21 450-21 850	BROADCASTING	
21 850-21 870	FIXED S5.155A S5.155	
21 870-21 924	FIXED S5.155B	
21 924-22 000	AERONAUTICAL MOBILE (R)	
22 000-22 855	MARITIME MOBILE S5.132 S5.156	
22 855-23 000	FIXED S5.156	
23 000-23 200	FIXED Mobile except aeronautical mobile (R) S5.156	
23 200-23 350	FIXED S5.156A AERONAUTICAL MOBILE (OR)	

18 030 – 23 350 kHz

Allocation to services		
Thailand		**Remark**
18 030 – 18 052	FIXED	
18 052 – 18 068	FIXED Space research	
18 068 – 18 168	AMATEUR S5.120 AMATEUR-SATELLITE	
18 168 – 18 780	FIXED Mobile except aeronautical mobile	
18 780 – 18 900	MARITIME MOBILE	
18 900 – 19 020	BROADCASTING S5.134	
19 020 – 19 680	FIXED	
19 680 – 19 800	MARITIME MOBILE S5.132	
19 800 – 19 990	FIXED	
19 990 – 19 995	STANDARD FREQUENCY AND TIME SIGNAL Space research S5.111	
19 995 – 20 010	STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) S5.111	
20 010 – 21 000	FIXED Mobile	
21 000 – 21 450	AMATEUR S5.120 AMATEUR-SATELLITE	
21 450 – 21 850	BROADCASTING	
21 850 – 21 870	FIXED	
21 870 – 21 924	FIXED S5.155B	
21 924 – 22 000	AERONAUTICAL MOBILE (R)	
22 000 – 22 855	MARITIME MOBILE S5.132	
22 855 – 23 000	FIXED	
23 000 – 23 200	FIXED Mobile except aeronautical mobile (R)	
23 200 – 23 350	FIXED S5.156A AERONAUTICAL MOBILE (OR)	

23 350-27 500 kHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
23 350-24 000	FIXED MOBILE except aeronautical mobile S5.157	
24 000-24 890	FIXED LAND MOBILE	
24 890-24 990	AMATEUR S5.120 AMATEUR-SATELLITE	
24 990-25 005	STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)	
25 005-25 010	STANDARD FREQUENCY AND TIME SIGNAL Space research	
25 010-25 070	FIXED MOBILE except aeronautical mobile	
25 070-25 210	MARITIME MOBILE	
25 210-25 550	FIXED MOBILE except aeronautical mobile	
25 550-25 670	RADIO ASTRONOMY S5.149	
25 670-26 100	BROADCASTING	
26 100-26 175	MARITIME MOBILE S5.132	
26 175-27 500	FIXED MOBILE except aeronautical mobile S5.150	

23 350 – 27 500 kHz

Allocation to services		
Thailand		**Remark**
23 350 – 24 000	FIXED MOBILE except aeronautical mobile S5.157	
24 000 – 24 890	FIXED LAND MOBILE	
24 890– 24 990	AMATEUR S5.120 AMATEUR-SATELLITE	
24 990 – 25 005	STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)	
25 005 – 25 010	STANDARD FREQUENCY AND TIME SIGNAL Space research	
25 010 – 25 070	FIXED MOBILE except aeronautical mobile	
25 070 – 25 210	MARITIME MOBILE	
25 210 – 25 550	FIXED MOBILE except aeronautical mobile	
25 550 – 25 670	RADIO ASTRONOMY S5.149	
25 670 – 26 100	BROADCASTING	
26 100 – 26 175	MARITIME MOBILE S5.132	
26 175 – 27 500	FIXED MOBILE except aeronautical mobile S5.150 T4	

27.5-47 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
27.5-28	METEOROLOGICAL AIDS FIXED MOBILE	
28-29.7	AMATEUR AMATEUR-SATELLITE	
29.7-30.005	FIXED MOBILE	
30.005-30.01	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	
30.01-37.5	FIXED MOBILE	
37.5-38.25	FIXED MOBILE Radio astronomy S5.149	
38.25-39.986	FIXED MOBILE	
39.986-40.02	FIXED MOBILE Space research	
40.02-40.98	FIXED MOBILE S5.150	
40.98-41.015	FIXED MOBILE Space research S5.160 S5.161	
41.015-44	FIXED MOBILE S5.160 S5.161	
44-47	FIXED MOBILE S5.162 S5.162A	

27.5 – 47 MHz

Allocation to services		
Thailand		**Remark**
27.5 – 28	METEOROLOGICAL AIDS FIXED MOBILE	
28 – 29.7	AMATEUR AMATEUR-SATELLITE	
29.7 – 30.005	FIXED MOBILE	
30.005 – 30.01	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	
30.01 – 37.5	FIXED MOBILE	
37.5 – 38.25	FIXED MOBILE Radio astronomy S5.149	
38.25 – 39.986	FIXED MOBILE	
39.986 – 40.02	FIXED MOBILE Space research	
40.02 – 40.98	FIXED MOBILE S5.150	
40.98 – 41.015	FIXED MOBILE Space research	
41.015 – 47	FIXED MOBILE	

47-75.2 MHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td rowspan="3">47-68
BROADCASTING

S5.162A S5.163 S5.164 S5.165
S5.169 S5.171</td><td>47-50
FIXED
MOBILE</td><td>47-50
FIXED
MOBILE
BROADCASTING</td></tr>
<tr><td colspan="2">50-54
AMATEUR
S5.166 S5.167 S5.168 S5.170</td></tr>
<tr><td>54-68
BROADCASTING
Fixed
Mobile

S5.172</td><td>54-68
FIXED
MOBILE
BROADCASTING</td></tr>
<tr><td rowspan="4">68-74.8
FIXED
MOBILE except aeronautical mobile

S5.149 S5.174 S5.175 S5.177
S5.179</td><td>68-72
BROADCASTING
Fixed
Mobile
S5.173</td><td rowspan="4">68-74.8
FIXED
MOBILE

S5.149 S5.176 S5.179</td></tr>
<tr><td>72-73
FIXED
MOBILE</td></tr>
<tr><td>73-74.6
RADIO ASTRONOMY
S5.178</td></tr>
<tr><td>74.6-74.8
FIXED
MOBILE</td></tr>
<tr><td>74.8-75.2</td><td colspan="2">AERONAUTICAL RADIONAVIGATION
S5.180 S5.181</td></tr>
</table>

47 – 75.2 MHz

Allocation to services		
Thailand		**Remark**
47 – 68	FIXED MOBILE BROADCASTING S5.167 T5	Television Broadcasting
68 – 74.8	FIXED MOBILE S5.149	
74.8 – 75.2	AERONAUTICAL RADIONAVIGATION S5.180	75 MHz (ILS marker beacons)

75.2-137.175 MHz

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

S5.175 S5.179 S5.184 S5.187</td><td colspan="2">75.2-75.4
FIXED
MOBILE
S5.179</td></tr>
<tr><td>75.4-76
FIXED
MOBILE</td><td rowspan="3">75.4-87
FIXED
MOBILE

S5.149 S5.182 S5.183 S5.188</td></tr>
<tr><td rowspan="2">76-88
BROADCASTING
Fixed
Mobile

S5.185</td></tr>
<tr><td rowspan="2">87.5-100
BROADCASTING

S5.190</td><td rowspan="2">87-100
FIXED
MOBILE
BROADCASTING</td></tr>
<tr><td>88-100
BROADCASTING</td></tr>
<tr><td>100-108</td><td colspan="2">BROADCASTING
S5.192 S5.194</td></tr>
<tr><td>108-117.975</td><td colspan="2">AERONAUTICAL RADIONAVIGATION
S5.197</td></tr>
<tr><td>117.975-137</td><td colspan="2">AERONAUTICAL MOBILE (R)
S5.111 S5.198 S5.199 S5.200 S5.201 S5.202 S5.203 S5.203A S5.203B</td></tr>
<tr><td>137-137.025</td><td colspan="2">SPACE OPERATION (space-to-Earth)
METEOROLOGICAL-SATELLITE (space-to-Earth)
MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209
SPACE RESEARCH (space-to-Earth)
Fixed
Mobile except aeronautical mobile (R)
S5.204 S5.205 S5.206 S5.207 S5.208</td></tr>
<tr><td>137.025-137.175</td><td colspan="2">SPACE OPERATION (space-to-Earth)
METEOROLOGICAL-SATELLITE (space-to-Earth)
SPACE RESEARCH (space-to-Earth)
Fixed
Mobile-satellite (space-to-Earth) S5.208A S5.209
Mobile except aeronautical mobile (R)
S5.204 S5.205 S5.206 S5.207 S5.208</td></tr>
</table>

75.2 – 137.175 MHz

Allocation to services		
Thailand		**Remark**
75.2 – 75.4	FIXED MOBILE	
75.4 – 87	FIXED MOBILE S5.149 T4	
87 – 108	BROADCASTING Fixed Mobile	Sound Broadcasting
108 – 117.975	AERONAUTICAL RADIONAVIGATION	
117.975 – 137	AERONAUTICAL MOBILE (R) S5.111 S5.198 S5.199 S5.200 S5.203	
137 – 137.025	SPACE OPERATION (space-to-Earth) FIXED METEOROLOGICAL–SATELLITE (space-to-Earth) MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) S5.204 S5.208	
137.025–137.175	SPACE OPERATION (space-to-Earth) FIXED METEOROLOGICAL–SATELLITE (space-to-Earth) MOBILE except aeronautical mobile (R) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) S5.208A S5.209 S5.204 S5.208	

137.175-148 MHz

Allocation to services		
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) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	
137.825-138	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) S5.208A S5.209 Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	
138-143.6 AERONAUTICAL MOBILE (OR) S5.210 S5.211 S5.212 S5.214	**138-143.6** FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	**138-143.6** FIXED MOBILE Space research (space-to-Earth) S5.207 S5.213
143.6-143.65 AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) S5.211 S5.212 S5.214	**143.6-143.65** FIXED MOBILE RADIOLOCATION SPACE RESEARCH (space-to-Earth)	**143.6-143.65** FIXED MOBILE SPACE RESEARCH (space-to-Earth) S5.207 S5.213
143.65-144 AERONAUTICAL MOBILE (OR) S5.210 S5.211 S5.212 S5.214	**143.65-144** FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	**143.65-144** FIXED MOBILE Space research (space-to-Earth) S5.207 S5.213
144-146	AMATEUR S5.120 AMATEUR-SATELLITE S5.216	
146-148 FIXED MOBILE except aeronautical mobile (R)	**146-148** AMATEUR S5.217	**146-148** AMATEUR FIXED MOBILE S5.217

137.175 – 148 MHz

Allocation to services	
Thailand	**Remark**
137.175–137.825 SPACE OPERATION (space-to-Earth) FIXED METEOROLOGICAL–SATELLITE (space-to-Earth) MOBILE except aeronautical mobile (R) MOBILE–SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) S5.204 S5.208	
137.825–138 SPACE OPERATION (space-to-Earth) FIXED METEOROLOGICAL–SATELLITE (space-to-Earth) MOBILE except aeronautical mobile (R) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) S5.208A S5.209 S5.204 S5.208	
138 – 143.6 FIXED MOBILE Space research (space-to-Earth)	
143.6 – 143.65 FIXED MOBILE SPACE RESEARCH (space-to-Earth)	
143.65 – 144 FIXED MOBILE Space research (space-to-Earth)	
144 – 146 AMATEUR S5.120 AMATEUR-SATELLITE T6	
146 – 148 FIXED MOBILE	

148-223 MHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>148-149.9
FIXED
MOBILE except aeronautical mobile (R)
MOBILE-SATELLITE (Earth-to-space) S5.209
S5.218 S5.219 S5.221</td><td colspan="2">148-149.9
FIXED
MOBILE
MOBILE-SATELLITE (Earth-to-space) S5.209
S5.218 S5.219 S5.221</td></tr>
<tr><td>149.9-150.05</td><td colspan="2">MOBILE-SATELLITE (Earth-to-space) S5.209 S5.224A
RADIONAVIGATION-SATELLITE S5.224B
S5.220 S5.222 S5.223</td></tr>
<tr><td>150.05-153
FIXED
MOBILE except aeronautical mobile
RADIO ASTRONOMY
S5.149</td><td colspan="2" rowspan="3">150.05-156.7625
FIXED
MOBILE
S5.225 S5.226 S5.227</td></tr>
<tr><td>153-154
FIXED
MOBILE except aeronautical mobile (R)
Meteorological aids</td></tr>
<tr><td>154-156.7625
FIXED
MOBILE except aeronautical mobile (R)
S5.226 S5.227</td></tr>
<tr><td>156.7625-156.8375</td><td colspan="2">MARITIME MOBILE (distress and calling)
S5.111 S5.226</td></tr>
<tr><td>156.8375-174
FIXED
MOBILE except aeronautical mobile
S5.226 S5.229</td><td colspan="2">156.8375-174
FIXED
MOBILE
S5.226 S5.230 S5.231 S5.232</td></tr>
<tr><td rowspan="3">174-223
BROADCASTING
S5.235 S5.237 S5.243</td><td>174-216
BROADCASTING
Fixed
Mobile
S5.234</td><td rowspan="3">174-223
FIXED
MOBILE
BROADCASTING
S5.233 S5.238 S5.240 S5.245</td></tr>
<tr><td>216-220
FIXED
MARITIME MOBILE
Radiolocation S5.241
S5.242</td></tr>
<tr><td></td></tr>
</table>

148 – 230 MHz

Allocation to services		
Thailand		**Remark**
148 – 149.9	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.209 S5.218 S5.219 S5.221	
149.9 – 150.05	MOBILE-SATELLITE (Earth-to-space) S5.209 S5.224A RADIONAVIGATION–SATELLITE S5.224B S5.220 S5.222 S5.223	
150.05– 156.7625	FIXED MOBILE S5.226 S5.227	
156.7625–156.8375	MARITIME MOBILE (distress and calling) S5.111 S5.226	
156.8375 – 174	FIXED MOBILE S5.226	
174 – 230	BROADCASTING Fixed Mobile	Television Broadcasting

220-335.4 MHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td></td><td>220-225
AMATEUR
FIXED
MOBILE
Radiolocation S5.241</td><td></td></tr>
<tr><td rowspan="2">223-230
BROADCASTING
Fixed
Mobile

S5.243 S5.246 S5.247</td><td rowspan="2">225-235
FIXED
MOBILE</td><td>223-230
FIXED
MOBILE
BROADCASTING
AERONAUTICAL RADIONAVIGATION
Radiolocation
S5.250</td></tr>
<tr><td>230-235
FIXED
MOBILE

S5.247 S5.251 S5.252</td><td>230-235
FIXED
MOBILE
AERONAUTICAL RADIONAVIGATION
S5.250</td></tr>
<tr><td>235-267</td><td colspan="2">FIXED
MOBILE
S5.111 S5.199 S5.252 S5.254 S5.256</td></tr>
<tr><td>267-272</td><td colspan="2">FIXED
MOBILE
Space operation (space-to-Earth)
S5.254 S5.257</td></tr>
<tr><td>272-273</td><td colspan="2">SPACE OPERATION (space-to-Earth)
FIXED
MOBILE
S5.254</td></tr>
<tr><td>273-312</td><td colspan="2">FIXED
MOBILE
S5.254</td></tr>
<tr><td>312-315</td><td colspan="2">FIXED
MOBILE
Mobile-satellite (Earth-to-space) S5.254 S5.255</td></tr>
<tr><td>315-322</td><td colspan="2">FIXED
MOBILE
S5.254</td></tr>
<tr><td>322-328.6</td><td colspan="2">FIXED
MOBILE
RADIO ASTRONOMY
S5.149</td></tr>
<tr><td>328.6-335.4</td><td colspan="2">AERONAUTICAL RADIONAVIGATION
S5.258 S5.259</td></tr>
</table>

230 – 335.4 MHz

Allocation to services		
Thailand		**Remark**
230– 235	FIXED MOBILE AERONAUTICAL RADIONAVIGATION	
235 – 267	FIXED MOBILE S5.111 S5.199 S5.254 S5.256 T4	
267– 272	FIXED MOBILE Space operation (space-to-Earth) S5.254 S5.257	
272– 273	SPACE OPERATION (space-to-Earth) FIXED MOBILE S5.254	
273 – 312	FIXED T7 MOBILE T8 S5.254	
312 – 315	FIXED T7 MOBILE Mobile-satellite (Earth-to-space) S5.254 S5.255	
315 – 322	FIXED T7 MOBILE S5.254	
322– 328.6	FIXED MOBILE RADIO ASTRONOMY S5.149	
328.6 – 335.4	AERONAUTICAL RADIONAVIGATION S5.258	

335.4-410 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
335.4-387	FIXED MOBILE S5.254	
387-390	FIXED MOBILE Mobile-satellite (space-to-Earth) S5.208A S5.254 S5.255	
390-399.9	FIXED MOBILE S5.254	
399.9-400.05	MOBILE-SATELLITE (Earth-to-space) S5.209 S5.224A RADIONAVIGATION-SATELLITE S5.222 S5.224B S5.260 S5.220	
400.05-400.15	STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) S5.261 S5.262	
400.15-401	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) S5.263 Space operation (space-to-Earth) S5.262 S5.264	
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	
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	
406-406.1	MOBILE-SATELLITE (Earth-to-space) S5.266 S5.267	
406.1-410	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149	

Allocation to services		
Thailand		**Remark**
335.4 – 387	FIXED MOBILE S5.254 T9	
387– 390	FIXED MOBILE Mobile-satellite (space-to-Earth) S5.208A S5.254 S5.255 T9	
390 – 399.9	FIXED MOBILE S5.254 T9	
399.9– 400.05	MOBILE-SATELLITE (Earth-to-space) S5.209 S5.224A RADIONAVIGATION-SATELLITE S5.222 S5.224B S5.260 S5.220	
400.05– 400.15	STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) S5.261	
400.15 – 401	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) S5.263 Space operation (space-to-Earth) S5.264	
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	
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	

410-470 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
410-420	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) S5.268	
420-430	FIXED MOBILE except aeronautical mobile Radiolocation S5.269 S5.270 S5.271	
430-440 AMATEUR RADIOLOCATION S5.138 S5.271 S5.272 S5.273 S5.274 S5.275 S5.276 S5.277 S5.280 S5.281 S5.282 S5.283	**430-440** RADIOLOCATION Amateur S5.271 S5.276 S5.277 S5.278 S5.279 S5.281 S5.282	
440-450	FIXED MOBILE except aeronautical mobile Radiolocation S5.269 S5.270 S5.271 S5.284 S5.285 S5.286	
450-455	FIXED MOBILE S5.209 S5.271 S5.286 S5.286A S5.286B S5.286C S5.286D S5.286E	
455-456 FIXED MOBILE S5.209 S5.271 S5.286A S5.286B S5.286C S5.286E	**455-456** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.286A S5.286B S5.286C S5.209 S5.271	**455-456** FIXED MOBILE S5.209 S5.271 S5.286A S5.286B S5.286C S5.286E
456-459	FIXED MOBILE S5.271 S5.287 S5.288	
459-460 FIXED MOBILE S5.209 S5.271 S5.286A S5.286B S5.286C S5.286E	**459-460** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.286A S5.286B S5.286C S5.209 S5.271	**459-460** FIXED MOBILE S5.209 S5.271 S5.286A S5.286B S5.286C S5.286E
460-470	FIXED MOBILE Meteorological-satellite (space-to-Earth) S5.287 S5.288 S5.289 S5.290	

Allocation to services		
Thailand		**Remark**
406 – 406.1	MOBILE-SATELLITE (Earth-to-space) S5.266 S5.267	Emergency position-indicating radiobeacons (EPIRB)
406.1 – 410	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149	
410 – 420	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) S5.268	
420 – 430	FIXED MOBILE except aeronautical mobile T10 Radiolocation	
430– 435	FIXED MOBILE except aeronautical mobile T10 RADIOLOCATION S5.276	
435– 438	FIXED RADIOLOCATION Amateur S5.276 S5.282 T11	
438– 440	FIXED MOBILE except aeronautical mobile RADIOLOCATION S5.276	
440 – 450	FIXED MOBILE except aeronautical mobile Radiolocation S5.286	
450 – 455	FIXED MOBILE S5.209 S5.286 S5.286A	
455– 456	FIXED MOBILE S5.209 S5.286A	
456 – 459	FIXED MOBILE S5.287	
459– 460	FIXED MOBILE S5.209 S5.286A	
460 – 470	FIXED T12 MOBILE Meteorological-satellite (space-to-Earth) S5.287 S5.289	

470-890 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
470-790 BROADCASTING S5.149 S5.291A S5.294 S5.296 S5.300 S5.302 S5.304 S5.306 S5.311 S5.312	**470-512** BROADCASTING Fixed Mobile S5.292 S5.293	**470-585** FIXED MOBILE BROADCASTING S5.291 S5.298
	512-608 BROADCASTING S5.297	**585-610** FIXED MOBILE BROADCASTING RADIONAVIGATION S5.149 S5.305 S5.306 S5.307
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)	
790-862 FIXED BROADCASTING S5.312 S5.314 S5.315 S5.316 S5.319 S5.321	**614-806** BROADCASTING Fixed Mobile S5.293 S5.309 S5.311	**610-890** FIXED MOBILE BROADCASTING
862-890 FIXED MOBILE except aeronautical mobile BROADCASTING S5.322 S5.319 S5.323	**806-890** FIXED MOBILE BROADCASTING S5.317 S5.318	S5.149 S5.305 S5.306 S5.307 S5.311 S5.320

470 – 890 MHz

Allocation to services		
Thailand		**Remark**
470 – 510	FIXED MOBILE T10 T13	
510 – 790	BROADCASTING Fixed Mobile S5.149 S5.306 S5.311	Television Broadcasting
790– 890	FIXED MOBILE T10 T13 S5.320	

890-1 350 MHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td rowspan="3">890-942
FIXED
MOBILE except aeronautical mobile
BROADCASTING S5.322
Radiolocation

S5.323</td><td>890-902
FIXED
MOBILE except aeronautical mobile
Radiolocation
S5.318 S5.325</td><td rowspan="3">890-942
FIXED
MOBILE
BROADCASTING
Radiolocation

S5.327</td></tr>
<tr><td>902-928
FIXED
Amateur
Mobile except aeronautical mobile
Radiolocation
S5.150 S5.325 S5.326</td></tr>
<tr><td>928-942
FIXED
MOBILE except aeronautical mobile
Radiolocation
S5.325</td></tr>
<tr><td>942-960
FIXED
MOBILE except aeronautical mobile
BROADCASTING S5.322
S5.323</td><td>942-960
FIXED
MOBILE</td><td>942-960
FIXED
MOBILE
BROADCASTING

