PIB 21

Issue 6

December 2011

Ministry of Economic Development

Manatū Ōhanga

TABLE OF RADIO SPECTRUM USAGE IN NEW ZEALAND

ISSN: 1175-6748 (PDF)

MED418328

Amendment history		
Date of effect	**Issue**	**Description of amendment**
May 2001	4	Formal adoption of joint ITU and New Zealand Table of Allocations format. Incorporates article 5 tables from IRR, edition of 1998
August 2004	5	Incorporates changes to the IRR resulting from WRC2000 and WRC2003, and local New Zealand changes during the period between issues.
December 2011	6	Incorporates changes to the IRR resulting from WRC2007 and local New Zealand changes during the period between issues.

CONTENTS

1. Introduction

New Zealand is a Member Administration of the International Telecommunications Union (ITU). It is a signatory to the final acts of radio conferences held by the ITU and subsequently a signatory to the International Radio Regulations. The International Radio Regulations have the status of a United Nations treaty and are the set of international legal documents within which international spectrum management is performed.

The New Zealand legal instruments under which national spectrum management is performed are the Radiocommunications Act 1989, and pursuant to this Act the Radiocommunications Regulations 2001. These legal instruments contain the tools that the Ministry of Economic Development (MED) uses to manage the radio spectrum resource.

The MED uses a number of methods for licensing transmissions. They are Management Rights, Spectrum Licenses, Radio Licenses, General User Licenses and licence exemptions. An overview of the administrative Radio Licensing regime can be found on the Radio Spectrum Management (RSM) website at http://www.rsm.govt.nz. Further information pertaining to Management Rights and Spectrum Licenses (including the auctioning process) is contained in Public Information Brochure (PIB) 28: "Radio Spectrum Auctions".

Radio frequency energy can be generated intentionally or unintentionally by electrical devices. Unintentional radiators and intentional radiators that utilise RF energy for purposes other than communications are not licensed within the strategic framework mentioned above. However, such devices may cause interference to the reception of intentional radiation, and thus an additional framework is necessary to minimise the possibility of interference, or to ensure the Electromagnetic Compatibility (EMC) of all electronic (including radiocommunication) products. Details of New Zealand's EMC framework can be found on the RSM website.

A recognised technique for managing the radio spectrum to minimise interference is by frequency division; that is by dividing the radio spectrum into arbitrary blocks by frequency. This improves the efficiency by placing technically compatible transmissions in adjoining spectrum. These blocks are then allocated to a particular radio service e.g. Broadcasting, Fixed or Mobile services. A tabular form of this division is the essence of the table of frequency allocations.

The table in section 2 indicates significant, but not necessarily exclusive, existing usage within New Zealand of a range of frequencies (ie "bands") by various radio services. It is based on the International Radio Regulations Article 5, section IV, "Table of Frequency Allocations" - particularly where international co-ordination is important such as in the aeronautical, maritime, satellite, navigation, space research, astronomy and amateur services. It should be noted, however, that where spectrum in New Zealand is the subject of privately owned Management Rights, the rightholder determines the highest value use of the spectrum.

This document is intended for use by persons of all levels of expertise from persons with a general interest in radio usage and allocation through to the professional radio engineer. It is expected to be used as a resource document for developing policies, recommendations and decisions pertaining to radio spectrum

usage in New Zealand. A less detailed overview of the NZ table of radio spectrum allocations is given in the chart “Radio Spectrum Allocations in New Zealand”, available at the RSM website.

1.1 Consistency of Information and Disclaimer

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2. The New Zealand Table of Allocations

2.1 How to use the Table

The New Zealand Table of Allocations has been designed to be used in both electronic and printed formats.
The table is divided into 5 columns, and generally is to be read from left to right. The first two columns are reproduced from Article 5 of the International Radio Regulations. ITU footnotes, relevant to ITU Region 3, to which New Zealand belongs, are annexed at the end of this document.

1	2	3	4	5
Frequency Range	**International Region 3 Allocation**	**New Zealand Allocation**	**Summary of Usage**	**References and Policies**

The first column indicates the frequency range that entries in the other columns relate to.