S5.320</td></tr>
<tr><td>960-1 215</td><td colspan="2">AERONAUTICAL RADIONAVIGATION
S5.328</td></tr>
<tr><td>1 215-1 240</td><td colspan="2">EARTH EXPLORATION-SATELLITE (active)
RADIOLOCATION
RADIONAVIGATION-SATELLITE (space-to-Earth) S5.329
SPACE RESEARCH (active)
S5.330 S5.331 S5.332</td></tr>
<tr><td>1 240-1 260</td><td colspan="2">EARTH EXPLORATION-SATELLITE (active)
RADIOLOCATION
RADIONAVIGATION-SATELLITE (space-to-Earth) S5.329
SPACE RESEARCH (active)
Amateur
S5.330 S5.331 S5.332 S5.334 S5.335</td></tr>
<tr><td>1 260-1 300</td><td colspan="2">EARTH EXPLORATION-SATELLITE (active)
RADIOLOCATION
SPACE RESEARCH (active)
Amateur
S5.282 S5.330 S5.331 S5.332 S5.334 S5.335</td></tr>
<tr><td>1 300-1 350</td><td colspan="2">AERONAUTICAL RADIONAVIGATION S5.337
Radiolocation
S5.149</td></tr>
</table>

890 – 1 350 MHz

Allocation to services		
Thailand		**Remark**
890– 942	FIXED MOBILE T13 T14 Radiolocation	
942– 960	FIXED MOBILE T13 S5.320	
960 – 1 215	AERONAUTICAL RADIONAVIGATION S5.328	
1 215 – 1 240	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) S5.329 SPACE RESEARCH (active) S5.332	GPS (L2-1227.6 MHz)
1 240 – 1 260	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) S5.329 SPACE RESEARCH (active) Amateur S5.332	
1 260 – 1 300	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Amateur S5.282 S5.332	
1 300 – 1 350	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation S5.149	

1 350-1 525 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 350-1 400 FIXED MOBILE RADIOLOCATION S5.149 S5.338 S5.339	**1 350-1 400** RADIOLOCATION S5.149 S5.334 S5.339	
1 400-1 427	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.341	
1 427-1 429	SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile S5.341	
1 429-1 452 FIXED MOBILE except aeronautical mobile S5.341 S5.342	**1 429-1 452** FIXED MOBILE S5.343 S5.341	
1 452-1 492 FIXED MOBILE except aeronautical mobile BROADCASTING S5.345 S5.347 BROADCASTING-SATELLITE S5.345 S5.347 S5.341 S5.342	**1 452-1 492** FIXED MOBILE S5.343 BROADCASTING S5.345 S5.347 BROADCASTING-SATELLITE S5.345 S5.347 S5.341 S5.344	
1 492-1 525 FIXED MOBILE except aeronautical mobile S5.341 S5.342	**1 492-1 525** FIXED MOBILE S5.343 MOBILE-SATELLITE (space-to-Earth) S5.348A S5.341 S5.344 S5.348	**1 492-1 525** FIXED MOBILE S5.341 S5.348A

1 350 – 1 525 MHz

Allocation to services		
Thailand		**Remark**
1 350 – 1 400	RADIOLOCATION S5.149 S5.339	
1 400 – 1 427	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
1 427 – 1 429	SPACE OPERATION (Earth-to-space) FIXED T15 MOBILE except aeronautical mobile	
1 429 – 1 452	FIXED T15 MOBILE T13	
1 452 – 1 492	FIXED T15 MOBILE T13 BROADCASTING S5.345 BROADCASTING -SATELLITE S5.345	
1 492 – 1 525	FIXED T15 MOBILE T13	

1 525-1 610 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 525-1 530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite Mobile except aeronautical mobile S5.349 S5.341 S5.342 S5.350 S5.351 S5.352A S5.354	**1 525-1 530** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite Fixed Mobile S5.343 S5.341 S5.351 S5.354	**1 525-1 530** SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite Mobile S5.349 S5.341 S5.351 S5.352A S5.354
1 530-1 535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile S5.341 S5.342 S5.351 S5.354	**1 530-1 535** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A Earth exploration-satellite Fixed Mobile S5.343 S5.341 S5.351 S5.354	
1 535-1 559	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 S5.353A S5.354 S5.355 S5.356 S5.357 S5.357A S5.359 S5.362A	
1 559-1 610	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) S5.341 S5.355 S5.359 S5.363	

1 525 – 1 610 MHz

Allocation to services		
Thailand		**Remark**
1 525 – 1 530	SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite Fixed Mobile S5.351 S5.354	
1 530 – 1 535	SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A Earth exploration-satellite Fixed Mobile S5.351 S5.354	
1 535 – 1 559	MOBILE-SATELLITE (space-to-Earth) S5.351 S5.353A S5.354 S5.356 S5.357 S5.357A	
1 559 – 1 610	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth)	GPS (L1-1575.42 MHz)

1 610-1 660 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 610-1 610.6	**1 610-1 610.6**	**1 610-1 610.6**
MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION
	RADIODETERMINATION-SATELLITE (Earth-to-space)	Radiodetermination-satellite (Earth-to-space)
S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	S5.341 S5.364 S5.366 S5.367 S5.368 S5.370 S5.372	S5.341 S5.355 S5.359 S5.364 S5.366 S5.367 S5.368 S5.369 S5.372
1 610.6-1 613.8	**1 610.6-1 613.8**	**1 610.6-1 613.8**
MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)
RADIO ASTRONOMY	RADIO ASTRONOMY	RADIO ASTRONOMY
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION
	RADIODETERMINATION-SATELLITE (Earth-to-space)	Radiodetermination-satellite (Earth-to-space)
S5.149 S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	S5.149 S5.341 S5.364 S5.366 S5.367 S5.368 S5.370 S5.372	S5.149 S5.341 S5.355 S5.359 S5.364 S5.366 S5.367 S5.368 S5.369 S5.372
1 613.8-1 626.5	**1 613.8-1 626.5**	**1 613.8-1 626.5**
MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION
Mobile-satellite (space-to-Earth)	RADIODETERMINATION-SATELLITE (Earth-to-space)	Mobile-satellite (space-to-Earth)
	Mobile-satellite (space-to-Earth)	Radiodetermination-satellite (Earth-to-space)
S5.341 S5.355 S5.359 S5.363 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	S5.341 S5.364 S5.365 S5.366 S5.367 S5.368 S5.370 S5.372	S5.341 S5.355 S5.359 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.372
1 626.5-1 660	MOBILE-SATELLITE (Earth-to-space)	
	S5.341 S5.351 S5.353A S5.354 S5.355 S5.357A S5.359 S5.362A S5.374 S5.375 S5.376	

1 610 – 1660 MHz

Allocation to services		
Thailand		**Remark**
1 610 – 1 610.6	MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) S5.364 S5.366 S5.367 S5.368 S5.372	
1 610.6 – 1 613.8	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) S5.149 S5.364 S5.366 S5.367 S5.368 S5.372	
1 613.8 – 1 626.5	MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) Radiodetermination-satellite (Earth-to-space) S5.364 S5.365 S5.366 S5.367 S5.368 S5.372	
1 626.5 – 1 660	MOBILE-SATELLITE (Earth-to-space) S5.351 S5.353A S5.354 S5.357A S5.374 S5.375 S5.376	

1 660-1 710 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 660-1 660.5	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY S5.149 S5.341 S5.351 S5.354 S5.362A S5.376A	
1 660.5-1 668.4	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile S5.149 S5.341 S5.379 S5.379A	
1 668.4-1 670	METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149 S5.341	
1 670-1 675	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE S5.380 S5.341	
1 675-1 690 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.341	**1 675-1 690** METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) S5.341 S5.377	**1 675-1 690** METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.341
1 690-1 700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile S5.289 S5.341 S5.382	**1 690-1 700** METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (Earth-to-space) S5.289 S5.341 S5.377 S5.381	**1 690-1 700** METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) S5.289 S5.341 S5.381
1 700-1 710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.289 S5.341	**1 700-1 710** FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) S5.289 S5.341 S5.377	**1 700-1 710** FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.289 S5.341 S5.384

1660 – 1 710 MHz

Allocation to services		
Thailand		**Remark**
1 660 – 1 660.5	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY S5.149 S5.351 S5.354 S5.376A	
1 660.5 – 1 668.4	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile S5.149 S5.379A	
1 668.4 – 1 670	METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149	
1 670 – 1 675	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE S5.380	
1 675 – 1 690	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	
1 690 – 1 700	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) S5.289	
1 700 – 1 710	FIXED T16 METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.289	

1 710-2 170 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 710-1 930 FIXED MOBILE S5.380 S5.149 S5.341 S5.385 S5.386 S5.387 S5.388		
1 930-1 970 FIXED MOBILE S5.388	**1 930-1 970** FIXED MOBILE Mobile-satellite (Earth-to-space) S5.388	**1 930-1 970** FIXED MOBILE S5.388
1 970-1 980 FIXED MOBILE S5.388		
1 980-2 010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A S5.389B S5.389F		
2 010-2 025 FIXED MOBILE S5.388	**2 010-2 025** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389C S5.389D S5.389E S5.390	**2 010-2 025** FIXED MOBILE S5.388
2 025-2 110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) S5.392		
2 110-2 120 FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) S5.388		
2 120-2 160 FIXED MOBILE S5.388	**2 120-2 160** FIXED MOBILE Mobile-satellite (space-to-Earth) S5.388	**2 120-2 160** FIXED MOBILE S5.388
2 160-2 170 FIXED MOBILE S5.388 S5.392A	**2 160-2 170** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389C S5.389D S5.389E S5.390	**2 160-2 170** FIXED MOBILE S5.388

1 710 – 2 170 MHz

Allocation to services		
Thailand		**Remark**
1 710 – 1 930	FIXED T16 T17 MOBILE S5.380 T13 S5.149 S5.385 S5.388 T18 T19	
1 930 – 1 980	FIXED T17 MOBILE T13 S5.388	
1 980 – 2 010	FIXED T17 MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A	
2 010– 2 025	FIXED T17 MOBILE S5.388	
2 025– 2 110	SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED T17 T20 MOBILE S5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) S5.392	
2 110– 2 120	FIXED T17 MOBILE SPACE RESEARCH (deep space) (Earth-to-space) S5.388	
2 120– 2 170	FIXED T17 MOBILE S5.388	

2 170-2 520 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
2 170-2 200	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389A S5.389F S5.392A	
2 200-2 290	SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) S5.392	
2 290-2 300	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	
2 300-2 450 FIXED MOBILE Amateur Radiolocation S5.150 S5.282 S5.395	**2 300-2 450** FIXED MOBILE RADIOLOCATION Amateur S5.150 S5.282 S5.393 S5.394 S5.396	
2 450-2 483.5 FIXED MOBILE Radiolocation S5.150 S5.397	**2 450-2 483.5** FIXED MOBILE RADIOLOCATION S5.150 S5.394	
2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) Radiolocation S5.150 S5.371 S5.397 S5.398 S5.399 S5.400 S5.402	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) S5.398 S5.150 S5.402	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) RADIOLOCATION Radiodetermination-satellite (space-to-Earth) S5.398 S5.150 S5.400 S5.402
2 500-2 520 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) S5.403 S5.405 S5.407 S5.408 S5.412 S5.414	**2 500-2 520** FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) S5.403 S5.404 S5.407 S5.414 S5.415A	

2 170 – 2 520 MHz

Allocation to services		
Thailand		**Remark**
2 170 – 2 200	FIXED T17 MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389A	
2 200 – 2 290	SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED T17 T20 MOBILE S5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) S5.392	
2 290 – 2 300	FIXED T17 MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	
2 300 – 2 450	FIXED T17 T21 MOBILE RADIOLOCATION Amateur S5.150 S5.282 S5.396	
2 450 – 2 483.5	FIXED T21 MOBILE RADIOLOCATION S5.150	
2 483.5– 2 500	FIXED T22 MOBILE MOBILE-SATELLITE (space-to-Earth) RADIOLOCATION Radiodetermination-satellite (space-to-Earth) S5.398 S5.150 S5.402	
2 500 – 2 520	FIXED S5.409 S5.411 T22 T23 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) S5.403 S5.407 S5.414	

2 520-2 700 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
2 520-2 655 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.403 S5.405 S5.408 S5.412 S5.417 S5.418	**2 520-2 655** FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.403	**2 520-2 535** FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.403 S5.415A **2 535-2 655** FIXED S5.409 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.418
2 655-2 670 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.412 S5.417 S5.420	**2 655-2 670** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.420	**2 655-2 670** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.420
2 670-2 690 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420	**2 670-2 690** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420	**2 670-2 690** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420 S5.420A
2 690-2 700	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.421 S5.422	

2 520 – 2 700 MHz

Allocation to services		
Thailand		**Remark**
2 520 – 2 535	FIXED S5.409 S5.411 T22 T23 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.403	
2 535 – 2 655	FIXED S5.409 S5.411 T22 T23 T24 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.418	
2 655 – 2 670	FIXED S5.409 S5.411 T22 T23 T24 FIXED-SATELLITE (Earth-to-space) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.420	
2 670 – 2 690	FIXED S5.409 S5.411 T22 T23 T24 FIXED-SATELLITE (Earth-to-space) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420	
2 690 – 2 700	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 T24	

2 700-4 800 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
2 700-2 900	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation S5.423 S5.424	
2 900-3 100	RADIONAVIGATION S5.426 Radiolocation S5.425 S5.427	
3 100-3 300	RADIOLOCATION Earth exploration-satellite (active) Space research (active) S5.149 S5.428	
3 300-3 400 RADIOLOCATION S5.149 S5.429 S5.430	**3 300-3 400** RADIOLOCATION Amateur Fixed Mobile S5.149 S5.430	**3 300-3 400** RADIOLOCATION Amateur S5.149 S5.429
3 400-3 600 FIXED FIXED-SATELLITE (space-to-Earth) Mobile Radiolocation S5.431	**3 400-3 500** FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile Radiolocation S5.433 S5.282 S5.432	
3 600-4 200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile	**3 500-3 700** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation S5.433 S5.435	
	3 700-4 200 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	
4 200-4 400	AERONAUTICAL RADIONAVIGATION S5.438 S5.437 S5.439 S5.440	
4 400-4 500	FIXED MOBILE	
4 500-4 800	FIXED FIXED-SATELLITE (space-to-Earth) S5.441 MOBILE	

2 700 – 4 800 MHz

Allocation to services		
Thailand		**Remark**
2 700 – 2 900	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation S5.423	
2 900 – 3 100	RADIONAVIGATION S5.426 Radiolocation S5.425 S5.427	
3 100 – 3 300	RADIOLOCATION Earth exploration-satellite (active) Space research (active) S5.149	
3 300 – 3 400	RADIOLOCATION Amateur S5.149	
3 400 – 3 500	FIXED-SATELLITE (space-to-Earth) Fixed Amateur Mobile Radiolocation S5.433 S5.282 S5.432	
3 500 – 3 700	FIXED-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile Radiolocation S5.433 S5.435	
3 700 – 4 200	FIXED-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile	
4 200 – 4 400	AERONAUTICAL RADIONAVIGATION S5.438 S5.440	
4 400 – 4 500	FIXED T25 MOBILE	
4 500 – 4 800	FIXED T25 FIXED-SATELLITE (space-to-Earth) S5.441 MOBILE	

4 800-5 830 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
4 800-4 990	FIXED MOBILE S5.442 Radio astronomy S5.149 S5.339 S5.443	
4 990-5 000	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) S5.149	
5 000-5 150	AERONAUTICAL RADIONAVIGATION S5.367 S5.444 S5.444A	
5 150-5 250	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) S5.447A S5.446 S5.447 S5.447B S5.447C	
5 250-5 255	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH S5.447D S5.448 S5.448A	
5 255- 5 350	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.448 S5.448A	
5 350-5 460	EARTH EXPLORATION-SATELLITE (active) S5.448B AERONAUTICAL RADIONAVIGATION S5.449 Radiolocation	
5 460-5 470	RADIONAVIGATION S5.449 Radiolocation	
5 470-5 650	MARITIME RADIONAVIGATION Radiolocation S5.450 S5.451 S5.452	
5 650-5 725	RADIOLOCATION Amateur Space research (deep space) S5.282 S5.451 S5.453 S5.454 S5.455	
5 725-5 830 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur S5.150 S5.451 S5.453 S5.455 S5.456	**5 725-5 830** RADIOLOCATION Amateur S5.150 S5.453 S5.455	

4 800 – 5 830 MHz

Allocation to services		
Thailand		**Remark**
4 800 – 4 990	FIXED T25 MOBILE S5.442 Radio astronomy S5.149 S5.339	
4 990 – 5 000	FIXED T25 MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) S5.149	
5 000 – 5 091	AERONAUTICAL RADIONAVIGATION S5.367 S5.444	
5 091 – 5 150	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) S5.367 S5.444 S5.444A	
5 150 – 5 250	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) S5.447A S5.446 S5.447B S5.447C	
5 250 – 5 255	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH S5.447D S5.448A	
5 255 – 5 350	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.448A	
5 350 – 5 460	EARTH EXPLORATION-SATELLITE (active) S5.448B AERONAUTICAL RADIONAVIGATION S5.449 Radiolocation	
5 460 – 5 470	RADIONAVIGATION S5.449 Radiolocation	
5 470 – 5 650	MARITIME RADIONAVIGATION Radiolocation S5.452	
5 650 – 5 725	RADIOLOCATION Amateur Space research (deep space) S5.282	
5 725 – 5 830	RADIOLOCATION Amateur S5.150	

5 830-7 550 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
5 830-5 850 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) S5.150 S5.451 S5.453 S5.455 S5.456	**5 830-5 850** RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) S5.150 S5.453 S5.455	
5 850-5 925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.150	**5 850-5 925** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Amateur Radiolocation S5.150	**5 850-5 925** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Radiolocation S5.150
5 925-6 700	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.149 S5.440 S5.458	
6 700-7 075	FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.441 MOBILE S5.458 S5.458A S5.458B S5.458C	
7 075-7 250	FIXED MOBILE S5.458 S5.459 S5.460	
7 250-7 300	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE S5.461	
7 300-7 450	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.461	
7 450-7 550	FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.461A	

5 830 – 7 550 MHz

Allocation to services		
Thailand		**Remark**
5 830 – 5 850	RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) S5.150	
5 850 – 5 925	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Radiolocation S5.150	
5 925 – 6 425	FIXED-SATELLITE (Earth-to-space) Fixed T26 Mobile S5.149 S5.440 S5.458	
6 425 – 6 700	FIXED T27 FIXED-SATELLITE (Earth-to-space) Mobile S5.149 S5.440 S5.458	
6 700 – 7 075	FIXED T27 FIXED-SATELLITE (Earth-to-space)(space-to-Earth) S5.441 Mobile S5.458 S5.458A S5.458B S5.458C	
7 075 – 7 250	FIXED T27 T28 MOBILE S5.458 S5.460	
7 250 – 7 300	FIXED T28 FIXED-SATELLITE (space-to-Earth) MOBILE S5.461	
7 300 – 7 450	FIXED T28 T29 FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.461	
7 450 – 7 550	FIXED T29 FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.461A	

7 550-8 750 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
7 550-7 750	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	
7 750-7 850	FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) S5.461B MOBILE except aeronautical mobile	
7 850-7 900	FIXED MOBILE except aeronautical mobile	
7 900-8 025	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.461	
8 025-8 175	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.463 S5.462A	
8 175-8 215	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE S5.463 S5.462A	
8 215-8 400	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.463 S5.462A	
8 400-8 500	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) S5.465 S5.466 S5.467	
8 500-8 550	RADIOLOCATION S5.468 S5.469	
8 550-8 650	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.468 S5.469 S5.469A	
8 650-8 750	RADIOLOCATION S5.468 S5.469	

7 550 – 8 750 MHz

Allocation to services		
Thailand		**Remark**
7 550 – 7 750	FIXED T29 T30 FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	
7 750 – 7 850	FIXED T30 METEOROLOGICAL- SATELLITE (space-to-Earth) S5.461B MOBILE except aeronautical mobile	
7 850 – 7 900	FIXED T30 MOBILE except aeronautical mobile	
7 900 – 8 025	FIXED T30 FIXED-SATELLITE (Earth-to-space) MOBILE S5.461	
8 025 – 8 175	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED T30 FIXED-SATELLITE (Earth-to-space) MOBILE S5.463 S5.462A	
8 175 – 8 215	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED T30 FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE S5.463 S5.462A	
8 215 – 8 400	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED T30 T31 FIXED-SATELLITE (Earth-to-space) MOBILE S5.463 S5.462A	
8 400 – 8 500	FIXED T31 MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) S5.465	
8 500 – 8 550	RADIOLOCATION	
8 550 – 8 650	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.469A	
8 650 – 8 750	RADIOLOCATION	

8 750-10 000 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
8 750-8 850	RADIOLOCATION AERONAUTICAL RADIONAVIGATION S5.470 S5.471	
8 850-9 000	RADIOLOCATION MARITIME RADIONAVIGATION S5.472 S5.473	
9 000-9 200	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation S5.471	
9 200-9 300	RADIOLOCATION MARITIME RADIONAVIGATION S5.472 S5.473 S5.474	
9 300-9 500	RADIONAVIGATION S5.476 Radiolocation S5.427 S5.474 S5.475	
9 500-9 800	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) S5.476A	
9 800-10 000	RADIOLOCATION Fixed S5.477 S5.478 S5.479	

8 750 – 10 000 MHz

Allocation to services		
Thailand		**Remark**
8 750 – 8 850	RADIOLOCATION AERONAUTICAL RADIONAVIGATION S5.470	
8 850 – 9 000	RADIOLOCATION MARITIME RADIONAVIGATION S5.472	
9 000 – 9 200	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation	
9 200 – 9 300	RADIOLOCATION MARITIME RADIONAVIGATION S5.472 S5.474	
9 300 – 9 500	RADIONAVIGATION S5.476 Radiolocation S5.427 S5.474 S5.475	
9 500 – 9 800	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) S5.476A	
9 800 – 10 000	RADIOLOCATION Fixed S5.479	

10-11.7 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
10-10.45 FIXED MOBILE RADIOLOCATION Amateur S5.479	**10-10.45** RADIOLOCATION Amateur S5.479 S5.480	**10-10.45** FIXED MOBILE RADIOLOCATION Amateur S5.479
10.45-10.5	RADIOLOCATION Amateur Amateur-satellite S5.481	
10.5-10.55 FIXED MOBILE Radiolocation	**10.5-10.55** FIXED MOBILE RADIOLOCATION	
10.55-10.6	FIXED MOBILE except aeronautical mobile Radiolocation	
10.6-10.68	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation S5.149 S5.482	
10.68-10.7	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.483	
10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) S5.441 S5.484A (Earth-to-space) S5.484 MOBILE except aeronautical mobile	**10.7-11.7** FIXED FIXED-SATELLITE (space-to-Earth) S5.441 S5.484A MOBILE except aeronautical mobile	**10.7-11.7** FIXED FIXED-SATELLITE (space-to-Earth) S5.441 S5.484A MOBILE except aeronautical mobile

10 – 11.7 GHz

Allocation to services		
Thailand		**Remark**
10 – 10.45	FIXED MOBILE RADIOLOCATION Amateur S5.479	
10.45 – 10.5	RADIOLOCATION Amateur Amateur-satellite S5.481	
10.5 – 10.55	FIXED T32 MOBILE RADIOLOCATION	
10.55 – 10.6	FIXED T32 MOBILE except aeronautical mobile Radiolocation	
10.6 – 10.68	EARTH EXPLORATION-SATELLITE (passive) FIXED T32 MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation S5.149 S5.482	
10.68 – 10.7	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
10.7 – 11.7	FIXED T33 FIXED-SATELLITE (space -to- Earth) S5.441 S5.484A MOBILE except aeronautical mobile	

11.7-14.25 GHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td rowspan="3">11.7-12.5
FIXED
BROADCASTING
BROADCASTING-SATELLITE
MOBILE except aeronautical mobile

S5.487 S5.487A S5.492</td><td>11.7-12.1
FIXED S5.486
FIXED-SATELLITE (space-to-Earth) S5.484A
Mobile except aeronautical mobile
S5.485 S5.488</td><td rowspan="2">11.7-12.2
FIXED
MOBILE except aeronautical mobile
BROADCASTING
BROADCASTING-SATELLITE

S5.487 S5.487A S5.492</td></tr>
<tr><td>12.1-12.2
FIXED-SATELLITE (space-to-Earth) S5.484A
S5.485 S5.488 S5.489</td></tr>
<tr><td>12.2-12.7
FIXED
MOBILE except aeronautical mobile
BROADCASTING
BROADCASTING-SATELLITE
S5.487A S5.488 S5.490 S5.492</td><td>12.2-12.5
FIXED
MOBILE except aeronautical mobile
BROADCASTING
S5.484A S5.487 S5.491</td></tr>
<tr><td>12.5-12.75
FIXED-SATELLITE (space-to-Earth) S5.484A (Earth-to-space)

S5.494 S5.495 S5.496</td><td>12.7-12.75
FIXED
FIXED-SATELLITE (Earth-to-space)
MOBILE except aeronautical mobile</td><td>12.5-12.75
FIXED
FIXED-SATELLITE (space-to-Earth) S5.484A
MOBILE except aeronautical mobile
BROADCASTING-SATELLITE S5.493</td></tr>
<tr><td>12.75-13.25</td><td colspan="2">FIXED
FIXED-SATELLITE (Earth-to-space) S5.441
MOBILE
Space research (deep space) (space-to-Earth)</td></tr>
<tr><td>13.25-13.4</td><td colspan="2">EARTH EXPLORATION-SATELLITE (active)
AERONAUTICAL RADIONAVIGATION S5.497
SPACE RESEARCH (active)
S5.498A S5.499</td></tr>
<tr><td>13.4-13.75</td><td colspan="2">EARTH EXPLORATION-SATELLITE (active)
RADIOLOCATION
SPACE RESEARCH S5.501A
Standard frequency and time signal-satellite (Earth-to-space)
S5.499 S5.500 S5.501 S5.501B</td></tr>
<tr><td>13.75-14</td><td colspan="2">FIXED-SATELLITE (Earth-to-space) S5.484A
RADIOLOCATION
Standard frequency and time signal-satellite (Earth-to-space)
Space research
S5.499 S5.500 S5.501 S5.502 S5.503 S5.503A</td></tr>
<tr><td>14-14.25</td><td colspan="2">FIXED-SATELLITE (Earth-to-space) S5.484A S5.506
RADIONAVIGATION S5.504
Mobile-satellite (Earth-to-space) except aeronautical mobile-satellite
Space research
S5.505</td></tr>
</table>

11.7 – 14.25 GHz

Allocation to services		
Thailand		**Remark**
11.7 – 12.2	FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE S5.487 S5.487A S5.492	
12.2 – 12.5	FIXED-SATELLITE (space-to-Earth) S5.484A S5.487 S5.491	
12.5 – 12.75	FIXED-SATELLITE (space-to-Earth) S5.484A BROADCASTING-SATELLITE S5.493	
12.75 – 13.25	FIXED T34 FIXED-SATELLITE (Earth-to-space) S5.441 MOBILE Space research (deep space) (space-to-Earth)	
13.25 – 13.4	EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION S5.497 SPACE RESEARCH (active) S5.498A	
13.4 – 13.75	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH S5.501A Standard frequency and time signal-satellite (Earth-to-space) S5.501B	
13.75 – 14	FIXED-SATELLITE (Earth-to-space) S5.484A RADIOLOCATION Standard frequency and time signal-satellite (Earth-to-space) Space research S5.502 S5.503 S5.503A	
14 – 14.25	FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 Radionavigation S5.504 Mobile-satellite (Earth-to-space) except aeronautical mobile-satellite Space research	

14.25-15.43 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
14.25-14.3	FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 RADIONAVIGATION S5.504 Mobile-satellite (Earth-to-space) except aeronautical mobile-satellite Space research S5.505 S5.508 S5.509	
14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) except aeronautical mobile-satellite Radionavigation-satellite	**14.3-14.4** FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 Mobile-satellite (Earth-to-space) except aeronautical mobile-satellite Radionavigation-satellite	**14.3-14.4** FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) except aeronautical mobile-satellite Radionavigation-satellite
14.4-14.47	FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) except aeronautical mobile-satellite Space research (space-to-Earth)	
14.47-14.5	FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) except aeronautical mobile-satellite Radio astronomy S5.149	
14.5-14.8	FIXED FIXED-SATELLITE (Earth-to-space) S5.510 MOBILE Space research	
14.8-15.35	FIXED MOBILE Space research S5.339	
15.35-15.4	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.511	
15.4-15.43	AERONAUTICAL RADIONAVIGATION S5.511D	

14.25 – 15.43 GHz

Allocation to services		
Thailand		**Remark**
14.25 – 14.3	FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 Radionavigation S5.504 Mobile-satellite (Earth-to-space) except aeronautical mobile-satellite Space research	
14.3 – 14.4	FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 Fixed Mobile except aeronautical mobile Mobile-satellite (Earth-to-space) except aeronautical mobile-satellite Radionavigation-satellite	
14.4 – 14.47	FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 Fixed Mobile except aeronautical mobile Mobile-satellite (Earth-to-space)except aeronautical mobile-satellite Space research (space-to-Earth)	
14.47 – 14.5	FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 Fixed Mobile except aeronautical mobile Mobile-satellite (Earth-to-space) except aeronautical mobile-satellite Radio astronomy S5.149	
14.5 – 14.8	FIXED T35 FIXED-SATELLITE (Earth-to-space) S5.510 MOBILE Space research	
14.8 – 15.35	FIXED T35 MOBILE Space research S5.339	
15.35 – 15.4	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
15.4 – 15.43	AERONAUTICAL RADIONAVIGATION S5.511D	

15.43-18.6 GHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>15.43-15.63</td><td colspan="2">FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.511A
AERONAUTICAL RADIONAVIGATION
S5.511C</td></tr>
<tr><td>15.63-15.7</td><td colspan="2">AERONAUTICAL RADIONAVIGATION
S5.511D</td></tr>
<tr><td>15.7-16.6</td><td colspan="2">RADIOLOCATION
S5.512 S5.513</td></tr>
<tr><td>16.6-17.1</td><td colspan="2">RADIOLOCATION
Space research (deep space) (Earth-to-space)
S5.512 S5.513</td></tr>
<tr><td>17.1-17.2</td><td colspan="2">RADIOLOCATION
S5.512 S5.513</td></tr>
<tr><td>17.2-17.3</td><td colspan="2">EARTH EXPLORATION-SATELLITE (active)
RADIOLOCATION
SPACE RESEARCH (active)
S5.512 S5.513 S5.513A</td></tr>
<tr><td>17.3-17.7
FIXED-SATELLITE
(Earth-to-space) S5.516
Radiolocation

S5.514</td><td>17.3-17.7
FIXED-SATELLITE
(Earth-to-space) S5.516
BROADCASTING-SATELLITE
Radiolocation
S5.514 S5.515 S5.517</td><td>17.3-17.7
FIXED-SATELLITE
(Earth-to-space) S5.516
Radiolocation

S5.514</td></tr>
<tr><td rowspan="2">17.7-18.1
FIXED
FIXED-SATELLITE
(space-to-Earth) S5.484A
(Earth-to-space) S5.516
MOBILE</td><td>17.7-17.8
FIXED
FIXED-SATELLITE
(space-to-Earth)
(Earth-to-space) S5.516
BROADCASTING-SATELLITE
Mobile S5.518
S5.515 S5.517</td><td rowspan="2">17.7-18.1
FIXED
FIXED-SATELLITE
(space-to-Earth) S5.484A
(Earth-to-space) S5.516
MOBILE</td></tr>
<tr><td>17.8-18.1
FIXED
FIXED-SATELLITE
(space-to-Earth) S5.484A
(Earth-to-space) S5.516
MOBILE</td></tr>
<tr><td>18.1-18.4</td><td colspan="2">FIXED
FIXED-SATELLITE (space-to-Earth) S5.484A
(Earth-to-space) S5.520
MOBILE
S5.519 S5.521</td></tr>
<tr><td>18.4-18.6</td><td colspan="2">FIXED
FIXED-SATELLITE (space-to-Earth) S5.484A
MOBILE</td></tr>
</table>

15.43 – 18.6 GHz

Allocation to services		
Thailand		**Remark**
15.43 – 15.63	FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.511A AERONAUTICAL RADIONAVIGATION S5.511C	
15.63 – 15.7	AERONAUTICAL RADIONAVIGATION S5.511D	
15.7 – 16.6	RADIOLOCATION	
16.6– 17.1	RADIOLOCATION Space research (deep space) (Earth-to-space)	
17.1– 17.2	RADIOLOCATION	
17.2– 17.3	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.513A	
17.3 – 17.7	FIXED-SATELLITE (Earth-to-space) S5.516 Radiolocation	
17.7 – 18.1	FIXED T36 FIXED-SATELLITE (space-to-Earth) S5.484A (Earth-to-space) S5.516 MOBILE	
18.1 – 18.4	FIXED T36 FIXED-SATELLITE (space-to-Earth) S5.484A (Earth-to-space) S5.520 MOBILE S5.519	
18.4 – 18.6	FIXED T36 FIXED-SATELLITE (space-to-Earth) S5.484A MOBILE	

18.6-22.21 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
18.6-18.8 FIXED FIXED-SATELLITE (space-to-Earth) S5.523 MOBILE except aeronautical mobile Earth exploration-satellite (passive) Space research (passive) S5.522	**18.6-18.8** EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) S5.523 MOBILE except aeronautical mobile SPACE RESEARCH (passive) S5.522	**18.6-18.8** FIXED FIXED-SATELLITE (space-to-Earth) S5.523 MOBILE except aeronautical mobile Earth exploration-satellite (passive) Space research (passive) S5.522
18.8-19.3	FIXED FIXED-SATELLITE (space-to-Earth) S5.523A MOBILE	
19.3-19.7	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.523B S5.523C S5.523D S5.523E MOBILE	
19.7-20.1 FIXED-SATELLITE (space-to-Earth) S5.484A Mobile-satellite (space-to-Earth) S5.524	**19.7-20.1** FIXED-SATELLITE (space-to-Earth) S5.484A MOBILE-SATELLITE (space-to-Earth) S5.524 S5.525 S5.526 S5.527 S5.528 S5.529	**19.7-20.1** FIXED-SATELLITE (space-to-Earth) S5.484A Mobile-satellite (space-to-Earth) S5.524
20.1-20.2	FIXED-SATELLITE (space-to-Earth) S5.484A MOBILE-SATELLITE (space-to-Earth) S5.524 S5.525 S5.526 S5.527 S5.528	
20.2-21.2	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) S5.524	
21.2-21.4	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	
21.4-22 FIXED MOBILE BROADCASTING-SATELLITE S5.530	**21.4-22** FIXED MOBILE	**21.4-22** FIXED MOBILE BROADCASTING-SATELLITE S5.530 S5.531
22-22.21	FIXED MOBILE except aeronautical mobile S5.149	

18.6 – 22.21 GHz

Allocation to services		
Thailand		**Remark**
18.6 – 18.8	FIXED T36 FIXED-SATELLITE (space-to-Earth) S5.523 MOBILE except aeronautical mobile Earth exploration-satellite (passive) Space research (passive) S5.522	
18.8 – 19.3	FIXED T36 FIXED-SATELLITE (space-to-Earth) S5.523A MOBILE	
19.3 – 19.7	FIXED T36 FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.523B S5.523C S5.523D S5.523E MOBILE	
19.7 – 20.1	FIXED-SATELLITE (space-to-Earth) S5.484A Mobile-satellite (space-to-Earth)	
20.1 – 20.2	FIXED-SATELLITE (space-to-Earth) S5.484A MOBILE-SATELLITE (space-to-Earth) S5.525 S5.526 S5.527 S5.528	
20.2 – 21.2	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth)	
21.2 – 21.4	EARTH EXPLORATION-SATELLITE (passive) FIXED T37 MOBILE SPACE RESEARCH (passive)	
21.4 - 22	BROADCASTING-SATELLITE S5.530	
22 – 22.21	FIXED T37 MOBILE except aeronautical mobile S5.149	

22.21-24.75 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
22.21-22.5	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) S5.149 S5.532	
22.5-22.55	FIXED MOBILE	
22.55-23.55	FIXED INTER-SATELLITE MOBILE S5.149	
23.55-23.6	FIXED MOBILE	
23.6-24	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
24-24.05	AMATEUR AMATEUR-SATELLITE S5.150	
24.05-24.25	RADIOLOCATION Amateur Earth exploration-satellite (active) S5.150	
24.25-24.45 FIXED	**24.25-24.45** RADIONAVIGATION	**24.25-24.45** RADIONAVIGATION FIXED MOBILE
24.45-24.65 FIXED INTER-SATELLITE	**24.45-24.65** INTER-SATELLITE RADIONAVIGATION S5.533	**24.45-24.65** FIXED INTER-SATELLITE MOBILE RADIONAVIGATION S5.533
24.65-24.75 FIXED INTER-SATELLITE	**24.65-24.75** INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)	**24.65-24.75** FIXED INTER-SATELLITE MOBILE S5.533 S5.534

22.21 – 24.75 GHz

Allocation to services		
Thailand		**Remark**
22.21 – 22.5	EARTH EXPLORATION-SATELLITE (passive) FIXED T37 MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) S5.149 S5.532	
22.5 – 22.55	FIXED T37 MOBILE	
22.55 – 23.55	FIXED T37 INTER-SATELLITE MOBILE S5.149	
23.55 – 23.6	FIXED T37 MOBILE	
23.6 – 24	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
24 – 24.05	AMATEUR AMATEUR-SATELLITE S5.150	
24.05 – 24.25	RADIOLOCATION Amateur Earth exploration-satellite (active) S5.150	
24.25 – 24.45	RADIONAVIGATION FIXED MOBILE	
24.45 – 24.65	FIXED INTER-SATELLITE MOBILE RADIONAVIGATION S5.533	
24.65 – 24.75	FIXED INTER-SATELLITE MOBILE S5.533	

24.75-29.9 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
24.75-25.25 FIXED	**24.75-25.25** FIXED-SATELLITE (Earth-to-space) S5.535	**24.75-25.25** FIXED FIXED-SATELLITE (Earth-to-space) S5.535 MOBILE S5.534
25.25-25.5	FIXED INTER-SATELLITE S5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	
25.5-27	EARTH EXPLORATION-SATELLITE (space-to Earth) S5.536A S5.536B FIXED INTER-SATELLITE S5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	
27-27.5 FIXED INTER-SATELLITE S5.536 MOBILE	**27-27.5** FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE S5.536 S5.537 MOBILE	
27.5-28.5	FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 MOBILE S5.538 S5.540	
28.5-29.1	FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.523A S5.539 MOBILE Earth exploration-satellite (Earth-to-space) S5.541 S5.540	
29.1-29.5	FIXED FIXED-SATELLITE (Earth-to-space) S5.523C S5.523E S5.535A S5.539 S5.541A MOBILE Earth exploration-satellite (Earth-to-space) S5.541 S5.540	
29.5-29.9 FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 Earth exploration-satellite (Earth-to-space) S5.541 Mobile-satellite (Earth-to-space) S5.540 S5.542	**29.5-29.9** FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) S5.541 S5.525 S5.526 S5.527 S5.529 S5.540 S5.542	**29.5-29.9** FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 Earth exploration-satellite (Earth-to-space) S5.541 Mobile-satellite (Earth-to-space) S5.540 S5.542

24.75 – 29.9 GHz

Allocation to services		
Thailand		**Remark**
24.75 – 25.25	FIXED FIXED-SATELLITE (Earth-to-space) S5.535 MOBILE	
25.25 – 25.5	FIXED INTER-SATELLITE S5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	
25.5 – 27	EARTH EXPLORATION-SATELLITE (space-to-Earth) S5.536A FIXED INTER-SATELLITE S5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	
27 – 27.5	FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE S5.536 S5.537 MOBILE	
27.5 – 28.5	FIXED T38 FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 MOBILE S5.538 S5.540	
28.5 – 29.1	FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.523A S5.539 MOBILE Earth exploration-satellite (Earth-to-space) S5.541 S5.540	
29.1 – 29.5	FIXED FIXED-SATELLITE (Earth-to-space) S5.523C S5.523E S5.535A S5.539 S5.541A MOBILE Earth exploration-satellite (Earth-to-space) S5.541 S5.540	
29.5 – 29.9	FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 Earth exploration-satellite (Earth-to-space) S5.541 Mobile-satellite (Earth-to-space) S5.540	

29.9-34.2 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
29.9-30	FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) S5.541 S5.543 S5.525 S5.526 S5.527 S5.538 S5.540 S5.542	
30-31	FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) S5.542	
31-31.3	FIXED MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research S5.544 S5.545 S5.149	
31.3-31.5	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile S5.149 S5.546	**31.5-31.8** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	**31.5-31.8** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile S5.149
31.8-32	FIXED S5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) S5.547 S5.547B S5.548	
32-32.3	FIXED S5.547A INTER-SATELLITE RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) S5.547 S5.547C S5.548	
32.3-33	FIXED S5.547A INTER-SATELLITE RADIONAVIGATION S5.547 S5.547D S5.548	
33-33.4	FIXED S5.547A RADIONAVIGATION S5.547 S5.547E	
33.4-34.2	RADIOLOCATION S5.549	

29.9 –34.2 GHz

Allocation to services		
Thailand		**Remark**
29.9 – 30	FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) S5.541 S5.543 S5.525 S5.526 S5.527 S5.538 S5.540	
30 – 31	FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth)	
31 – 31.3	FIXED T39 MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research S5.544 S5.149	
31.3 – 31.5	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
31.5 – 31.8	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile S5.149	
31.8 – 32	FIXED S5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) S5.547 S5.548	
32 – 32.3	FIXED S5.547A INTER-SATELLITE RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) S5.547 S5.548	
32.3 – 33	FIXED S5.547A INTER-SATELLITE RADIONAVIGATION S5.547 S5.548	
33 – 33.4	FIXED S5.547A RADIONAVIGATION S5.547	
33.4 – 34.2	RADIOLOCATION	

34.2-40.5 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
34.2-34.7	RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) S5.549	
34.7-35.2	RADIOLOCATION Space research S5.550 S5.549	
35.2-35.5	METEOROLOGICAL AIDS RADIOLOCATION S5.549	
35.5-36	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.549 S5.551A	
36-37	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.149	
37-37.5	FIXED MOBILE SPACE RESEARCH (space-to-Earth)	
37.5-38	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth)	
38-39.5	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth)	
39.5-40	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth)	
40-40.5	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)	

34.2 – 40.5 GHz

Allocation to services		
Thailand		**Remark**
34.2 – 34.7	RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space)	
34.7 – 35.2	RADIOLOCATION Space research	
35.2 – 35.5	METEOROLOGICAL AIDS RADIOLOCATION	
35.5 – 36	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.551A	
36 – 37	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.149	
37 – 37.5	FIXED T40 MOBILE SPACE RESEARCH (space-to-Earth)	
37.5 – 38	FIXED T40 FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth)	
38 – 39.5	FIXED T40 FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth)	
39.5 – 40	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth)	
40 – 40.5	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)	

40.5-55.78 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
40.5-42.5 FIXED BROADCASTING BROADCASTING-SATELLITE Mobile S5.551B S5.551D	**40.5-42.5** FIXED FIXED-SATELLITE (space-to-Earth) S5.551B S5.551E BROADCASTING BROADCASTING-SATELLITE Mobile S5.551C S5.551F	
42.5-43.5	FIXED FIXED-SATELLITE (Earth-to-space) S5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149	
43.5-47	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.554	
47-47.2	AMATEUR AMATEUR-SATELLITE	
47.2-50.2	FIXED FIXED-SATELLITE (Earth-to-space) S5.552 MOBILE S5.149 S5.340 S5.552A S5.555	
50.2-50.4	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.340 S5.555A	
50.4-51.4	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Mobile-satellite (Earth-to-space)	
51.4-52.6	FIXED MOBILE S5.547 S5.556	
52.6-54.25	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.340 S5.556	
54.25-55.78	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE S5.556A SPACE RESEARCH (passive) S5.556B	

40.5 – 55.78 GHz

Allocation to services		
Thailand		**Remark**
40.5 – 42.5	FIXED FIXED-SATELLITE (space-to-Earth) S5.551B S5.551E BROADCASTING BROADCASTING-SATELLITE Mobile	
42.5 – 43.5	FIXED FIXED-SATELLITE (Earth-to-space) S5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149	
43.5 – 47	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.554	
47 – 47.2	AMATEUR AMATEUR-SATELLITE	
47.2 – 50.2	FIXED FIXED-SATELLITE (Earth-to-space) S5.552 MOBILE S5.149 S5.340 S5.552A S5.555	
50.2 – 50.4	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.340 S5.555A	
50.4 – 51.4	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Mobile-satellite (Earth-to-space)	
51.4 – 52.6	FIXED MOBILE S5.547 S5.556	
52.6 – 54.25	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.340 S5.556	
54.25 – 55.78	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE S5.556A SPACE RESEARCH (passive)	

55.78-65 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
55.78-56.9	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.556A MOBILE S5.558 SPACE RESEARCH (passive) S5.547 S5.557	
56.9-57	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.558A MOBILE S5.558 SPACE RESEARCH (passive) S5.547 S5.557	
57-58.2	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.556A MOBILE S5.558 SPACE RESEARCH (passive) S5.547 S5.557	
58.2-59	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.547 S5.556	
59-59.3	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.556A MOBILE S5.558 RADIOLOCATION S5.559 SPACE RESEARCH (passive)	
59.3-64	FIXED INTER-SATELLITE MOBILE S5.558 RADIOLOCATION S5.559 S5.138	
64-65	FIXED INTER-SATELLITE MOBILE except aeronautical mobile S5.547 S5.556	

55.78 – 65 GHz

Allocation to services		
Thailand		**Remark**
55.78 – 56.9	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.556A MOBILE S5.558 SPACE RESEARCH (passive) S5.547	
56.9 – 57	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.558A MOBILE S5.558 SPACE RESEARCH (passive) S5.547	
57 – 58.2	EARTH EXPLORATION-SATELLITE (passive) FIXED T41 INTER-SATELLITE S5.556A MOBILE S5.558 SPACE RESEARCH (passive) S5.547	
58.2 – 59	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.547 S5.556	
59 – 59.3	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.556A MOBILE S5.558 RADIOLOCATION S5.559 SPACE RESEARCH (passive)	
59.3 – 64	FIXED INTER-SATELLITE MOBILE S5.558 RADIOLOCATION S5.559 S5.138	
64 – 65	FIXED INTER-SATELLITE MOBILE except aeronautical mobile S5.547 S5.556	

65-86 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
65-66		

65 – 86 GHz

Allocation to services		
Thailand		**Remark**
65 – 66	EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH S5.547	
66 – 71	INTER-SATELLITE MOBILE S5.553 S5.558 MOBILE -SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.554	
71 – 74	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) S5.149 S5.556	
74 – 75.5	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Space research (space-to-Earth)	
75.5 – 76	AMATEUR AMATEUR-SATELLITE Space research (space-to-Earth)	
76 – 81	RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) S5.560	
81 – 84	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Space research (space-to-Earth)	
84 – 86	FIXED MOBILE BROADCASTING BROADCASTING-SATELLITE S5.561	

86-119.98 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
86-92	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
92-94	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIOLOCATION S5.149 S5.556	
94-94.1	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.562	
94.1-95	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIOLOCATION	
95-100	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation S5.149 S5.554 S5.555	
100-102	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.341	
102-105	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE S5.341	
105-116	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.341	
116-119.98	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive) S5.341	

86 – 119.98 GHz

Allocation to services		
Thailand		**Remark**
86 – 92	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
92 – 94	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIOLOCATION S5.149 S5.556	
94 – 94.1	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.562	
94.1 – 95	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIOLOCATION	
95 – 100	MOBILE S5.553 MOBILE -SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation S5.149 S5.554 S5.555	
100 – 102	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	
102 – 105	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
105 – 116	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
116 – 119.98	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive)	

119.98-156 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
119.98-120.02	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive) Amateur S5.341	
120.02-126	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive) S5.138	
126-134	FIXED INTER-SATELLITE MOBILE S5.558 RADIOLOCATION S5.559	
134-142	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation S5.149 S5.340 S5.554 S5.555	
142-144	AMATEUR AMATEUR-SATELLITE	
144-149	RADIOLOCATION Amateur Amateur-satellite S5.149 S5.555	
149-150	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
150-151	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (passive) S5.149 S5.385	
151-156	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	

119.98 – 156 GHz

Allocation to services		
Thailand		**Remark**
119.98 – 120.02	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive) Amateur	
120.02– 126	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive) S5.138	
126 – 134	FIXED INTER-SATELLITE MOBILE S5.558 RADIOLOCATION S5.559	
134 – 142	MOBILE S5.553 MOBILE -SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation S5.149 S5.340 S5.554 S5.555	
142 - 144	AMATEUR AMATEUR-SATELLITE	
144 – 149	RADIOLOCATION Amateur Amateur-satellite S5.149 S5.555	
149 – 150	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
150 – 151	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (passive) S5.149 S5.385	
151 – 156	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	

Allocation to services		
Region 1	**Region 2**	**Region 3**
156-158	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
158-164	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
164-168	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	
168-170	FIXED MOBILE	
170-174.5	FIXED INTER-SATELLITE MOBILE S5.558 S5.149 S5.385	
174.5-176.5	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive) S5.149 S5.385	
176.5-182	FIXED INTER-SATELLITE MOBILE S5.558 S5.149 S5.385	
182-185	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.563	
185-190	FIXED INTER-SATELLITE MOBILE S5.558 S5.149 S5.385	
190-200	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.341 S5.554	
200-202	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.341	

Allocation to services		
Thailand		**Remark**
156 – 158	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
158 – 164	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
164 – 168	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	
168 – 170	FIXED MOBILE	
170 – 174.5	FIXED INTER-SATELLITE MOBILE S5.558 S5.149 S5.385	
174.5 – 176.5	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive) S5.149 S5.385	
176.5 – 182	FIXED INTER-SATELLITE MOBILE S5.558 S5.149 S5.385	
182 – 185	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.563	
185 – 190	FIXED INTER-SATELLITE MOBILE S5.558 S5.149 S5.385	
190 – 200	MOBILE S5.553 MOBILE -SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.554	
200 – 202	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	

Allocation to services		
Region 1	**Region 2**	**Region 3**
202-217	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.341	
217-231	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.341	
231-235	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	
235-238	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (passive)	
238-241	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	
241-248	RADIOLOCATION Amateur Amateur-satellite S5.138	
248-250	AMATEUR AMATEUR-SATELLITE	
250-252	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.149 S5.555	
252-265	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.149 S5.385 S5.554 S5.555 S5.564	
265-275	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY S5.149	
275-400	(Not allocated) S5.565	

202 – 400 GHz

Allocation to services		
Thailand		**Remark**
202 – 217	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	
217 – 231	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
231 – 235	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	
235 – 238	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (passive)	
238 – 241	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	
241 – 248	RADIOLOCATION Amateur Amateur-satellite S5.138	
248 - 250	AMATEUR AMATEUR-SATELLITE	
250 – 252	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.149 S5.555	
252 – 265	MOBILE S5.553 MOBILE -SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.149 S5.385 S5.554 S5.555	
265 – 275	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY S5.149	
275 - 400	(Not allocated) S5.565	

International Footnotes

S5.53 Administrations authorizing the use of frequencies below 9 kHz shall ensure that no harmful interference is caused thereby to the services to which the bands above 9 kHz are allocated.

S5.54 Administrations conducting scientific research using frequencies below 9 kHz are urged to advise other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference.

S5.55 *Additional allocation:* in Armenia, Azerbaijan, Bulgaria, Russian Federation, Georgia, Kazakstan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 14-17 kHz is also allocated to the radionavigation service on a primary basis. (WRC-97)

S5.56 The stations of services to which the bands 14-19.95 kHz and 20.05-70 kHz and in Region 1 also the bands 72-84 kHz and 86-90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC-97)

S5.57 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.

S5.58 *Additional allocation:* in Armenia, Azerbaijan, Bulgaria, Georgia, Kazakstan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the band 67-70 kHz is also allocated to the radionavigation service on a primary basis. (WRC-97)

S5.59 *Different category of service:* in Bangladesh, the Islamic Republic of Iran and Pakistan, the allocation of the bands 70-72 kHz and 84-86 kHz to the fixed and maritime mobile service is on a primary basis (see No. **S5.33**).

S5.60 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.

S5.61 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. **S9.21** 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.

S5.62 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.

S5.63 (SUP - WRC-97)

S5.64 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.

S5.65 *Different category of service:* in Bangladesh, the Islamic Republic of Iran and Pakistan, the allocation of the bands 112-117.6 kHz and 126-129 kHz to the fixed and maritime mobile services is on a primary basis (see No.

service is on a primary basis. Administrations in these countries shall take all practical steps necessary to ensure that aeronautical radionavigation stations in the band 435-495 kHz do not cause interference to reception by coast stations of ship stations transmitting on frequencies designated for ship stations on a worldwide basis (see No. **S52.39**).

S5.78 *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.

S5.79 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.

S5.79A 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-97)**). (WRC-97)

S5.80 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.

S5.81 The bands 490-495 kHz and 505-510 kHz shall be subject to the provisions of Appendix **S13,** § 15 1), Part A2. (WRC-97)

S5.82 In the maritime mobile service, the frequency 490 kHz is, from the date of full implementation of the GMDSS (see Resolution **331 (Rev.WRC-97)**), 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 **S31** and **S52**. In using the band 415-495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz. (WRC-97)

S5.83 The frequency 500 kHz is an international distress and calling frequency for Morse radiotelegraphy. The conditions for its use are prescribed in Articles **S31** and **S52,** and in Appendix **S13**.

S5.84 The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles **S31** and **S52** and in Appendix **S13**. (WRC-97)

S5.85 Not used.

S5.86 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.

S5.87 *Additional allocation:* in Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the band 526.5-535 kHz is also allocated to the mobile service on a secondary basis.

S5.87A *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. **S9.21** with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-97)

S5.88 *Additional allocation:* in China, the band 526.5-535 kHz is also allocated to the aeronautical radionavigation service on a secondary basis.

S5.89 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).

S5.90 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.

S5.91 *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)

S5.92 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. **S9.21**. The radiated mean power of these stations shall not exceed 50 W.

S5.93 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Russian Federation, 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. **S9.21**.

S5.94 and **S5.95** Not used.

S5.96 In Germany, Armenia, Azerbaijan, Belarus, Denmark, Estonia, Finland, Georgia, Hungary, Ireland, Israel, Jordan, Kazakstan, Latvia, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, the United Kingdom, Russian Federation, Sweden, 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.

S5.97 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.

S5.98 *Alternative allocation:* in Angola, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Cameroon, the Congo, Denmark, Egypt, Eritrea, Spain, Ethiopia, Georgia, Greece, Italy, Kazakstan, Lebanon, Lithuania, Moldova, the Netherlands, Syria, Kyrgyzstan, Russian Federation, 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-97)

S5.99 *Additional allocation:* in Saudi Arabia, Bosnia and Herzegovina, Iraq, Libya, Uzbekistan, Slovakia, the Czech Republic, Romania, Slovenia, Chad, Togo and Yugoslavia, the band 1 810-1 830 kHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-97)

S5.100 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 40º N shall be given only after consultation with the countries mentioned in Nos. **S5.98** and **S5.99** 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. **S5.98** and **S5.99**.

S5.101 *Alternative allocation:* in Burundi and Lesotho, the band 1 810-1 850 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

S5.102 *Alternative allocation:* in Argentina, Bolivia, Chile, Mexico, Paraguay, Peru, Uruguay and Venezuela, the band 1 850-2 000 kHz is allocated to the fixed, mobile except aeronautical mobile, radiolocation and radionavigation services on a primary basis.

S5.103 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.

S5.104 In Region 1, the use of the band 2 025-2 045 kHz by the meteorological aids service is limited to oceanographic buoy stations.

S5.105 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. **S52.165**.

S5.106 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.

S5.107 *Additional allocation:* in Saudi Arabia, Botswana, Eritrea, Ethiopia, Iraq, Lesotho, Libya, Somalia, Swaziland and Zambia, 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-97)

S5.108 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 **S31** and **S52** and in Appendix **S13**.

S5.109 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 **S31**.

S5.110 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 **S31**.

S5.111 The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 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 **S31** and in Appendix **S13**.

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

S5.112 *Alternative allocation:* in Bosnia and Herzegovina, Cyprus, Denmark, France, Greece, Iceland, Italy, Malta, Norway, Sri Lanka, Turkey and Yugoslavia, the band 2 194-2 300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-97)

S5.113 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. **S5.16** to **S5.20**, **S5.21** and **S23.3** to **S23.10**.

S5.114 *Alternative allocation:* in Bosnia and Herzegovina, Cyprus, Denmark, France, Greece, Iraq, Italy, Malta, Norway, Turkey and Yugoslavia, the band 2 502-2 625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-97)

S5.115 The carrier (reference) frequencies 3 023 kHz and 5 680 kHz may also be used, in accordance with Article **S31** and Appendix **S13** by stations of the maritime mobile service engaged in coordinated search and rescue operations.

S5.116 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.

S5.117 *Alternative allocation:* in Bosnia and Herzegovina, Cyprus, Côte d'Ivoire, Denmark, Egypt, France, Greece, Iceland, Italy, Liberia, Malta, Norway, Sri Lanka, Togo, Turkey and Yugoslavia, the band 3 155-3 200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-97)

S5.118 *Additional allocation:* in the United States, Japan, Mexico, Peru and Uruguay, the band 3 230-3 400 kHz is also allocated to the radiolocation service on a secondary basis.

S5.119 *Additional allocation:* in Honduras, Mexico, Peru and Venezuela, the band 3 500-3 750 kHz is also allocated to the fixed and mobile services on a primary basis.

S5.120 For the use of the bands allocated to the amateur service at 3.5 MHz, 7.0 MHz, 10.1 MHz, 14.0 MHz, 18.068 MHz, 21.0 MHz, 24.89 MHz and 144 MHz in the event of natural disasters, see Resolution **640**[*] .

S5.121 Not used.

S5.122 *Alternative allocation:* in Argentina, 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.

S5.123 *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. **S9.21**.

S5.124 *Additional allocation:* in Canada, the band 3 950-4 000 kHz is also allocated to the broadcasting service on a primary basis. The power of broadcasting stations operating in this band shall not exceed that necessary for a national service within the frontier of this country and shall not cause harmful interference to other services operating in accordance with the Table.

S5.125 *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.

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[*] This Resolution was abrogated by WRC-97.

S5.126 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.

S5.127 The use of the band 4 000-4 063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. **S52.220** and Appendix **S17**).

S5.128 In Afghanistan, Argentina, Armenia, Azerbaijan, Belarus, Botswana, Burkina Faso, Central African Republic, China, Georgia, India, Kazakstan, Mali, Niger, Kyrgyzstan, Russian Federation, 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 of limited power in the fixed service which are situated at least 600 km from the coast may operate on condition that harmful interference is not caused to the maritime mobile service. (WRC-97)

S5.129 On condition that harmful interference is not caused to the maritime mobile service, the 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.

S5.130 The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles **S31** and **S52** and in Appendix **S13**.

S5.131 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)

S5.132 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 **S17**).

S5.133 *Different category of service:* in Armenia, Azerbaijan, Belarus, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Uzbekistan, Kyrgyzstan, Russian Federation, 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. **S5.33**).

S5.134 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 limited to single-sideband emissions with the characteristics specified in Appendix **S11** or to any other spectrum-efficient modulation techniques recommended by ITU-R. Access to these bands shall be subject to the decisions of a competent conference. (WRC-97)

S5.135 (SUP - WRC-97)

S5.136 The band 5 900-5 950 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis, as well as to the following services: in Region 1 to the land mobile service on a primary basis, in Region 2 to the mobile except aeronautical mobile (R) service on a primary basis, and in Region 3 to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution **21 (Rev.WRC-95)**. After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the 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.

S5.137 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.

S5.138 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. **S5.280**,
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.

S5.139 *Different category of service:* in Armenia, Azerbaijan, Belarus, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 6 765-7 000 kHz to the land mobile service is on a primary basis (see No. **S5.33**).

S5.140 *Additional allocation:* in Angola, Iraq, Rwanda, Somalia and Togo, the band 7 000-7 050 kHz is also allocated to the fixed service on a primary basis.

S5.141 *Alternative allocation:* in Egypt, Eritrea, Ethiopia, Guinea, Libya and Madagascar, the band 7 000-7 050 kHz is allocated to the fixed service on a primary basis. (WRC-97)

S5.142 The use of the band 7 100-7 300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.

S5.143 The band 7 300-7 350 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis and to the land mobile service on a secondary basis, subject to application of the procedure referred to in Resolution **21 (Rev.WRC-95)**. After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

S5.144 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.

S5.145 The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles **S31** and **S52** and in Appendix **S13**.

S5.146 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 are allocated to the fixed service on a primary basis until 1 April 2007, subject to application of the procedure referred to in Resolution **21 (Rev.WRC-95)**. After 1 April 2007, frequencies in these bands 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.

S5.147 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.

S5.148 (SUP - WRC-97)

S5.149 In making assignments to stations of other services to which the bands:

13 360-13 410 kHz,	6 650-6 675.2 MHz*,	144.68-144.98 GHz*,
25 550-25 670 kHz,	10.6-10.68 GHz,	145.45-145.75 GHz*,
37.5-38.25 MHz,	14.47-14.5 GHz*,	146.82-147.12 GHz*,
73-74.6 MHz in Regions 1 and 3,	22.01-22.21 GHz*,	150-151 GHz*,
150.05-153 MHz in Region 1,	22.21-22.5 GHz,	174.42-175.02 GHz*,
322-328.6 MHz*,	22.81-22.86 GHz*,	177-177.4 GHz*,
406.1-410 MHz,	23.07-23.12 GHz*,	178.2-178.6 GHz*,
608-614 MHz in Regions 1 and 3,	31.2-31.3 GHz,	181-181.46 GHz*,
1 330-1 400 MHz*,	31.5-31.8 GHz in Regions 1 and 3,	186.2-186.6 GHz*,
1 610.6-1 613.8 MHz*,	36.43-36.5 GHz*,	250-251 GHz*,
1 660-1 670 MHz,	42.5-43.5 GHz,	257.5-258 GHz*,
1 718.8-1 722.2 MHz*,	42.77-42.87 GHz*,	261-265 GHz,
2 655-2 690 MHz,	43.07-43.17 GHz*,	262.24-262.76 GHz*,
3 260-3 267 MHz*,	43.37-43.47 GHz*,	265-275 GHz,
3 332-3 339 MHz*,	48.94-49.04 GHz*,	265.64-266.16 GHz*,
3 345.8-3 352.5 MHz*,	72.77-72.91 GHz*,	267.34-267.86 GHz*,
4 825-4 835 MHz*,	93.07-93.27 GHz*,	271.74-272.26 GHz*
4 950-4 990 MHz,	97.88-98.08 GHz*,	
4 990-5 000 MHz,	140.69-140.98 GHz*,	

are allocated (* indicates radio astronomy use for spectral line observations), 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. **S4.5** and **S4.6** and Article **S29**). (WRC-97)

S5.150 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. **S15.13**.

S5.151 The bands 13 570-13 600 kHz and 13 800-13 870 kHz are allocated, until 1 April 2007, to the fixed service on a primary basis and to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution **21 (Rev.WRC-95)**. After 1 April 2007, frequencies in these bands may be used by stations in the above-mentioned services, 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.

S5.152 *Additional allocation:* in Armenia, Azerbaijan, China, Côte d'Ivoire, Georgia, the Islamic Republic of Iran, Kazakstan, Moldova, Uzbekistan, Kyrgyzstan, Russian Federation, 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-97)

S5.153 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.

S5.154 *Additional allocation:* in Armenia, Azerbaijan, Georgia, Kazakstan, Moldova, Uzbekistan, Kyrgyzstan, Russian Federation, 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-97)

S5.155 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the band 21 850-21 870 kHz is also allocated to the aeronautical mobile (R) services on a primary basis.

S5.155A In Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Russian Federation, 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.

S5.155B The band 21 870-21 924 kHz is used by the fixed service for provision of services related to aircraft flight safety.

S5.156 *Additional allocation:* in Nigeria, the band 22 720-23 200 kHz is also allocated to the meteorological aids service (radiosondes) on a primary basis.

S5.156A 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.

S5.157 The use of the band 23 350-24 000 kHz by the maritime mobile service is limited to inter-ship radiotelegraphy.

S5.158 and **S5.159** Not used.

S5.160 *Additional allocation:* in Botswana, Burundi, Lesotho, Malawi, Namibia, Dem. Rep. of the Congo, Rwanda and Swaziland, the band 41-44 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-97)

S5.161 *Additional allocation:* in the Islamic Republic of Iran and Japan, the band 41-44 MHz is also allocated to the radiolocation service on a secondary basis.

S5.162 *Additional allocation:* in Australia and New Zealand, the band 44-47 MHz is also allocated to the broadcasting service on a primary basis.

S5.162A *Additional allocation:* in Germany, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Denmark, Spain, Estonia, Finland, France, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Luxembourg, Moldova, Monaco, Norway, the Netherlands, Poland, Portugal, Slovakia, the Czech Republic, the United Kingdom, Russian Federation, Sweden, Switzerland and Turkey, 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-97)

S5.163 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Estonia, Georgia, Hungary, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Russian Federation, 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.

S5.164 *Additional allocation:* in Albania, Germany, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Côte d'Ivoire, Denmark, Spain, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Nigeria, Norway, the Netherlands, Poland, Syria, the United Kingdom, Senegal, Slovenia, Sweden, Switzerland, Swaziland, Togo, Tunisia, Turkey and Yugoslavia the band 47-68 MHz, in Romania the band 47-58 MHz and in the Czech Republic the band 66-68 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each 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-97)

S5.165 *Additional allocation:* in Angola, Cameroon, the Congo, Madagascar, Mozambique, Somalia, Sudan, Tanzania and Chad, the band 47-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

S5.166 *Alternative allocation:* in New Zealand, the band 50-51 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis; the band 53-54 MHz is allocated to the fixed and mobile services on a primary basis.

S5.167 *Alternative allocation:* in Bangladesh, Brunei Darussalam, India, Indonesia, the Islamic Republic of Iran, Malaysia, Pakistan, Singapore and Thailand, the band 50-54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis.

S5.168 *Additional allocation:* in Australia, China and the Democratic People's Republic of Korea, the band 50-54 MHz is also allocated to the broadcasting service on a primary basis.

S5.169 *Alternative allocation:* in Botswana, Burundi, Lesotho, Malawi, Namibia, 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.

S5.170 *Additional allocation:* in New Zealand, the band 51-53 MHz is also allocated to the fixed and mobile services on a primary basis.

S5.171 *Additional allocation:* in Botswana, Burundi, Lesotho, Malawi, Mali, Namibia, Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland and Zimbabwe, the band 54-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

S5.172 *Different category of service:* in the French Overseas Departments 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. **S5.33**).

S5.173 *Different category of service:* in the French Overseas Departments 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. **S5.33**).

S5.174 *Alternative allocation:* in Bulgaria, Hungary, Poland and Romania, the band 68-73 MHz is allocated to the broadcasting service on a primary basis and used in accordance with the decisions in the Final Acts of the Special Regional Conference (Geneva, 1960). (WRC-97)

S5.175 *Alternative allocation:* in Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the bands 68-73 MHz and 76-87.5 MHz are allocated to the broadcasting service 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.

S5.176 *Additional allocation:* in Australia, China, the Republic of Korea, the Philippines, the Democratic People's Republic of Korea and Western Samoa, the band 68-74 MHz is also allocated to the broadcasting service on a primary basis.

S5.177 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Russian Federation, 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. **S9.21**. (WRC-97)

S5.178 *Additional allocation:* in Colombia, Costa Rica, Cuba, El Salvador, Guatemala, Guyana, Honduras and Nicaragua, the band 73-74.6 MHz is also allocated to the fixed and mobile services on a secondary basis.

S5.179 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, China, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Kyrgyzstan, Slovakia, the Czech Republic, Russian Federation, 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.

S5.180 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.

S5.181 *Additional allocation:* in Germany, Austria, Cyprus, Denmark, Egypt, France, Greece, Israel, Italy, Japan, Jordan, Lebanon, Malta, Morocco, Monaco, Norway, Syria, Sweden and Switzerland, the band 74.8-75.2 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **S9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. **S9.21**. (WRC-97)

S5.182 *Additional allocation:* in Western Samoa, the band 75.4-87 MHz is also allocated to the broadcasting service on a primary basis.

S5.183 *Additional allocation:* in China, the Republic of Korea, Japan, the Philippines and

the Democratic People's Republic of Korea, the band 76-87 MHz is also allocated to the broadcasting service on a primary basis.

S5.184 *Additional allocation:* in Bulgaria and Romania, the band 76-87.5 MHz is also 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). (WRC-97)

S5.185 *Different category of service:* in the United States, the French Overseas Departments 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. **S5.33**).

S5.186 (SUP - WRC-97)

S5.187 *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).

S5.188 *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.

S5.189 Not used.

S5.190 *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. **S9.21**. (WRC-97)

S5.191 Not used.

S5.192 *Additional allocation:* in China and the Republic of Korea, the band 100-108 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-97)

S5.193 Not used.

S5.194 *Additional allocation:* in Azerbaijan, Lebanon, Syria, 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-97)

S5.195 and **S5.196** Not used.

S5.197 *Additional allocation:* in Germany, Austria, Cyprus, Denmark, Egypt, France, Italy, Japan, Jordan, Lebanon, Malta, Morocco, Monaco, Norway, Pakistan, Syria, and Sweden, the band 108-111.975 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **S9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedures invoked under No. **S9.21**. (WRC-97)

S5.198 *Additional allocation:* the band 117.975-136 MHz is also allocated to the aeronautical mobile-satellite (R) service on a secondary basis, subject to agreement obtained under No. **S9.21**. (WRC-97)

S5.199 The bands 121.45-121.55 MHz and 242.95-243.05 MHz are also allocated to the mobile-satellite service for the reception on board satellites of emissions from emergency position-indicating radiobeacons transmitting at 121.5 MHz and 243 MHz (see Appendix **S13**).

S5.200 In the band 117.975-136 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 **S31** and Appendix **S13** for distress and safety purposes with stations of the aeronautical mobile service.

S5.201 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, Georgia, Hungary, the Islamic Republic of Iran, Iraq, Japan, Kazakstan, Latvia, Moldova, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the band 132-136 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC-97)

S5.202 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, United Arab Emirates, Georgia, the Islamic Republic of Iran, Jordan, Kazakstan, Latvia, Moldova, Oman, Uzbekistan, Poland, Syria, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russian Federation, Tajikistan, Turkmenistan, Turkey 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-97)

S5.203 In the band 136-137 MHz, existing operational meteorological satellites may continue to operate, under the conditions defined in No. **S4.4** with respect to the aeronautical mobile service, until 1 January 2002. Administrations shall not authorize new frequency assignments in this band to stations in the meteorological-satellite service. (WRC-97)

S5.203A *Additional allocation:* in Israel, Mauritania, Qatar and Zimbabwe, the band 136-137 MHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a secondary basis until 1 January 2005. (WRC-97)

S5.203B *Additional allocation:* in Saudi Arabia, United Arab Emirates, Jordan, Oman and Syria, the band 136-137 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis until 1 January 2005. (WRC-97)

S5.204 *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, the Islamic Republic of Iran, Iraq, Malaysia, Oman, Pakistan, Philippines, Qatar, Singapore, Sri Lanka, Thailand, Yemen and Yugoslavia, the band 137-138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. **S5.33**).

S5.205 *Different category of service:* in Israel and Jordan, the allocation of the band 137-138 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **S5.33**).

S5.206 *Different category of service:* in Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Egypt, Finland, France, Georgia, Greece, Hungary, Kazakstan, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Syria, Slovakia, the Czech Republic, Romania, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 137-138 MHz to the aeronautical mobile (OR) service is on a primary basis (see No. **S5.33**).

S5.207 *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.

S5.208 The use of the band 137-138 MHz by the mobile-satellite service is subject to coordination under No. **S9.11A**. (WRC-97)

S5.208A 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 Table 1 of Recommendation ITU-R RA.769-1. (WRC-97)

S5.209 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)

S5.210 *Additional allocation:* in Austria, France, Italy, Liechtenstein, Slovakia, the Czech Republic, the United Kingdom and Switzerland, 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-97)

S5.211 *Additional allocation:* in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Bosnia and Herzegovina, Denmark, the United Arab Emirates, Spain, Finland, Greece, Ireland, Israel, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Liechtenstein, Luxembourg, Mali, Malta, Norway, the Netherlands, Qatar, the United Kingdom, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia, Turkey and Yugoslavia, the band 138-144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis.

S5.212 *Alternative allocation:* in Angola, Botswana, Burundi, Cameroon, the Central African Republic, the Congo, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Lesotho, Liberia, Libya, Malawi, Mozambique, Namibia, Nigeria, Oman, Dem. Rep. of the Congo, Rwanda, Sierra Leone, South Africa, Swaziland, Chad, Togo, Zaire, Zambia and Zimbabwe, the band 138-144 MHz is allocated to the fixed and mobile services on a primary basis.

S5.213 *Additional allocation:* in China, the band 138-144 MHz is also allocated to the radiolocation service on a primary basis.

S5.214 *Additional allocation:* in Bosnia and Herzegovina, Croatia, Eritrea, Ethiopia, Kenya, The Former Yugoslav Republic of Macedonia, Malta, Slovenia, Somalia, Sudan, Tanzania and Yugoslavia, the band 138-144 MHz is also allocated to the fixed service on a primary basis.

S5.215 Not used.

S5.216 *Additional allocation:* in China, the band 144-146 MHz is also allocated to the aeronautical mobile (OR) service on a secondary basis.

S5.217 *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.

S5.218 *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. **S9.21**. The bandwidth of any individual transmission shall not exceed ± 25 kHz.

S5.219 The use of the band 148-149.9 MHz by the mobile-satellite service is subject to coordination under No. **S9.11A**. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the band 148-149.9 MHz.

S5.220 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. **S9.11A**. The mobile-satellite service shall not constrain the development and use of the radionavigation-satellite service in the bands 149.9-150.05 MHz and 399.9-400.05 MHz. (WRC-97)

S5.221 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, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo, the Republic of Korea, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, the Islamic Republic of Iran, Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakstan, Kenya, Kuwait, Latvia, The Former Yugoslav Republic of Macedonia, Lebanon, Libya, Liechtenstein, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, Philippines, Poland, Portugal, Qatar, Syria, Kyrgyzstan, Slovakia, Romania, the United Kingdom, Russian Federation, Senegal, Sierra Leone, Singapore, Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Yugoslavia, Zambia, and Zimbabwe. (WRC-97)

S5.222 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.

S5.223 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. **S4.4**.

S5.224 (SUP - WRC-97)

S5.224A 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)

S5.224B 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)

S5.225 *Additional allocation:* in Australia and India, the band 150.05-153 MHz is also allocated to the radio astronomy service on a primary basis.

S5.226 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 are contained in Article **S31** and Appendix **S13**.

In the bands 156-156.7625 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 **S31** and **S52**, and Appendix **S13**).

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 frequency 156.8 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.

S5.227 In the maritime mobile VHF service the frequency 156.525 MHz is to be used exclusively for digital selective calling for distress, safety and calling. The conditions for the use

of this frequency are prescribed in Articles **S31** and **S52**, and Appendices **S13** and **S18**.

S5.228 Not used.

S5.229 *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.

S5.230 *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. **S9.21**.

S5.231 *Additional allocation:* in Afghanistan, China and Pakistan, the band 167-174 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service into this band shall be subject to agreement with the neighbouring countries in Region 3 whose services are likely to be affected.

S5.232 *Additional allocation:* in Japan, the band 170-174 MHz is also allocated to the broadcasting service on a primary basis.

S5.233 *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. **S9.21**. These services shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations.

S5.234 *Different category of service:* in Mexico, the allocation of the band 174-216 MHz to the fixed and mobile services is on a primary basis (see No. **S5.33**).

S5.235 *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.

S5.236 Not used.

S5.237 *Additional allocation:* in the Congo, Eritrea, Ethiopia, Gambia, Guinea, Libya, Malawi, Mali, Senegal, Sierra Leone, Somalia, Tanzania and Zimbabwe, the band 174-223 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-97)

S5.238 *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.

S5.239 Not used.

S5.240 *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.

S5.241 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.

S5.242 *Additional allocation:* in Canada, the band 216-220 MHz is also allocated to the land mobile service on a primary basis.

S5.243 *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.

S5.244 (SUP - WRC-97)

S5.245 *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.

S5.246 *Alternative allocation:* in Spain, France, Israel and Monaco, the band 223-230 MHz is allocated to the broadcasting and land mobile services on a primary basis (see No. **S5.33**) on the basis that, in the preparation of frequency plans, the broadcasting service shall have prior choice of frequencies; and allocated to the fixed and mobile, except land mobile, services on a secondary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations in Morocco and Algeria.

S5.247 *Additional allocation:* in Saudi Arabia, Bahrain, the United Arab Emirates, Jordan, Oman, Qatar and Syria, the band 223-235 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

S5.248 and **S5.249** Not used.

S5.250 *Additional allocation*: in China, the band 225-235 MHz is also allocated to the radio astronomy service on a secondary basis.

S5.251 *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. **S9.21**.

S5.252 *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. **S9.21**.

S5.253 Not used.

S5.254 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. **S9.21**, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations.

S5.255 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. **S9.11A**.

S5.256 The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes (see Appendix **S13**).

S5.257 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. **S9.21**.

S5.258 The use of the band 328.6-335.4 MHz by the aeronautical radionavigation service is limited to Instrument Landing Systems (glide path).

S5.259 *Additional allocation:* in Germany, Austria, Cyprus, the Republic of Korea, Denmark, Egypt, Spain, France, Greece, Israel, Italy, Japan, Jordan, Malta, Morocco, Monaco, Norway, the Netherlands, Syria and Sweden, the band 328.6-335.4 MHz is also allocated to

the mobile service on a secondary basis, subject to agreement obtained under No. **S9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. **S9.21**. (WRC-97)

S5.260 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. **S4.4**.

S5.261 Emissions shall be confined in a band of ± 25 kHz about the standard frequency 400.1 MHz.

S5.262 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Bulgaria, Colombia, Costa Rica, Cuba, Egypt, the United Arab Emirates, Ecuador, Estonia, Georgia, Hungary, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kazakstan, Kuwait, Liberia, Malaysia, Moldova, Nigeria, Uzbekistan, Pakistan, the Philippines, Qatar, Syria, Kyrgyzstan, Slovakia, Romania, Russian Federation, Singapore, Somalia, Sri Lanka, Tajikistan, Turkmenistan, Ukraine and Yugoslavia, the band 400.05-401 MHz is also allocated to the fixed and mobile services on a primary basis.

S5.263 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.

S5.264 The use of the band 400.15-401 MHz by the mobile-satellite service is subject to coordination under No. **S9.11A**. The power flux-density limit indicated in Annex 1 of Appendix **S5** shall apply until such time as a competent world radiocommunication conference revises it.

S5.265 Not used.

S5.266 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 **S31** and Appendix **S13**).

S5.267 Any emission capable of causing harmful interference to the authorized uses of the band 406-406.1 MHz is prohibited.

S5.268 Use of the band 410-420 MHz by the space research service is limited to communications within 5 km of an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from extra-vehicular activities shall not exceed –153 dB(W/m^2) for $0^o \le \delta \le 5^o$, $-153 + 0.077\ (\delta - 5)$ dB(W/m^2) for $5^o \le \delta \le 70^o$ and –148 dB(W/m^2) for $70^o \le \delta \le 90^o$, where δ is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. No. **S4.10** 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)

S5.269 *Different category of service:* in Australia, the United States, India, Japan and the United Kingdom, the allocation of the bands 420-430 MHz and 440-450 MHz to the radiolocation service is on a primary basis (see No. **S5.33**).

S5.270 *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.

S5.271 *Additional allocation:* in Azerbaijan, Belarus, China, Estonia, India, Latvia, Lithuania, Kyrgyzstan, Turkmenistan and Ukraine, the band 420-460 MHz is also allocated to the

aeronautical radionavigation service (radio altimeters) on a secondary basis. (WRC-97)

S5.272 *Different category of service:* in France, the allocation of the band 430-434 MHz to the amateur service is on a secondary basis (see No. **S5.32**).

S5.273 *Different category of service:* in Denmark, Libya and Norway, the allocation of the bands 430-432 MHz and 438-440 MHz to the radiolocation service is on a secondary basis (see No. **S5.32**).

S5.274 *Alternative allocation:* in Denmark, Norway and Sweden, the bands 430-432 MHz and 438-440 MHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

S5.275 *Additional allocation:* in Bosnia and Herzegovina, Croatia, Estonia, Finland, Latvia, The Former Yugoslav Republic of Macedonia, Libya, Slovenia and Yugoslavia, 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-97)

S5.276 *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Burundi, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Liechtenstein, Malaysia, Malta, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, Democratic People's Republic of Korea, Singapore, Somalia, Switzerland, Tanzania, Thailand, Togo, Turkey and Yemen, the band 430-440 MHz is also allocated to the fixed service on a primary basis and the bands 430-435 MHz and 438-440 MHz are also allocated to the mobile, except aeronautical mobile, service on a primary basis. (WRC-97)

S5.277 *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Cameroon, the Congo, Djibouti, Gabon, Georgia, Hungary, Kazakstan, Latvia, Mali, Moldova, Mongolia, Uzbekistan, Pakistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russian Federation, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the band 430-440 MHz is also allocated to the fixed service on a primary basis. (WRC-97)

S5.278 *Different category of service:* in Argentina, Colombia, Costa Rica, Cuba, Guyana, Honduras, Panama and Venezuela, the allocation of the band 430-440 MHz to the amateur service is on a primary basis (see No. **S5.33**).

S5.279 *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. **S9.21**.

S5.280 In Germany, Austria, Bosnia and Herzegovina, Croatia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Portugal, Slovenia, Switzerland and Yugoslavia, 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. **S15.13**.

S5.281 *Additional allocation:* in the French Overseas Departments 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.

S5.282 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. **S5.43**). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. **S25.11**. The use of the bands 1 260-1 270 MHz and 5 650-5 670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.

S5.283 *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.

S5.284 *Additional allocation:* in Canada, the band 440-450 MHz is also allocated to the amateur service on a secondary basis.

S5.285 *Different category of service:* in Canada, the allocation of the band 440-450 MHz to the radiolocation service is on a primary basis (see No. **S5.33**).

S5.286 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. **S9.21**.

S5.286A The use of the bands 454-456 MHz and 459-460 MHz by the mobile-satellite service is subject to coordination under No. **S9.11A**. (WRC-97)

S5.286B The use of the band 454-455 MHz in the countries listed in No. **S5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **S5.286E**, 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)

S5.286C The use of the band 454-455 MHz in the countries listed in No. **S5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **S5.286E**, 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)

S5.286D *Additional allocation:* in Canada, the United States, Mexico and Panama, the band 454-455 MHz is also allocated to the mobile-satellite service (Earth-to-space) on a primary basis. (WRC-97)

S5.286E *Additional allocation:* in Cape Verde, Indonesia, Nepal, Nigeria and Papua New Guinea, 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-97)

S5.287 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 (see Resolution **341 (WRC-97)**). (WRC-97)

S5.288 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.

S5.289 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.

S5.290 *Different category of service:* in Afghanistan, Armenia, Azerbaijan, Belarus, China, Japan, Kazakstan, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 460-470 MHz to the meteorological-satellite service (space-to-Earth) is on a primary basis (see No. **S5.33**), subject to agreement obtained under No. **S9.21**. (WRC-97)

S5.291 *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. **S9.21** and subject to not causing harmful interference to existing and planned broadcasting stations.

S5.291A *Additional allocation:* in Germany, Austria, Denmark, Estonia, Finland, Liechtenstein, Norway, Netherlands, the Czech Republic 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)

S5.292 *Different category of service:* in Mexico and Venezuela, the allocation of the band 470-512 MHz to the fixed and mobile services, and in Argentina and Uruguay to the mobile service, is on a primary basis (see No. **S5.33**), subject to agreement obtained under No. **S9.21**.

S5.293 *Different category of service:* in Chile, Colombia, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico and Panama, the allocation of the bands 470-512 MHz and 614-806 MHz to the fixed and mobile services is on a primary basis (see No. **S5.33**), subject to agreement obtained under No. **S9.21**.

S5.294 *Additional allocation:* in Burundi, Cameroon, the Congo, Ethiopia, Israel, Kenya, Lebanon, Libya, Malawi, Senegal, Sudan, Syria, and Yemen, the band 470-582 MHz is also allocated to the fixed service on a secondary basis.

S5.295 Not used.

S5.296 *Additional allocation:* in Germany, Austria, Belgium, Cyprus, Denmark, Spain, Finland, France, Ireland, Israel, Italy, Libya, Malta, Morocco, Monaco, Norway, the Netherlands, Portugal, Syria, the United Kingdom, Sweden, Switzerland, Swaziland and Tunisia, the band 470-790 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table of Frequency Allocations in countries other than those listed in this footnote. (WRC-97)

S5.297 *Additional allocation:* in Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana, Honduras, Jamaica, Mexico and Venezuela, the band 512-608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under No. **S9.21**.

S5.298 *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.

S5.299 Not used.

S5.300 *Additional allocation:* in Israel, Libya, Syria and Sudan, the band 582-790 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis.

S5.301 Not used.

S5.302 *Additional allocation:* in the United Kingdom, the band 590-598 MHz is also allocated to the aeronautical radionavigation service on a primary basis. All new assignments to stations in the aeronautical radionavigation service, including those transferred from the adjacent bands, shall be subject to coordination with the Administrations of the following countries: Germany, Belgium, Denmark, Spain, France, Ireland, Luxembourg, Morocco, Norway and the Netherlands.

S5.303 Not used.

S5.304 *Additional allocation:* in the African Broadcasting Area (see Nos. **S5.10** to **S5.13**), the band 606-614 MHz is also allocated to the radio astronomy service on a primary basis.

S5.305 *Additional allocation:* in China, the band 606-614 MHz is also allocated to the radio astronomy service on a primary basis.

S5.306 *Additional allocation:* in Region 1, except in the African Broadcasting Area (see Nos. **S5.10** to **S5.13**), and in Region 3, the band 608-614 MHz is also allocated to the radio astronomy service on a secondary basis.

S5.307 *Additional allocation:* in India, the band 608-614 MHz is also allocated to the radio astronomy service on a primary basis.

S5.308 Not used.

S5.309 *Different category of service*: in Costa Rica, El Salvador and Honduras, the allocation of the band 614-806 MHz to the fixed service is on a primary basis (see No. **S5.33**), subject to agreement obtained under No. **S9.21**.

S5.310 (SUP - WRC-97)

S5.311 Within the frequency band 620-790 MHz, assignments may be made to television stations using frequency modulation in the broadcasting-satellite service subject to agreement between the administrations concerned and those having services, operating in accordance with the Table, which may be affected (see Resolutions **33 (Rev. WRC-97)** and **507**). Such stations shall not produce a power flux-density in excess of the value –129 dB(W/m^2) for angles of arrival less than 20º (see Recommendation **705**) within the territories of other countries without the consent of the administrations of those countries.

S5.312 *Additional allocation*: in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Latvia, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the band 645-862 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-97)

S5.313 (SUP - WRC-97)

S5.314 *Additional allocation*: in Austria, Italy, Uzbekistan, the United Kingdom and Swaziland, the band 790-862 MHz is also allocated to the land mobile service on a secondary basis. (WRC-97)

S5.315 *Alternative allocation*: in Greece, Italy, Morocco and Tunisia, the band 790-838 MHz is allocated to the broadcasting service on a primary basis.

S5.316 *Additional allocation*: in Germany, Bosnia and Herzegovina, Burkina Faso, Cameroon, Côte d'Ivoire, Croatia, Denmark, Egypt, Finland, Israel, Kenya, the Former Yugoslav Republic of Macedonia, Libya, Liechtenstein, Monaco, Norway, the Netherlands, Portugal, Syria, Sweden, Switzerland and Yugoslavia, 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. (WRC-97)

S5.317 *Additional allocation*

S5.327 *Different category of service*: in Australia, the allocation of the band 915-928 MHz to the radiolocation service is on a primary basis (see No. **S5.33**).

S5.328 The band 960-1 215 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 facilities.

S5.329 Use of the radionavigation-satellite service in the band 1 215-1 260 MHz shall be subject to the condition that no harmful interference is caused to the radionavigation service authorized under No. **S5.331**.

S5.330 *Additional allocation:* in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Libya, Morocco, Mozambique, Nepal, Nigeria, Pakistan, the Philippines, Qatar, Syria, Somalia, Sudan, Sri Lanka, 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-97)

S5.331 *Additional allocation:* in Algeria, Germany, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Burundi, Cameroon, China, Croatia, Denmark, the United Arab Emirates, France, Greece, India, the Islamic Republic of Iran, Iraq, Kenya, The Former Yugoslav Republic of Macedonia, Liechtenstein, Luxembourg, Mali, Mauritania, Norway, Oman, Pakistan, the Netherlands, Portugal, Qatar, Senegal, Slovenia, Somalia, Sudan, Sri Lanka, Sweden, Switzerland, Turkey and Yugoslavia, the band 1 215-1 300 MHz is also allocated to the radionavigation service on a primary basis.

S5.332 In the band 1 215-1 300 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, the radionavigation-satellite service and other services allocated on a primary basis. (WRC-97)

S5.333 (SUP - WRC-97)

S5.334 *Additional allocation:* in Canada and the United States, the bands 1 240-1 300 MHz and 1 350-1 370 MHz are also allocated to the aeronautical radionavigation service on a primary basis.

S5.335 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)

S5.336 Not used.

S5.337 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.

S5.338 In Azerbaijan, Bulgaria, Mongolia, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Turkmenistan and Ukraine, existing installations of the radionavigation service may continue to operate in the band 1 350-1 400 MHz. (WRC-97)

S5.339 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.

S5.340 All emissions are prohibited in the following bands:

1 400-1 427 MHz,	
2 690-2 700 MHz,	except those provided for by Nos. **S5.421** and **S5.422**,
10.68-10.7 GHz,	except those provided for by No. **S5.483**,
15.35-15.4 GHz,	except those provided for by No. **S5.511**,
23.6-24 GHz,	
31.3-31.5 GHz,	
31.5-31.8 GHz,	in Region 2,
48.94-49.04 GHz,	from airborne stations,
50.2-50.4 GHz[2],	except those provided for by No. **S5.555A**,
52.6-54.25 GHz,	
86-92 GHz,	
105-116 GHz,	
140.69-140.98 GHz,	from airborne stations and from space stations in the space-to-Earth direction,
182-185 GHz,	except those provided for by No. **S5.563**,
217-231 GHz.	(WRC-97)

S5.341 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.

S5.342 *Additional allocation:* in Belarus, Russian Federation and Ukraine, the band 1 429-1 535 MHz is also allocated to the aeronautical mobile service on a primary basis exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the band 1 452-1 492 MHz is subject to agreement between the administrations concerned.

S5.343 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.

S5.344 *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. **S5.343**).

S5.345 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)**.

S5.346 Not used.

S5.347 *Different category of service:* in Bangladesh, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cuba, Denmark, Egypt, Greece, Ireland, Italy, Jordan, Kenya, Mozambique, Portugal, Sri Lanka, Swaziland, Yemen, Yugoslavia and Zimbabwe, the allocation of the band 1 452-1 492 MHz to the broadcasting-satellite service and the broadcasting service is on a secondary basis until 1 April 2007. (WRC-97)

S5.348 The use of the band 1 492-1 525 MHz by the mobile-satellite service is subject to coordination under No. **S9.11A**. However, no coordination threshold in Article **S21** for space

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[2] **S5.340.1** 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)

stations of the mobile-satellite service with respect to terrestrial services shall apply to the situation referred to in No. **S5.343**. With respect to the situation referred to in No. **S5.343**, the requirement for coordination in the band 1492-1525 MHz will be determined by band overlap.

S5.348A In the band 1 492-1 525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. **S.9.11A** for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be –150 dB(W/m^2) in any 4 kHz band for all angles of arrival, instead of those given in Table S5-2 of Appendix **S5.** The above threshold level of the power flux-density shall apply until it is changed by a competent world radiocommunication conference.

S5.349 *Different category of service:* in Saudi Arabia, Azerbaijan, Bahrain, Bosnia and Herzegovina, Cameroon, Egypt, the United Arab Emirates, France, the Islamic Republic of Iran, Iraq, Israel, Kazakstan, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Morocco, Mongolia, Oman, Qatar, Syria, Kyrgyzstan, Romania, Turkmenistan, Ukraine, Yemen and Yugoslavia, the allocation of the band 1 525-1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **S5.33**). (WRC-97)

S5.350 *Additional allocation:* in Azerbaijan, Kyrgyzstan, Turkmenistan and Ukraine, the band 1 525-1 530 MHz is also allocated to the aeronautical mobile service on a primary basis. (WRC-97)

S5.351 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.

S5.352 (SUP - WRC-97)

S5.352A In the band 1 525-1 530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in France and French overseas territories in Region 3, Algeria, Saudi Arabia, Egypt, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Malta, Morocco, Mauritania, Nigeria, Oman, Pakistan, Philippines, Qatar, Syria, Tanzania, Viet Nam and Yemen notified prior to 1 April 1998. (WRC-97)

S5.353 (SUP - WRC-97)

S5.353A In applying the procedures of No. **S9.11A** 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. (See Resolution **218 (WRC-97)**.) (WRC-97)

S5.354 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. **S9.11A**.

S5.355 *Additional allocation:* in Bahrain, Bangladesh, the Congo, Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Malta, Morocco, Oman, Qatar, Syria, Somalia, Sudan, Sri Lanka, Chad, Togo, Yemen and

Zambia, the bands 1 540-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a secondary basis. (WRC-97)

S5.356 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 **S31**).

S5.357 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.

S5.357A In applying the procedures of No. **S9.11A** to the mobile-satellite service in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **S44**. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44** 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 **S44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (See Resolution **218 (WRC-97)**.) (WRC-97)

S5.358 (SUP - WRC-97)

S5.359 *Additional allocation:* in Germany, Saudi Arabia, Armenia, Austria, Azerbaijan, Belarus, Benin, Bulgaria, Cameroon, Spain, France, Gabon, Georgia, Greece, Guinea, Guinea-Bissau, Hungary, Jordan, Kazakstan, Kuwait, Latvia, Libya, Mali, Mauritania, Moldova, Mongolia, Nigeria, Uganda, Uzbekistan, Pakistan, Poland, Syria, Kyrgyzstan, the Democratic People's Republic of Korea, Romania, Russian Federation, Senegal, Swaziland, Tajikistan, Tanzania, Turkmenistan, Ukraine, Zambia and Zimbabwe the bands 1 550-1 645.5 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 the bands 1 550-1 555 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz.

S5.360 to **S5.362** (SUP - WRC-97)

S5.362A 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 **S44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (WRC-97)

S5.363 *Alternative allocation:* in Sweden, the band 1 590-1 626.5 MHz is allocated to the aeronautical radionavigation service on a primary basis.

S5.364 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. **S9.11A**. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of -15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. **S5.366** (to which No. **S4.10** 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. **S5.366** and stations in the fixed service operating in accordance with the provisions of No. **S5.359**. 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. **S5.366**.

S5.365 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. **S9.11A**.

S5.366 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. **S9.21**.

S5.367 *Additional allocation*: The bands 1 610-1 626.5 MHz and 5 000-5 150 MHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. **S9.21**.

S5.368 With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. **S4.10** do not apply in the band 1 610-1 626.5 MHz, with the exception of the aeronautical radionavigation-satellite service.

S5.369 *Different category of service:* in Angola, Australia, Burundi, China, Côte d'Ivoire, Eritrea, Ethiopia, India, the Islamic Republic of Iran, Israel, Jordan, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Dem. Rep.of the Congo, Syria, Senegal, Sudan, Swaziland, Togo and Zambia, the allocation of the band 1 610-1 626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is on a primary basis (see No. **S5.33**), subject to agreement obtained under No. **S9.21** from countries not listed in this provision. (WRC-97)

S5.370 *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.

S5.371 *Additional allocation:* in Region 1, the bands 1 610-1 626.5 MHz (Earth-to-space) and 2 483.5-2 500 MHz (space-to-Earth) are also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. **S9.21**.

S5.372 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. **S29.13** applies).

S5.373 Not used.

S5.373A (SUP - WRC-97)

S5.374 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. **S5.359**. (WRC-97)

S5.375 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 **S31**).

S5.376 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.

S5.376A 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)

S5.377 In the band 1 675-1 710 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, the meteorological-satellite and meteorological aids services (see Resolution **213 (Rev.WRC-95)**) and the use of this band shall be subject to coordination under No. **S9.11A**.

S5.378 Not used.

S5.379 *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.

S5.379A 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.

S5.380 The bands 1 670-1 675 MHz and 1 800-1 805 MHz are intended for use, on a worldwide basis, by administrations wishing to implement aeronautical public correspondence. The use of the band 1 670-1 675 MHz by stations in the systems for public correspondence with aircraft is limited to transmissions from aeronautical stations and the use of the band 1 800-1 805 MHz is limited to transmissions from aircraft stations.

S5.381 *Additional allocation:* in Afghanistan, Costa Rica, Cuba, India, the Islamic Republic of Iran, Malaysia, Pakistan and Sri Lanka, the band 1 690-1 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-97)

S5.382 *Different category of service:* in Saudi Arabia, Armenia, Austria, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Bulgaria, the Congo, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, Hungary, Iraq, Israel, Jordan, Kazakstan, Kuwait, the Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, Syria, Kyrgyzstan, Romania, Russian Federation, Somalia, Tajikistan, Tanzania, Turkmenistan, Ukraine, Yemen and Yugoslavia, 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. **S5.33**), and in the Democratic People's Republic of Korea, the allocation of the band 1 690-1 700 MHz to the fixed service is on a primary basis (see No. **S5.33**) and to the mobile, except aeronautical mobile, service on a secondary basis. (WRC-97)

S5.383 Not used.

S5.384 *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)

S5.385 *Additional allocation:* the bands 1 718.8-1 722.2 MHz, 150-151 GHz, 174.42-175.02 GHz, 177-177.4 GHz, 178.2-178.6 GHz, 181-181.46 GHz, 186.2-186.6 GHz and 257.5-258 GHz are also allocated to the radio astronomy service on a secondary basis for spectral line observations.

S5.386 *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, India, Indonesia and Japan on a primary basis, subject to agreement obtained under No. **S9.21**, having particular regard to troposcatter systems.

S5.387 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Georgia, Kazakstan, Mali, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russian Federation, Tajikistan, Turkmenistan and Ukraine, 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. **S9.21**. (WRC-97)

S5.388 The bands 1 885-2 025 MHz and 2 110-2 200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000). Such use does not preclude the use of these bands by other services to which they are allocated. The bands should be made available for IMT-2000 in accordance with Resolution **212 (Rev.WRC-97)**. (WRC-97)

S5.389 Not used.

S5.389A 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. **S9.11A** and to the provisions of Resolution **716 (WRC-95)**. The use of these bands shall not commence before 1 January 2000; however the use of the band 1 980-1 990 MHz in Region 2 shall not commence before 1 January 2005.

S5.389B 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.

S5.389C The use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz in Region 2 by the mobile-satellite service shall not commence before 1 January 2002 and is subject to coordination under No. **S9.11A** and to the provisions of Resolution **716 (WRC-95)**. (WRC-97)

S5.389D In Canada and the United States the use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz by the mobile-satellite service shall not commence before 1 January 2000.

S5.389E 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.

S5.389F In Algeria, Benin, Cape Verde, Egypt, Mali, Syria 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.

S5.390 In Argentina, Brazil, Chile, Colombia, Cuba, Ecuador and Suriname, the use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz by the mobile-satellite services shall not cause harmful interference to stations in the fixed and mobile services before 1 January 2005. After this date, the use of these bands is subject to coordination under No. **S9.11A** and to the provisions of Resolution **716 (WRC-95)**. (WRC-97)

S5.391 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)

S5.392 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.

S5.392A *Additional allocation:* in Russian Federation, the band 2 160-2 200 MHz is also

allocated to the space research service (space-to-Earth) on a primary basis until 1 January 2005. Stations in the space research service shall not cause harmful interference to, or claim protection from, stations in the fixed and mobile services operating in this frequency band.

S5.393 *Additional allocation:* in 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 (WARC-92)**. (WRC-97)

S5.394 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 2 300-2 483.5 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services.

S5.395 In France, 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.

S5.396 Space stations of the broadcasting-satellite service in the band 2 310-2 360 MHz operating in accordance with No. **S5.393** 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.

S5.397 *Different category of service:* in France, the band 2 450-2 500 MHz is allocated on a primary basis to the radiolocation service (see No. **S5.33**). Such use is subject to agreement with administrations having services operating or planned to operate in accordance with the Table of Frequency Allocations which may be affected.

S5.398 In respect of the radiodetermination-satellite service in the band 2 483.5-2 500 MHz, the provisions of No. **S4.10** do not apply.

S5.399 In Region 1, in countries other than those listed in No. **S5.400**, harmful interference shall not be caused to, or protection shall not be claimed from, stations of the radiolocation service by stations of the radiodetermination satellite service.

S5.400 *Different category of service:* in Angola, Australia, Bangladesh, Burundi, China, Eritrea, Ethiopia, India, the Islamic Republic of Iran, Jordan, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Dem. Rep. of the Congo, Syria, Sudan, Swaziland, Togo and Zambia, the allocation of the band 2 483.5-2 500 MHz to the radiodetermination-satellite service (space-to-Earth) is on a primary basis (see No. **S5.33**), subject to agreement obtained under No. **S9.21** from countries not listed in this provision. (WRC-97)

S5.401 Not used.

S5.402 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. **S9.11A**. Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2 483.5-2 500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4 990-5 000 MHz band allocated to the radio astronomy service worldwide.

S5.403 Subject to agreement obtained under No. **S9.21**, the band 2 520-2 535 MHz (until 1 January 2005 the band 2 500-2 535 MHz) may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The provisions of No. **S9.11A** apply.

S5.404 *Additional allocation:* in India and the Islamic Republic of Iran, 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. **S9.21**.

S5.405 *Additional allocation:* in France, the band 2 500-2 550 MHz is also allocated to the radiolocation service on a primary basis. Such use is subject to agreement with the administrations having services operating or planned to operate in accordance with the Table which may be affected.

S5.406 Not used.

S5.407 In the band 2 500-2 520 MHz, the power flux-density at the surface of the Earth from space stations operating in the mobile-satellite (space-to-Earth) service shall not exceed –152 dB (W/m^2/4 kHz) in Argentina, unless otherwise agreed by the administrations concerned.

S5.408 *Additional allocation:* in the United Kingdom, the band 2 500-2 600 MHz is also allocated to the radiolocation service on a secondary basis.

S5.409 Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in the band 2 500-2 690 MHz.

S5.410 The band 2 500-2 690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. **S9.21**.

S5.411 When planning new tropospheric scatter radio-relay links in the band 2 500-2 690 MHz, all possible measures shall be taken to avoid directing the antennae of these links towards the geostationary-satellite orbit.

S5.412 *Alternative allocation:* in Azerbaijan, Bulgaria, Kyrgyzstan, Turkmenistan and Ukraine, the band 2 500-2 690 MHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-97)

S5.413 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.

S5.414 The allocation of the frequency band 2 500-2 520 MHz to the mobile-satellite service (space-to-Earth) shall be effective on 1 January 2005 and is subject to coordination under No. **S9.11A**.

S5.415 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. **S9.21**, giving particular attention to the broadcasting-satellite service in Region 1. In the direction space-to-Earth, the power flux-density at the Earth's surface shall not exceed the values given in Article **S21**, Table **S21-4**.

S5.415A *Additional allocation*: in Japan, subject to agreement obtained under No. **S9.21**, the band 2 515-2 535 MHz may also be used for the aeronautical mobile-satellite service (space-to-Earth) for operation limited to within its national boundary from 1 January 2000. (WRC-97)

S5.416 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. **S9.21**. The power flux-density at the Earth's surface shall not exceed the values given in Article **S21**, Table **S21-4**.

S5.417 *Alternative allocation:* in Germany and Greece, the band 2 520-2 670 MHz is allocated to the fixed service on a primary basis.

S5.418 *Additional allocation :* in Bangladesh, Belarus, China, Rep. of Korea,

India, Japan, Pakistan, Russian Federation, Singapore, Sri Lanka, Thailand and Ukraine 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 provisions of Resolution **528 (WARC-92)**. The provisions of No. **S5.416** and Article **S21**, Table **S21-4**, do not apply to this additional allocation.

S5.419 The allocation of the frequency band 2 670-2 690 MHz to the mobile-satellite service shall be effective from 1 January 2005. When introducing systems of the mobile-satellite service in this band, 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. **S9.11A**.

S5.420 The band 2 655-2 670 MHz (until 1 January 2005 the band 2 655-2 690 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. **S9.21**. The coordination under No. **S9.11A** applies.

S5.420A *Additional allocation:* in Japan, subject to agreement obtained under No. **S9.21**, the band 2 670-2 690 MHz may also be used for the aeronautical mobile-satellite service (Earth-to-space) for operation limited to within its national boundary from 1 January 2000. (WRC-97)

S5.421 *Additional allocation:* in Germany and Austria, the band 2 690-2 695 MHz is also allocated to the fixed service on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

S5.422 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Brunei Darussalam, the Central African Republic, the Congo, Côte d'Ivoire, Cuba, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kazakstan, Lebanon, Malaysia, Mali, Morocco, Mauritania, Moldova, Mongolia, Nigeria, Oman, Uzbekistan, Pakistan, the Philippines, Qatar, Syria, Kyrgyzstan, Dem Rep. of the Congo, Romania, Russian Federation, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine, Yemen, Yugoslavia and Zambia, 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-97)

S5.423 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.

S5.424 *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.

S5.425 In the band 2 900-3 100 MHz, the use of the shipborne interrogator-transponder system (SIT) shall be confined to the sub-band 2 930 -2 950 MHz.

S5.426 The use of the band 2 900-3 100 MHz by the aeronautical radionavigation service is limited to ground-based radars.

S5.427 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. **S4.9**.

S5.428 *Additional allocation:* in Azerbaijan, Bulgaria, Cuba, Kazakstan, Mongolia, Poland, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 3 100-3 300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-97)

S5.429 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, the Congo, the Republic of Korea, the United Arab Emirates, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Libya, Malaysia, Oman, Pakistan, Qatar, Syria, Democratic People's Republic 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-97)

S5.430 *Additional allocation:* in Azerbaijan, Bulgaria, Cuba, Mongolia, Poland, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 3 300-3 400 MHz is also allocated to the radionavigation service on a primary basis. (WRC-97)

S5.431 *Additional allocation:* in Germany, Israel, Nigeria and the United Kingdom, the band 3 400-3 475 MHz is also allocated to the amateur service on a secondary basis.

S5.432 *Different category of service:* in the Republic of Korea, Indonesia, 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. **S5.33**). (WRC-97)

S5.433 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.

S5.434 (SUP - WRC-97)

S5.435 In Japan, in the band 3 620-3 700 MHz, the radiolocation service is excluded.

S5.436 Not used.

S5.437 *Additional allocation:* in Germany and Norway, the band 4 200-4 210 MHz is also allocated to the fixed service on a secondary basis. (WRC-97)

S5.438 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).

S5.439 *Additional allocation:* in China, the Islamic Republic of Iran and Libya, the band 4 200-4 400 MHz is also allocated to the fixed service on a secondary basis. (WRC-97)

S5.440 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. **S9.21**.

S5.441 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 **S30B**. 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 **S30B**. 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 non-geostationary-satellite systems in the fixed-satellite service shall be in accordance with the provisions of Resolution **130 (WRC-97)**. (WRC-97)

S5.442 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.

S5.443 *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. **S5.33**).

S5.444 The band 5 000-5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other uses of this band. For the use of this band, No. **S5.444A** and Resolution **114 (WRC-95)** apply.

S5.444A *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 mobile-satellite systems and is subject to coordination under No. **S9.11A**.

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

– prior to 1 January 2010, 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 (WRC-95)**;

– prior to 1 January 2010, the requirements of existing and planned international standard systems for the aeronautical radionavigation service which cannot be met in the 5 000-5 091 MHz band, shall take precedence over other uses of this band;

– after 1 January 2008, no new assignments shall be made to stations providing feeder links of non-geostationary mobile-satellite systems;

– after 1 January 2010, the fixed-satellite service will become secondary to the aeronautical radionavigation service.

S5.445 Not used.

S5.446 *Additional allocation:* in the countries listed in Nos. **S5.369** and **S5.400**, the band 5 150-5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **S9.21**. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. **S5.369** and **S5.400**, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1 610-1 626.5 MHz and/or 2 483.5-2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed –159 dBW/m^2 in any 4 kHz band for all angles of arrival.

S5.447 *Additional allocation:* in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Israel, Italy, Japan, Jordan, Lebanon, Liechtenstein, Luxembourg, Malta, Morocco, Norway, Pakistan, the Netherlands, Portugal, Syria, the United Kingdom, Sweden, Switzerland 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. **S9.21**.

S5.447A The allocation to the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to coordination under No. **S9.11A**.

S5.447B *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. **S9.11A**. The power flux-density at the Earth's surface produced by space stations of the

fixed-satellite service operating in the space-to-Earth direction in the band 5 150-5 216 MHz shall in no case exceed –164 dB(W/m^2) in any 4 kHz band for all angles of arrival.

S5.447C Administrations responsible for fixed-satellite service networks in the band 5 150-5 250 MHz operated under Nos. **S5.447A** and **S5.447B** shall coordinate on an equal basis in accordance with No. **S9.11A** with administrations responsible for non-geostationary-satellite networks operated under No. **S5.446** and brought into use prior to 17 November 1995. Satellite networks operated under No. **S5.446** 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. **S5.447A** and **S5.447B**.

S5.447D 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)

S5.448 *Additional allocation:* in Austria, Azerbaijan, Bulgaria, Libya, Mongolia, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Turkmenistan and Ukraine, the band 5 250-5 350 MHz is also allocated to the radionavigation service on a primary basis. (WRC-97)

S5.448A The use of the frequency band 5 250-5 350 MHz by the earth exploration-satellite (active) and space research (active) services shall not constrain the future development and deployment of the radiolocation service. (WRC-97)

S5.448B The earth exploration-satellite (active) service operating in the band 5 350-5 460 MHz shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service. (WRC-97)

S5.449 The use of the band 5 350-5 470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.

S5.450 *Additional allocation:* in Austria, Azerbaijan, Bulgaria, the Islamic Republic of Iran, Mongolia, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Turkmenistan and Ukraine, the band 5 470-5 650 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-97)

S5.451 *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. **S21.2**, **S21.3**, **S21.4** and **S21.5** shall apply in the band 5 725-5 850 MHz.

S5.452 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.

S5.453 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, the Central African Republic, China, the Congo, the Republic of Korea, Egypt, the United Arab Emirates, Gabon, Guinea, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, Democratic People's Republic of Korea, Singapore, Swaziland, Tanzania, Chad, and Yemen, the band 5 650-5 850 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-97)

S5.454 *Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Mongolia, Uzbekistan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 5 670-5 725 MHz to the space research service is on a primary basis (see No. **S5.33**). (WRC-97)

S5.455 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Cuba, Georgia,

Hungary, Kazakstan, Latvia, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the band 5 670-5 850 MHz is also allocated to the fixed service on a primary basis.

S5.456 *Additional allocation:* in Germany and in Cameroon, the band 5 755-5 850 MHz is also allocated to the fixed service on a primary basis.

S5.457 Not used.

S5.458 In the band 6 425-7 075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7 075-7 250 MHz, passive microwave sensor measurements are carried out. Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6 425-7 025 MHz and 7 075-7 250 MHz.

S5.458A 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.

S5.458B 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. **S9.11A**. The use of the band 6 700-7 075 MHz (space-to-Earth) by feeder links for non-geostationary satellite systems in the mobile-satellite service is not subject to No. **S22.2**.

S5.458C 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.

S5.459 *Additional allocation:* in 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. **S9.21**. (WRC-97)

S5.460 *Additional allocation:* the band 7 145-7 235 MHz is also allocated to the space research (Earth-to-space) service on a primary basis, subject to agreement obtained under No. **S9.21**. The use of the band 7 145-7 190 MHz is restricted to deep space; no emissions to deep space shall be effected in the band 7 190-7 235 MHz.

S5.461 *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. **S9.21**.

S5.461A 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)

S5.461B The use of the band 7 750-7 850 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems. (WRC-97)

S5.462 (SUP - WRC-97)

S5.462A In Regions 1 and 3 (except for Japan), in the band 8 025-8 400 MHz, the earth

exploration-satellite service using geostationary satellites shall not produce a power flux-density in excess of the following provisional values for angles of arrival (θ), without the consent of the affected administration:

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

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

S5.463 Aircraft stations are not permitted to transmit in the band 8 025-8 400 MHz. (WRC-97)

S5.464 (SUP - WRC-97)

S5.465 In the space research service, the use of the band 8 400-8 450 MHz is limited to deep space.

S5.466 *Different category of service:* in Israel, Malaysia, Singapore and Sri Lanka, the allocation of the band 8 400-8 500 MHz to the space research service is on a secondary basis (see No. **S5.32**). (WRC-97)

S5.467 *Alternative allocation:* in the United Kingdom, the band 8 400-8 500 MHz is allocated to the radiolocation and space research services on a primary basis.

S5.468 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, the Congo, Costa Rica, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, the Islamic Republic of Iran, Iraq, Jamaica, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, Qatar, Syria, Democratic People's Republic of Korea, Senegal, Singapore, Somalia, Swaziland, Tanzania, Chad, Togo, Tunisia and Yemen, the band 8 500-8 750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-97)

S5.469 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russian Federation, 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.

S5.469A 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)

S5.470 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.

S5.471 *Additional allocation:* in Algeria, Germany, Bahrain, Belgium, China, the United Arab Emirates, France, Greece, Indonesia, the Islamic Republic of Iran, Libya, the Netherlands, Qatar and Sudan, the bands 8 825-8 850 MHz and 9 000-9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only.

S5.472 In the bands 8 850-9 000 MHz and 9 200-9 225 MHz, the maritime radionavigation service is limited to shore-based radars.

S5.473 *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Cuba, Georgia, Hungary, Kazakstan, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan. Slovakia, the Czech Republic, Romania, Russian Federation, 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.

S5.474 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 **S31**).

S5.475 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. In the band 9 300-9 500 MHz, ground-based radars used for meteorological purposes have priority over other radiolocation devices.

S5.476 In the band 9 300-9 320 MHz in the radionavigation service, the use of shipborne radars, other than those existing on 1 January 1976, is not permitted until 1 January 2001.

S5.476A In the band 9 500-9 800 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 radionavigation and radiolocation services. (WRC-97)

S5.477 *Different category of service:* in Algeria, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, the Republic of Korea, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, the Islamic Republic of Iran, Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Pakistan, Qatar, Democratic People's Republic of Korea, Singapore, Somalia, Sudan, Sweden, 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. **S5.33**). (WRC-97)

S5.478 *Additional allocation:* in Azerbaijan, Bulgaria, Kazakstan, Mongolia, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Turkmenistan and Ukraine, the band 9 800-10 000 MHz is also allocated to the radionavigation service on a primary basis. (WRC-97)

S5.479 The band 9 975-10 025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.

S5.480 *Additional allocation:* in Brazil, Costa Rica, Ecuador, Guatemala, Honduras and Mexico, the band 10-10.45 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-97)

S5.481 *Additional allocation:* in Germany, Angola, China, Ecuador, Spain, Japan, Morocco, Nigeria, Oman, Democratic People’s Republic of Korea, Sweden, Tanzania and Thailand, the band 10.45-10.5 GHz is also allocated to the fixed and mobile services on a primary basis.

S5.482 In the band 10.6-10.68 GHz, stations of the fixed and mobile, except aeronautical mobile, services shall be limited to a maximum equivalent isotropically radiated power of 40 dBW and the power delivered to the antenna shall not exceed –3 dBW. These limits may be exceeded subject to agreement obtained under No. **S9.21**. However, in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, China, the United Arab Emirates, Georgia, India, Indonesia, the Islamic Republic of Iran, Iraq, Japan, Kazakstan, Kuwait, Latvia, Lebanon, Moldova, Nigeria, Uzbekistan, Pakistan, the Philippines, Qatar, Syria, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the restrictions on the fixed and mobile, except aeronautical mobile, services are not applicable.

S5.483 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, China, Colombia, the Republic of Korea, Costa Rica, Egypt, the United Arab Emirates, Georgia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kazakstan, Kuwait, Latvia, Lebanon, Moldova, Mongolia, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Democratic People’s Republic of Korea, Romania, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Yemen and Yugoslavia, 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-97)

S5.484 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.

S5.484A 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 non-geostationary- and geostationary-satellite systems in the fixed-satellite service is subject to the provisions of Resolution **130 (WRC-97)**. The use of the band 17.8-18.1 GHz (space-to-Earth) by non-geostationary fixed-satellite service systems is also subject to the provisions of Resolution **538 (WRC-97)**. (WRC-97)

S5.485 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.

S5.486 *Different category of service:* in Mexico and the United States, the allocation of the band 11.7-12.1 GHz to the fixed service is on a secondary basis (see No. **S5.32**).

S5.487 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 broadcasting-satellite stations operating in accordance with the provisions of Appendix **S30**.

S5.487A *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 the provisions of Resolution **538 (WRC-97)**. (WRC-97)

S5.488 The use of the bands 11.7-12.2 GHz by the fixed-satellite service in Region 2 and 12.2-12.7 GHz by the broadcasting-satellite service in Region 2 is limited to national and subregional systems. The use of the band 11.7-12.2 GHz by the fixed-satellite service in Region 2 is subject to previous agreement between the administrations concerned and those having services, operating or planned to operate in accordance with the Table, which may be affected (see Articles **S9** and **S11**). For the use of the band 12.2-12.7 GHz by the broadcasting-satellite service in Region 2, see Appendix **S30**.

S5.489 *Additional allocation:* in Peru, the band 12.1-12.2 GHz is also allocated to the fixed service on a primary basis.

S5.490 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 **S30**.

S5.491 *Additional allocation:* in Region 3, the band 12.2-12.5 GHz is also allocated to the fixed-satellite (space-to-Earth) service on a primary basis, limited to national and sub-regional systems. The power flux-density limits in Article **S21**, Table **S21-4** shall apply to this frequency band. The introduction of the service in relation to the broadcasting-satellite service in Region 1 shall follow the procedures specified in Article 7 of Appendix **S30**, with the applicable frequency band extended to cover 12.2-12.5 GHz.

S5.492 Assignments to stations of the broadcasting-satellite service in conformity with the appropriate regional Plan in Appendix **S30** 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 this Plan. With respect to the space services, this band shall be used principally for the broadcasting-satellite service. (WRC-97)

S5.493 The broadcasting-satellite service in the band 12.5-12.75 GHz in Region 3 is limited to a power flux-density not exceeding –111 dB(W/m^2)/27 MHz for all conditions and for all methods of modulation at the edge of the service area. (WRC-97)

S5.494 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Republic, the Congo, Côte d'Ivoire, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Madagascar, Mali, Morocco, Mongolia, Nigeria, Qatar, Dem. Rep. of the Congo, Syria, Senegal, Somalia, Sudan, Chad, Togo and Yemen, the band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-97)

S5.495 *Additional allocation:*

are on a secondary basis. (WRC-97)

S5.501B 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)

S5.502 In the band 13.75-14 GHz, the e.i.r.p. of any emission from an earth station in the fixed-satellite service shall be at least 68 dBW, and should not exceed 85 dBW, with 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 towards the geostationary-satellite orbit shall not exceed 59 dBW.

S5.503 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. The e.i.r.p. density of emissions from any earth station in the fixed-satellite service shall not exceed 71 dBW in any 6 MHz band in the frequency range 13.772-13.778 GHz 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. Automatic power control may be used to increase the e.i.r.p. density above 71 dBW in any 6 MHz band in this frequency range 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 of an e.i.r.p. of 71 dBW in any 6 MHz band in clear sky conditions.

S5.503A Until 1 January 2000, stations in the fixed-satellite service shall not cause harmful interference to non-geostationary space stations in the space research and Earth exploration-satellite services. After that date, these non-geostationary space stations will operate on a secondary basis in relation to the fixed-satellite service. Additionally, when planning earth stations in the fixed-satellite service to be brought into service between 1 January 2000 and 1 January 2001, in order to accommodate the needs of spaceborne precipitation radars operating in the band 13.793-13.805 GHz, advantage should be taken of the consultation process and the information given in Recommendation ITU-R SA.1071.

S5.504 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.

S5.505 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Australia, Bahrain, Bangladesh, Botswana, Brunei Darussalam, Cameroon, China, the Congo, the Republic of Korea, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lesotho, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, Pakistan, the Philippines, Qatar, Syria, the Democratic People's Republic of Korea, Senegal, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad and Yemen, the band 14-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-97)

S5.506 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.

S5.507 Not used.

S5.508 *Additional allocation:* in Germany, Austria, Bosnia and Herzegovina, France, Greece, Ireland, Iceland, Italy, The Former Yugoslav Republic of Macedonia, Libya, Liechtenstein, Portugal, the United Kingdom, Slovenia, Switzerland, Turkey and Yugoslavia, the band 14.25-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-97)

S5.509 *Additional allocation:* in Japan and Pakistan the band 14.25-14.3 GHz is also allocated to the mobile, except aeronautical mobile, service on a primary basis.

S5.510 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.

S5.511 *Additional allocation:* in Saudi Arabia, Bahrain, Bosnia and Herzegovina, Cameroon, Egypt, the United Arab Emirates, Guinea, the Islamic Republic of Iran, Iraq, Israel, Kuwait, Lebanon, Libya, Pakistan, Qatar, Syria, Slovenia, Somalia and Yugoslavia, the band 15.35-15.4 GHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-97)

S5.511A Use of the band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth (see Resolution **123 (WRC-97)**) and Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. **S9.11A**. 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. Also in the space-to-Earth direction, harmful interference shall not be caused to stations of the radio astronomy service using the band 15.35-15.4 GHz. The threshold levels of interference and associated power flux-density limits which are detrimental to the radio astronomy service are given in Recommendation ITU-R RA.769-1. Special measures will need to be employed to protect the radio astronomy service in the band 15.35-15.4 GHz. (WRC-97)

S5.511B (SUP - WRC-97)

S5.511C 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. **S4.10** applies) from harmful interference from feeder-link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder-link earth station shall be in accordance with Recommendation ITU-R S.1340. (WRC-97)

S5.511D Fixed-satellite service systems for which complete information for advance publication has been received by the Bureau by 21 November 1997 may operate in the bands 15.4-15.43 GHz and 15.63-15.7 GHz in the space-to-Earth direction and 15.63-15.65 GHz in the Earth-to-space direction. In the bands 15.4-15.43 GHz and 15.65-15.7 GHz, emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of –146 dB(W/m^2/MHz) for any angle of arrival. In the band 15.63-15.65 GHz, where an administration plans emissions from a non-geostationary space station that exceed –146 dB (W/m^2/MHz) for any angle of arrival, it shall coordinate under No. **S9.11A** with the affected administrations. Stations in the fixed-satellite service operating in the band 15.63-15.65 GHz in the Earth-to-space direction shall not cause harmful interference to stations in the aeronautical radionavigation service (No. **S4.10** applies). (WRC-97)

S5.512 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei Darussalam, Cameroon, the Congo, Costa Rica, Egypt, El Salvador, the United Arab Emirates, Finland, Guatemala, India, Indonesia, the Islamic Republic of Iran, Jordan, Kuwait, Libya, Malaysia, Morocco, Mozambique, Nepal, Nicaragua, Oman, Pakistan, Qatar, Singapore, Slovenia, Somalia, Sudan, Swaziland, Tanzania, Chad, Yemen and Yugoslavia, the band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-97)

S5.513 *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. **S5.512**.

S5.513A 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)

S5.514 *Additional allocation:* in Algeria, Germany, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Finland, Guatemala, Honduras, India, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Libya, Nepal, Nicaragua, Oman, Pakistan, Qatar, Slovenia, Sudan, Sweden and Yugoslavia, 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. **S21.3** and **S21.5** shall apply. (WRC-97)

S5.515 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 **S30A/30A**.

S5.516 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. 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 **S11**. 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 the provisions of Resolution **538 (WRC-97)**. (WRC-97)

S5.517 In Region 2, the allocation to the broadcasting-satellite service in the band 17.3-17.8 GHz shall come into effect on 1 April 2007. After that date, use of the fixed-satellite (space-to-Earth) service in the band 17.7-17.8 GHz shall not claim protection from and shall not cause harmful interference to operating systems in the broadcasting-satellite service.

S5.518 *Different category of service:* in Region 2, the allocation of the band 17.7-17.8 GHz to the mobile service is on a primary basis until 31 March 2007.

S5.519 *Additional allocation:* the band 18.1-18.3 GHz is also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Its use is limited to geostationary satellites and shall be in accordance with the provisions of Article **S21**, Table **S21-4**.

S5.520 The use of the band 18.1-18.4 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.

S5.521 *Alternative allocation:* in Germany, Denmark, the United Arab Emirates, Greece, Slovakia and the Czech Republic, the band 18.1-18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis (see No. **S5.33**). The provisions of No. **S5.519** also apply. (WRC-97)

S5.522 In making assignments to stations in the fixed and mobile services, administrations are invited to take account of passive sensors in the Earth-exploration satellite and space research services operating in the band 18.6-18.8 GHz. In this band, administrations should endeavour to limit as far as possible both the power delivered by the transmitter to the antenna and the e.i.r.p. in order to reduce the risk of interference to passive sensors to the minimum.

S5.523 In assigning frequencies to stations in the fixed-satellite service in the direction space-to-Earth, administrations are requested to limit as far as practicable the power flux-density at the Earth's surface in the band 18.6-18.8 GHz, in order to reduce the risk of interference to passive sensors in the earth exploration-satellite and space research services.

S5.523A The use of the bands 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) by geostationary and non-geostationary fixed-satellite service networks is subject to the application of the provisions of No. **S9.11A** and No. **S22.2** does not apply. Administrations having geostationary-satellite networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. **S9.11A** with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-geostationary-satellite networks shall not cause unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix **S4** notification information is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

S5.523B 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. **S9.11A**, and No. **S22.2** does not apply.

S5.523C No. **S22.2** of the Radio Regulations 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 **S4** coordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

S5.523D 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. **S9.11A**, but not subject to the provisions of No. **S22.2**. The use of this band for other non-geostationary fixed-satellite service systems, or for the cases indicated in Nos. **S5.523C** and **S5.523E**, is not subject to the provisions of No. **S9.11A** and shall continue to be subject to Articles **S9** (except No. **S9.11A**) and **S11** procedures, and to the provisions of No. **S22.2**. (WRC-97)

S5.523E No. **S22.2** of the Radio Regulations 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 **S4** coordination information, or notification information, is considered as having been received by the Bureau by 21 November 1997. (WRC-97)

S5.524 *Additional allocation:* in Afghanistan, Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, the Congo, the Republic of Korea, Costa Rica, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, Dem. Rep. of the Congo, Syria, Democratic People's Republic of Korea, Singapore, Somalia, Sudan, Tanzania, Chad, Togo and Tunisia, the band 19.7-21.2 GHz is also allocated to the fixed and mobile services on a primary basis. This additional use shall not impose any limitation on the power flux-density of space stations in the fixed-satellite service in the band 19.7-21.2 GHz and of space stations in the mobile-satellite service in the band 19.7-20.2 GHz where the allocation to the mobile-satellite service is on a primary basis in the latter band. (WRC-97)

S5.525 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.

S5.526 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.

S5.527 In the bands 19.7-20.2 GHz and 29.5-30 GHz, the provisions of No. **S4.10** do not apply with respect to the mobile-satellite service.

S5.528 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. **S5.524**.

S5.529 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. **S5.526**.

S5.530 In Regions 1 and 3, the allocation to the broadcasting-satellite service in the band 21.4-22 GHz shall come into effect on 1 April 2007. The use of this band by the broadcasting-satellite service after that date and on an interim basis prior to that date is subject to the provisions of Resolution **525 (WARC-92)**.

S5.531 *Additional allocation:* in Japan, the band 21.4-22 GHz is also allocated to the broadcasting service on a primary basis.

S5.532 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.

S5.533 The inter-satellite service shall not claim protection from harmful interference from airport surface detection equipment stations of the radionavigation service.

S5.534 *Additional allocation:* in Japan, the band 24.65-25.25 GHz is also allocated to the radionavigation service on a primary basis until 2008.

S5.535 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.

S5.535A 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. **S9.11A**, but not subject to the provisions of No. **S22.2**, except as indicated in Nos. **S5.523C** and **S5.523E** where such use is not subject to the provisions of No. **S9.11A** and shall continue to be subject to Articles **S9** (except No. **S9.11A**) and **S11** procedures, and to the provisions of No. **S22.2**. (WRC-97)

S5.536 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.

S5.536A Administrations installing earth exploration-satellite earth stations cannot claim protection from fixed and mobile stations operated by neighbouring administrations. In addition, earth stations operating in the earth exploration-satellite service should take into account

Recommendation ITU-R SA.1278. (WRC-97)

S5.536B In Germany, Saudi Arabia, Austria, Belgium, Brazil, Bulgaria, China, the Republic of Korea, Denmark, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Hungary, India, Islamic Republic of Iran, Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Liechtenstein, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, Syria, Slovakia, Czech Republic, 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-97)

S5.537 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. **S22.2**.

S5.538 *Additional allocation:* the bands 27.500-27.501 GHz and 29.999-30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of +10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. In the band 27.500-27.501 GHz, such space-to-Earth transmissions shall not produce a power flux-density in excess of the values specified in Article **S21**, Table **S21-4** on the Earth's surface.

S5.539 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.

S5.540 *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.

S5.541 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.

S5.541A 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 **S4** 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 **S4** information for coordination before this date are encouraged to utilize these techniques to the extent practicable. These methods are also subject to review by ITU-R (see Resolution **121 (Rev.WRC-97)**). (WRC-97)

S5.542 *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, the Congo, the Republic of Korea, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, the Islamic Republic of Iran, Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Pakistan, the Philippines, Qatar, Syria, Democratic People's Republic of Korea, Somalia, Sudan, Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **S21.3** and **S21.5** shall apply. (WRC-97)

S5.543 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.

S5.544 In the band 31-31.3 GHz the power flux-density limits specified in Article **S21**, Table **S21-4** shall apply to the space research service.

S5.545 *Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Mongolia, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 31-31.3 GHz to the space research service is on a primary basis (see No. **S5.33**). (WRC-97)

S5.546 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, Egypt, United Arab Emirates, Spain, Estonia, Finland, Georgia, Hungary, the Islamic Republic of Iran, Israel, Jordan, Kazakstan, Latvia, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Syria, Kyrgyzstan, Romania, the United Kingdom, Russian Federation, Tajikistan, Turkmenistan, Turkey and Ukraine, 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. **S5.33**). (WRC-97)

S5.547 The bands 31.8-33.4 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 **726 (WRC-97)**). (WRC-97)

S5.547A Use of the band 31.8-33.4 GHz by the fixed service shall be in accordance with Resolution **126 (WRC-97)**. (WRC-97)

S5.547B *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)

S5.547C *Alternative allocation*: in the United States, the band 32-32.3 GHz is allocated to the inter-satellite, radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-97)

S5.547D *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)

S5.547E *Alternative allocation*: in the United States, the band 33-33.4 GHz is allocated to the radionavigation service on a primary basis. (WRC-97)

S5.548 In designing systems for the inter-satellite and radionavigation services 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**).

S5.549 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Malta, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, Dem. Rep. of the Congo, Syria, Senegal, Singapore, Somalia, Sudan, Sri Lanka, Togo, Tunisia and Yemen, the band 33.4-36 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-97)

S5.550 *Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Mongolia, Uzbekistan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 34.7-35.2 GHz to the space research service is on a primary basis (see No. **S5.33**). (WRC-97)

S5.551 (SUP - WRC-97)

S5.551A In the band 35.5-36.0 GHz, 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 meteorological aids service and other services allocated on a primary basis. (WRC-97)

S5.551B The use of the band 41.5-42.5 GHz by the fixed-satellite service (space-to-Earth) is subject to Resolution **128 (WRC-97)**. (WRC-97)

S5.551C *Alternative allocation:* in the French overseas territories in Regions 2 and 3, the Republic of Korea and India, the band 40.5-42.5 GHz is allocated to the broadcasting, broadcasting-satellite and fixed services on a primary basis. (WRC-97)

S5.551D *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Benin, Cameroon, Egypt, United Arab Emirates, Israel, Jordan, Kuwait, Lebanon, Libya, Mali, Morocco, Mauritania, Nigeria, Oman, Qatar, Syria, Tunisia and Yemen, the band 40.5-42.5 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. The use of this band by the fixed-satellite service shall be in accordance with Resolution **134 (WRC-97)**. (WRC-97)

S5.551E Use of the band 40.5-42.5 GHz by the fixed-satellite service shall be in accordance with Resolution **134 (WRC-97)**. (W RC-97)

S5.551F *Different category of service*: in Japan, the allocation of the band 41.5-42.5 GHz to the mobile service is on a primary basis (see No. **S5.33**). (WRC-97)

S5.552 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.

S5.552A 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 (WRC-97)**. (WRC-97)

S5.553 In the bands 43.5-47 GHz, 66-71 GHz, 95-100 GHz, 134-142 GHz, 190-200 GHz and 252-265 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. **S5.43**).

S5.554 In the bands 43.5-47 GHz, 66-71 GHz, 95-100 GHz, 134-142 GHz, 190-200 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.

S5.555 *Additional allocation:* the bands 48.94-49.04 GHz, 97.88-98.08 GHz, 140.69-140.98 GHz, 144.68-144.98 GHz, 145.45-145.75 GHz, 146.82-147.12 GHz, 250-251 GHz and 262.24-262.76 GHz are also allocated to the radio astronomy service on a primary basis.

S5.555A The band 50.2-50.4 GHz is also allocated, on a primary basis, to the fixed and mobile services until 1 July 2000. (WRC-97)

S5.556 In the bands 51.4-54.25 GHz, 58.2-59 GHz, 64-65 GHz, 72.77-72.91 GHz and 93.07-93.27 GHz, radio astronomy observations may be carried out under national arrangements.

S5.556A Use of the bands 54.25-56.9 GHz, 57-58.2 GHz and 59-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/m^2/100 MHz) for all angles of arrival. (WRC-97)

S5.556B *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)

S5.557 *Additional allocation:* in Japan, the band 55.78-58.2 GHz is also allocated to the radiolocation service on a primary basis. (WRC-97)

S5.558 In the bands 55.78-58.2 GHz, 59-64 GHz, 66-71 GHz, 116-134 GHz, 170-182 GHz and 185-190 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **S5.43**). (WRC-97)

S5.558A Use of the band 56.9-57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/m^2/100 MHz) for all angles of arrival. (WRC-97)

S5.559 In the bands 59-64 GHz and 126-134 GHz, airborne radars in the radiolocation service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **S5.43**).

S5.560 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.

S5.561 In the band 84-86 GHz, stations in the fixed, mobile and broadcasting services shall not cause harmful interference to broadcasting-satellite stations operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service.

S5.562 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)

S5.563 *Additional allocation:* in the United Kingdom, the band 182-185 GHz is also allocated to the fixed and mobile services on a primary basis.

S5.564 *Additional allocation:* in Germany, Argentina, Spain, Finland, France, India, Italy and the Netherlands, the band 261-265 GHz is also allocated to the radio astronomy service on a primary basis. (WRC-97)

S5.565 The frequency band 275-400 GHz may be used by administrations for experimentation with, and development of, various active and passive services. In this band a need has been identified for the following spectral line measurements for passive services:

– radio astronomy service: 278-280 GHz and 343-348 GHz;

– Earth exploration-satellite service (passive) and space research service (passive): 275-277 GHz, 300-302 GHz, 324-326 GHz, 345-347 GHz, 363-365 GHz and 379-381 GHz.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the next competent world radiocommunication conference.

National Footnotes

National Footnotes

T1 The band 59.5 - 60.5 kHz is designated for the standard frequency and time signal service.

T2 The band 526.5 - 1606.5 kHz is allocated to the broadcasting (sound) service, in accordance with the Plan for MF broadcasting in Regions 1 and 3 and LF broadcasting in Region 1, Geneva, 1975 (GE75).

T3 In the band 3500 - 3540 kHz, existing stations in the fixed and mobile services may continue to operate until 31 December 2001.

T4 The bands 26.960 - 27.410 MHz, 77.9875 - 79 MHz and 244.9875 - 246 MHz are designated as Citizens Band (CB). The bands 79 - 79.9875 MHz and 246 - 247 MHz are reserved for similar purposes.

T5 In the band 47 - 68 MHz, stations in the fixed and mobile services shall not cause harmful interference to, or claim protection from, stations in the broadcasting service.

T6 Transmissions from stations in the amateur-satellite service are limited to the band 145.8 - 146 MHz.

T7 The band 300 - 320.1 MHz in the fixed service is designated for studio-transmitter link of sound broadcasting programmes.

T8 The band 279 - 283 MHz in the mobile service is designated for base-to-subscriber transmissions of radio-paging systems.

T9 The band 380 - 399.9 MHz in the mobile service is designated for trunked mobile radio systems. Existing stations in the fixed and mobile services (other than trunked mobile radio systems) may continue to operate until 31 December 2001.

T10 The bands 421.8 - 422.95 MHz and 433.8 - 434.95 MHz, 484 - 489 MHz and 494 - 499 MHz, 806 - 824 MHz and 851 - 869 MHz in the mobile service are designated for trunked mobile radio systems.

T11 In the band 435 - 438 MHz, the amateur-satellite service (space-to-Earth) is allowed to operate subject to not causing harmful interference to other services operating in accordance with the Table of Frequency Allocations.

T12 The frequencies 461.25 MHz and 463 MHz are designated for use by reference stations of the Differential Global Positioning System (DGPS).

T13 The bands 479 - 483.5 MHz and 489 - 493.5 MHz, 824 - 849 MHz and 869 -894 MHz, 897.5 - 915 MHz and 942.5 - 960 MHz, 1445 - 1453 MHz and 1493 - 1501 MHz, 1710 - 1785 MHz and 1805 - 1880 MHz, 1880 - 1900 MHz and 1960 - 1980 MHz in the mobile service are designated for cellular systems.

T14 The band 917 - 923 MHz in the mobile service is designated for subscriber-to-base transmissions of radio-paging systems .

T15 In the band 1427 - 1525 MHz, existing stations in the fixed service may continue to operate until their equipment expiration dates. New frequency assignment will be made in, or existing assignment will be relocated to, the bands 1427 - 1445 MHz and 1501 -

1517 MHz, with channel arrangements in accordance with the 1.4 GHz Frequency Plan for Fixed Service.

T16 In the bands 1706.5 - 1790.5 MHz and 1825.5 - 1909.5 MHz, existing stations in the fixed service may continue to operate until their equipment expiration dates. New frequency assignment to stations in the fixed service will not be authorized in these bands.

T17 In the bands 1898.5 - 1982.5 MHz and 2017.5 - 2101.5 MHz, 2101.5 - 2185.5 MHz and 2220.5 - 2304.5 MHz, existing stations in the fixed service may continue to operate until 31 December 2000 and shall not cause harmful interference to, or claim protection from, stations of other allocated services as from 1 January 2000.

T18 The band 1900 - 1906 MHz is designated for cordless telephone systems (private application).

T19 The band 1906.1 - 1918.1 MHz is designated for cordless telephone system (public application) and for wireless local loop (WLL) application.

T20 Channel arrangements of the bands 2025.5 - 2109.5 MHz and 2200.5 - 2284.5 MHz in the fixed service are in accordance with Annex 1 to Recommendation ITU-R F.1098-1.

T21 Channel arrangements of the bands 2306 - 2387 MHz and 2400 - 2481 MHz in the fixed service are in accordance with Annex 1 to Recommendation ITU-R F.746-3.

T22 Channel arrangements of the bands 2484.5 - 2568.5 MHz and 2603.5 - 2687.5 MHz in the fixed service are in accordance with Recommendation ITU-R F.283-5 and their use is limited to stations in upcountry area.

T23 The band 2504 - 2688 MHz in the fixed service is also designated for Multichannel Multipoint Distribution Service (MMDS) application and limited to stations in Bangkok and suburb area.

T24 The bands 2548 - 2596 MHz and 2660 - 2700 MHz in the fixed service, until 31 December 1999, are also designated for Multichannel Multipoint Distribution Service (MMDS) application and limited to stations in upcountry area. After that date, new frequency assignment will be made in, or existing assignment will be relocated to, the 2572 - 2600 MHz band.

T25 Channel arrangements of the band 4400 - 5000 MHz in the fixed service are in accordance with Annex 2 to Recommendation ITU-R F.746-3 or Annex 1 to Recommendation ITU-R F.1099-2.

T26 Channel arrangements of the band 5925 - 6425 MHz in the fixed service are in accordance with Recommendation ITU-R F.383-5.

T27 Channel arrangements of the band 6425 - 7110 MHz in the fixed service are in accordance with Recommendation ITU-R F.384-6.

T28 Channel arrangements of the band 7110 - 7425 MHz in the fixed service are in accordance with Recommendation ITU-R F.385-6.

T29 Channel arrangements of the band 7425 - 7725 MHz in the fixed service are in accordance with Annex 1 to Recommendation ITU-R F.385-6.

T30 Channel arrangements of the band 7725 - 8285 MHz in the fixed service are in accordance with Annex 1 to Recommendation ITU-R F.386-5.

T31 The band 8290 - 8500 MHz in the fixed service is designated for one-way transmissions of television broadcasting programmes.

T32 Channel arrangements of the band 10.5 - 10.68 GHz in the fixed service are in accordance with Annex 1 to Recommendation ITU-R F.747.

T33 Channel arrangements of the band 10.7 - 11.7 GHz in the fixed service are in accordance with Annexes 1 and 2 to Recommendation ITU-R F.387-7.

T34 Channel arrangements of the band 12.75 - 13.25 GHz in the fixed service are in accordance with Recommendation ITU-R F.497-5.

T35 Channel arrangements of the band 14.5-15.35 GHz in the fixed service are in accordance with Recommendation ITU-R F.636-3.

T36 Channel arrangements of the band 17.7 - 19.7 GHz in the fixed service are in accordance with Recommendation ITU-R F.595-5 or Annex 4 to that Recommendation. In assigning the frequency in this band, account should be taken of the use of the band 18.8 - 19.7 GHz in the fixed-satellite service (space-to-Earth) by non-geostationary satellite systems.

T37 Channel arrangements of the bands 21.2 - 21.4 GHz, 22 - 22.6 GHz and 23.2 - 23.6 GHz in the fixed service are in accordance with Annex 1 to Recommendation ITU-R F.637-2.

T38 The band 27.5 - 28.5 GHz in the fixed service is designated for Local Multipoint Distribution Service (LMDS) application.

T39 Channel arrangements of the band 31 - 31.3 GHz in the fixed service are in accordance with Annex 7 to Recommendation ITU-R F.746-3.

T40 Channel arrangements of the band 37 - 39.5 GHz in the fixed service are in accordance with Annex 1 to Recommendation ITU-R F.749-1.

T41 Channel arrangements of the band 57.2 - 58.2 GHz in the fixed service are in accordance with Annex 2 to Recommendation ITU-R F.1100.

Appendix : Terms and Translations

(ภาคผนวก : ศัพท์และคำแปล)

Appendix : Terms and Translations
(ภาคผนวก : ศัพท์และคำแปล)

Section I General Terms - ศัพท์ทั่วไป

S 1.2 administration - หน่วยงานของรัฐที่รับผิดชอบ

S 1.3 telecommunication - โทรคมนาคม

S 1.4 radio - วิทยุ

S 1.5 radio waves/hertzian waves - คลื่นวิทยุ/คลื่นแฮร์ตเซียน

S 1.6 radiocommunication - วิทยุคมนาคม

S 1.7 terrestrial radiocommunication - วิทยุคมนาคมพื้นโลก

S 1.8 space radiocommunication - วิทยุคมนาคมอวกาศ

S 1.9 radiodetermination - วิทยุตรวจการณ์และตรวจค้นหา

S 1.10 radionavigation - วิทยุนำทาง

S 1.11 radiolocation - วิทยุหาตำแหน่ง

S 1.12 radio direction-finding - วิทยุหาทิศทาง

S 1.13 radio astronomy - วิทยุดาราศาสตร์

S 1.14 Coordinated Universal Time (UTC) : เวลามาตรฐานสากล

S 1.15 industrial, scientific and medical (ISM) applications (of radio frequency energy) – การประยุกต์ใช้พลังงานความถี่วิทยุ ในด้านอุตสาหกรรม วิทยาศาสตร์ และการแพทย์ (ไอเอสเอ็ม)

Section II Radio services - ศัพท์เฉพาะที่เกี่ยวกับการบริหารความถี่

S 1.16 allocation (of a frequency band) - การกำหนด (ย่านความถี่)

S 1.17 allotment (of a radio frequency or radio frequency channel) - การจัดทำแผน (ความถี่วิทยุหรือช่องความถี่วิทยุ)

S 1.18 assignment (of a radio frequency or radio frequency channel) - การจัดสรร (ความถี่วิทยุหรือช่องความถี่วิทยุ)

Section III Radio services - กิจการวิทยุ

S 1.19 radiocommunication service - กิจการวิทยุคมนาคม

S 1.20 fixed service - กิจการประจำที่

S 1.21 fixed-satellite service - กิจการประจำที่ผ่านดาวเทียม

S 1.22 inter-satellite service - กิจการติดต่อระหว่างดาวเทียม

S 1.23 space operation service - กิจการปฏิบัติการอวกาศ

S 1.24 mobile service - กิจการเคลื่อนที่

S 1.25 mobile-satellite service - กิจการเคลื่อนที่ผ่านดาวเทียม

S 1.26 land mobile service -กิจการเคลื่อนที่ทางบก

S 1.27 land mobile-satellite service - กิจการเคลื่อนที่ทางบกผ่านดาวเทียม

S 1.28 maritime mobile service - กิจการเคลื่อนที่ทางทะเล

S 1.29 maritime mobile-satellite service -กิจการเคลื่อนที่ทางทะเลผ่านดาวเทียม

S 1.30 port operations service - กิจการปฏิบัติการท่าเรือ

S 1.31 ship movement service - กิจการเกี่ยวกับการเคลื่อนที่ของเรือ

S 1.32 aeronautical mobile service - กิจการเคลื่อนที่ทางการบิน

S 1.33 aeronautical mobile (R) service - กิจการเคลื่อนที่ทางการบินในเส้นทางบินพาณิชย์

S 1.34 aeronautical mobile (OR) service - กิจการเคลื่อนที่ทางการบินนอกเส้นทางบินพาณิชย์

S 1.35 aeronautical mobile-satellite service - กิจการเคลื่อนที่ทางการบินผ่านดาวเทียม

S 1.36 aeronautical mobile-satellite (R) service – กิจการเคลื่อนที่ทางการบินในเส้นทางบินพาณิชย์ผ่านดาวเทียม

S 1.37 aeronautical mobile-satellite (OR) service – กิจการเคลื่อนที่ทางการบินนอกเส้นทางบินพาณิชย์ผ่านดาวเทียม

S 1.38 broadcasting service - กิจการวิทยุกระจายเสียงและวิทยุโทรทัศน์

S 1.39 broadcasting-satellite service - กิจการวิทยุกระจายเสียงและวิทยุโทรทัศน์ผ่านดาวเทียม

S 1.40 radiodetermination service - กิจการวิทยุตรวจการณ์และตรวจค้นหา

S 1.41 radiodetermination-satellite service - กิจการวิทยุตรวจการณ์และตรวจค้นหาผ่านดาวเทียม

S 1.42 radionavigation service - กิจการวิทยุนำทาง

S 1.43 radionavigation-satellite service - กิจการวิทยุนำทางผ่านดาวเทียม

S 1.44 maritime radionavigation service - กิจการวิทยุนำทางทางทะเล

S 1.45 maritime radionavigation-satellite service - กิจการวิทยุนำทางทางทะเลผ่านดาวเทียม

S 1.46 aeronautical radionavigation service - กิจการวิทยุนำทางทางการบิน

S 1.47 aeronautical radionavigation-satellite service - กิจการวิทยุนำทางทางการบินผ่านดาวเทียม

S 1.48 radiolocation service - กิจการวิทยุหาตำแหน่ง

S 1.49 radiolocation-satellite service - กิจการวิทยุหาตำแหน่งผ่านดาวเทียม

S 1.50 meteorological aids service - กิจการช่วยอุตุนิยมวิทยา

S 1.51 earth exploration-satellite service - กิจการสำรวจพิภพผ่านดาวเทียม

S 1.52 meteorological-satellite service - กิจการอุตุนิยมวิทยาผ่านดาวเทียม

S 1.53 standard frequency and time signal service - กิจการความถี่มาตรฐานและสัญญาณเวลา

S 1.54 standard frequency and time signal-satellite service – กิจการความถี่มาตรฐานและสัญญาณเวลาผ่านดาวเทียม

S 1.55 space research service - กิจการวิจัยอวกาศ

S 1.56 amateur service - กิจการวิทยุสมัครเล่น

S 1.57 amateur-satellite service - กิจการวิทยุสมัครเล่นผ่านดาวเทียม

S 1.58 radio astronomy service - กิจการวิทยุดาราศาสตร์

S 1.59 safety service - กิจการเพื่อความปลอดภัย

S 1.60 special service - กิจการพิเศษ

Section IV Radio Stations and systems - สถานีวิทยุและระบบวิทยุ

S 1.61 station - สถานี

S 1.62 terrestrial station - สถานีพื้นโลก

S 1.63 earth station - สถานีภาคพื้นดิน

S 1.64 space station - สถานีภาคอวกาศ

S 1.65 survival craft station - สถานียานช่วยชีวิต

S 1.66 fixed station - สถานีประจำที่

S 1.66A high altitude platform station - สถานีฐานลอยระยะสูง

S 1.67 mobile station - สถานีเคลื่อนที่

S 1.68 mobile earth station - สถานีภาคพื้นดินเคลื่อนที่

S 1.69 land station - สถานีทางบก

S 1.70 land earth station - สถานีภาคพื้นดินทางบก

S 1.71 base station - สถานีฐาน

S 1.72 base earth station - สถานีภาคพื้นดินฐาน

S 1.73 land mobile station - สถานีเคลื่อนที่ทางบก

S 1.74 land mobile earth station - สถานีภาคพื้นดินเคลื่อนที่ทางบก

S 1.75 coast station - สถานีฝั่ง

S 1.76 coast earth station - สถานีภาคพื้นดินฝั่ง

S 1.77 ship station - สถานีเรือ

S 1.78 ship earth station - สถานีภาคพื้นดินประจำเรือ

S 1.79 on-board communication station - สถานีสื่อสารประจำเรือ

S 1.80 port station - สถานีท่าเรือ

S 1.81 aeronautical station - สถานีทางการบิน

S 1.82 aeronautical earth station - สถานีภาคพื้นดินทางการบิน

S 1.83 aircraft station - สถานีอากาศยาน

S 1.84 aircraft earth station - สถานีภาคพื้นดินประจำอากาศยาน

S 1.85 broadcasting station - สถานีวิทยุกระจายเสียงและวิทยุโทรทัศน์

S 1.86 radiodetermination station - สถานีวิทยุตรวจการณ์และตรวจค้นหา

S 1.87 radionavigation mobile station - สถานีเคลื่อนที่วิทยุนำทาง

S 1.88 radionavigation land station -สถานีทางบกวิทยุนำทาง

S 1.89 radioloation mobile station - สถานีเคลื่อนที่วิทยุหาตำแหน่ง

S 1.90 radiolocation land station - สถานีทางบกวิทยุหาตำแหน่ง

S 1.91 radio direction-finding station - สถานีวิทยุหาทิศทาง

S 1.92 radiobeacon station - สถานีวิทยุบอกตำแหน่ง

S 1.93 emergency position-indicating radiobeacon station - สถานีวิทยุบอกตำแหน่งฉุกเฉิน

S 1.94 satellite emergency positioning-indicating radiobeacon station – สถานีวิทยุบอกตำแหน่งฉุกเฉินผ่านดาวเทียม

S 1.95 standard frequency and time signal station - สถานีความถี่มาตรฐานและสัญญาณเวลา

S 1.96 amateur station - สถานีวิทยุสมัครเล่น

S 1.97 radio astronomy station - สถานีวิทยุดาราศาสตร์

S 1.98 experimental station - สถานีทดลอง

S 1.99 ship's emergency transmitter - เครื่องส่งฉุกเฉินประจำเรือ

S 1.100 radar - เรดาร์

S 1.101 primary radar - เรดาร์ปฐมภูมิ

S 1.102 secondary radar - เรดาร์ทุติยภูมิ

S 1.103 radar beacon (racon) - เครื่องวิทยุตอบรับเรดาร์

S 1.104 instrument landing system (ILS) – ระบบนำร่อนอากาศยานลงสู่พื้น

S 1.105 instrument landing system localizer – ระบบนำร่อนอากาศยานลงสู่พื้น

S 1.106 instrument landing system glide path – ระบบเครื่องวัดช่วยอากาศยานลงสู่พื้นโดยบอกมุมร่อน

S 1.107 marker beacon - เครื่องส่งวิทยุบอกตำแหน่งที่

S 1.108 radio altimeter - เครื่องวิทยุวัดความสูง

S 1.109 radiosonde - เครื่องวิทยุหยั่งอากาศ

S 1.109A adaptive system - ระบบปรับตัว

S 1.110 space system - ระบบอวกาศ

S 1.111 satellite system - ระบบดาวเทียม

S 1.112 satellite network - เครือข่ายดาวเทียม

S 1.113 satellite link - ข่ายเชื่อมโยงผ่านดาวเทียม

S 1.114 multi-satellite link – ข่ายเชื่อมโยงผ่านดาวเทียมหลายดวง

S 1.115 feeder link - ข่ายเชื่อมโยงนำข่าวสาร

Section V Operational Terms - ศัพท์ด้านการปฏิบัติการ

S 1.116 public correspondence - การติดต่อเพื่อสาธารณะ

S 1.117 telegraphy - การโทรเลข

S 1.118 telegram - โทรเลข

S 1.119 radiotelegram - วิทยุโทรเลข

S 1.120 radiotelex call การเรียกโดยวิทยุเทเล็กซ์

S 1.121 frequency-shift telegraphy - การโทรเลขแบบเปลี่ยนความถี่

S 1.122 facsimile - โทรสาร

S 1.123 telephony - การโทรศัพท์

S 1.124 radiotelephone call - การเรียกโดยวิทยุโทรศัพท์

S 1.125 simplex operation - การทำงานแบบซิมเพลกซ์

S 1.126 duplex operation - การทำงานแบบดูเพลกซ์

S 1.127 Semi-duplex operation – การทำงานแบบเซมิดูเพลกซ์

S 1.128 television - โทรทัศน์

S 1.129 individual reception - การรับเฉพาะราย (ในกิจการวิทยุกระจายเสียงและวิทยุโทรทัศน์ผ่านดาวเทียม)

S 1.130 community reception - การรับโดยชุมชน (ในกิจการวิทยุกระจายเสียงและวิทยุโทรทัศน์ผ่านดาวเทียม)

S 1.131 telemetry - โทรมาตร

S 1.132 radiotelemetry - วิทยุโทรมาตร

S 1.133 space telemetry - โทรมาตรอวกาศ

S 1.134 telecommand - การสั่งงานระยะไกล

S 1.135 space telecommand - การสั่งงานระยะไกลสถานีอวกาศ

S 1.136 space tracking - การติดตามวัตถุในอวกาศ

Section VI Characteristics of emissions and radio equipment – ลักษณะของการแพร่และอุปกรณ์วิทยุ

S 1.137 radiation - การแผ่

S 1.138 emission - การแพร่

S 1.139 class of emission - ประเภทของการแพร่

S 1.140 single-sideband emission - การแพร่แถบข้างเดียว

S 1.141 full carrier single-sideband emission - การแพร่แถบข้างเดียวเต็มคลื่นพาห์

S 1.142 reduced carrier single-sideband emission - การแพร่แถบข้างเดียวลดคลื่นพาห์

S 1.143 suppressed carrier single-sideband emission - การแพร่แถบข้างเดียวกำจัดคลื่นพาห์

S 1.144 out-of-band emission - การแพร่นอกแถบความถี่

S 1.145 spurious emission - การแพร่แปลกปลอม

S 1.146 unwanted emission - การแพร่ไม่พึงประสงค์

S 1.147 assigned frequency band - ย่านความถี่จัดสรร

S 1.148 assigned frequency - ความถี่จัดสรร

S 1.149 characteristic frequency - ความถี่เชิงลักษณะ

S 1.150 reference frequency - ความถี่อ้างอิง

S 1.151 frequency tolerance - ค่าคลาดเคลื่อนของความถี่

S 1.152 necessary bandwidth - ความกว้างแถบความถี่ที่จำเป็น

S 1.153 occupied bandwidth - ความกว้างของแถบความถี่ที่ครอบครอง

S 1.154 right-hand (clockwise) polarized wave - คลื่นขั้วขวา (ตามเข็มนาฬิกา)

S 1.155 left-hand (anticlockwise) polarized wave - คลื่นขั้วซ้าย (ทวนเข็มนาฬิกา)

S 1.156 power - กำลัง

S 1.157 peak envelope power - กำลังยอดคลื่น

S 1.158 mean power - กำลังเฉลี่ย

S 1.159 carrier power - กำลังคลื่นพาห์

S 1.160 gain of an antenna - อัตราขยายของสายอากาศ

S 1.161 equivalent isotropically radiated power (e.i.r.p) – กำลังส่งออกอากาศสมมูลแบบไอโซทรอปิก (อีไออาร์พี)

S 1.162 effective radiated power (e.r.p) - กำลังส่งออกอากาศประสิทธิผล (อีอาร์พี)

S 1.163 effective monopole radiated power (e.m.r.p) – กำลังส่งออกอากาศประสิทธิผลแบบขั้วเดี่ยว (อีเอ็มอาร์พี)

S 1.164 tropospheric scatter - การกระจายคลื่นในบรรยากาศชั้นโทรโปสเฟียร์

S 1.165 ionospheric scatter - การกระจายคลื่นในบรรยากาศชั้นไอโอโนสเฟียร์

Section VII Frequency sharing - การใช้ความถี่ร่วม

S 1.166 interference - การรบกวน

S 1.167 permissible interference - การรบกวนที่ยินยอมได้

S 1.168 accepted interference - การรบกวนที่ยอมรับได้

S 1.169 harmful interference - การรบกวนรุนแรง

S 1.170 protection ratio (R.F) - อัตราส่วนป้องกัน (ความถี่วิทยุ)

S 1.171 coordination area - พื้นที่ประสานงาน

S 1.172 coordination contour - เส้นเขตประสานงาน

S 1.173 coordination distance - ระยะทางประสานงาน

S 1.174 equivalent satellite link noise temperature – อุณหภูมิสัญญาณรบกวนสมมูลของข่ายเชื่อมโยงผ่านดาวเทียม

S 1.175 effective boresight area - พื้นที่แนวเล็งประสิทธิผล

S 1.176 effective antenna gain contour - เส้นเขตอัตราขยายประสิทธิผลของสายอากาศ

Section VIII Technical terms relating to space - ศัพท์เทคนิคการเกี่ยวกับอวกาศ

S 1.177 deep space - อวกาศไกลโพ้น

S 1.178 spacecraft - ยานอวกาศ

S 1.179 satellite - ดาวเทียม

S 1.180 active satellite - ดาวเทียมแอกทีฟ

S 1.181 reflecting satellite - ดาวเทียมสะท้อนคลื่น

S 1.182 active sensor - เครื่องตรวจวัดแอกทีฟ

S 1.183 passive sensor - เครื่องตรวจวัดพาสซีฟ

S 1.184 orbit - วงโคจร

S 1.185 inclination of an orbit - ความเอียงของวงโคจร

S 1.186 period - ช่วงเวลา (ของดาวเทียมดวงหนึ่ง)

S 1.187 altitude of the apogee/perigee - จุดโคจรใกล้สุดจากโลก/จุดโคจรไกลสุดจากโลก

S 1.188 geosynchronous satellite - ดาวเทียมโคจรสัมพัทธ์กับโลก

S 1.189 geostationary satellite - ดาวเทียมประจำที่

S 1.190 geostationary-satellite orbit - วงโคจรของดาวเทียมประจำที่

S 1.191 steerable satellite beam – สายอากาศดาวเทียมที่สามารถเปลี่ยนการชี้ตำแหน่งของลำคลื่นได้

Frequency Allocation - การกำหนดความถี่

S 5.1 Region - เขตภูมิภาค

S 5.25 primary service - กิจการหลัก

S 5.26 secondary service - กิจการรอง

S 5.34 additional allocations - การกำหนด (ย่านความถี่) เพิ่มเติม

S 5.35 alternative allocations - การกำหนด (ย่านความถี่) เผื่อเลือก