The second column shows the International Radio Regulations Region 3 radio service allocations, with reference to associated footnotes that are included in section 2.4 of this document.

The third column of the table shows the specific New Zealand allocation(s) adopted from the ITU Region 3 allocations.

The fourth column summarises the service usage in New Zealand and may include more specific information related to the allocation.

The fifth column lists any relevant references, standards, licensing arrangements or policies that pertain to use of the associated band in New Zealand. The Ministry publishes, amongst other documents; specifications pertaining to the minimum performance characteristics of radio equipment (RFS), public information brochures (PIBs) pertaining to the use of equipment and/or frequency bands, and operational policy documents (POLDOCs).

These reference documents are available on the RSM website at http://www.rsm.govt.nz.

Table entries with a shaded background indicate bands managed (either by the Crown or private band managers) under the Management Rights Regime.

2.2 Terminology and Nomenclature

The following section is dedicated to explanations of the terminology, nomenclature and abbreviations used in this document.

2.2.1 Frequency Bands

Article 2 section I of the **International Radio Regulations** states that the radio spectrum shall be subdivided into nine frequency bands, which shall be designated by progressive whole numbers in accordance with the following table:

Band number	Symbols	Frequency range (lower limit exclusive, upper limit inclusive)	Band Description
4	VLF	3 to 30 kHz	Very Low Frequency
5	LF	30 to 300 kHz	Low Frequency
6	MF	300 to 3 000 kHz	Medium Frequency
7	HF	3 to 30 MHz	High Frequency
8	VHF	30 to 300 MHz	Very High Frequency
9	UHF	300 to 3 000 MHz	Ultra High Frequency
10	SHF	3 to 30 GHz	Super High Frequency
11	EHF	30 to 300 GHz	Extra High Frequency
12		300 to 3 000 GHz	Infrared

NOTE 1: "Band N" (N = band number) extends from 0.3×10^{N} Hz to 3×10^{N} Hz.
NOTE 2: Prefix: k = kilo (10^3), M = mega (10^6), G = giga (10^9).

2.2.2 Abbreviations and Acronyms

The following table gives a list of the abbreviations and/or acronyms and associated meanings used in the NZ table of allocations (section 2.3):

Abbreviation	Meaning
(OR)	Off-route, used in conjunction with Aeronautical Mobile Service
(R)	Route, used in conjunction with Aeronautical Mobile Service
AMPS	Advanced Mobile Phone System
Cospas-Sarsat	International Satellite System for Search and Rescue
DAMPS	Digital Advanced Mobile Phone System
DECT	Digital Enhanced Cordless Telecommunications
DGPS	Differential Global Positioning System used for correcting dithered GPS signals to improve accuracy
DSC	Distress and Safety Calling
DTH	Direct to Home (reception), used in conjunction with the Fixed Satellite Service
EPIRB	Emergency Position Indicating Radio Beacon
FWA	Fixed Wireless Access
GMDSS	Global Maritime Distress and Safety System
GPS	Global Positioning System
GSM	Global System for Mobile communications
ILS	Instrument Landing System
IRR	International Radio Regulations
ISM	Industry, Scientific, and Medical
ITU	International Telecommunications Union
LMDS	Local Multipoint Distribution Service
MLS	Microwave Landing System
MMDS	Multichannel Multipoint Distribution Service
MR #	Management Right (the # signifies an integer identification number)
NDB(s)	Non-Directional Beacon(s)
PCS	Personal Communications System
PHS	Personal Handyphone System
PRS	Personal Radio Service
RADAR	RAdio Detection And Ranging
RLAN	Radio Local Area Network
SAR	Search and Rescue
SRD(s)	Short Range Device(s)
VSAT	Very Small Aperture Terminals

2.2.3 Primary and secondary services

There are two classes of allocation shown in the following Table of Allocations. Where the status of the allocation is Primary, the service to which it applies is printed in upper case characters in columns 2 and 3. Where the status of the allocation is Secondary, the service is printed in lower case characters in columns 2 and 3. The formal definitions from the IRR are as follows:

5.24 1) Where 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:
5.25 a) services the names of which are printed in “capitals” (example: FIXED) are called “primary” services;
5.26 b) services the names of which are printed in “normal characters” (example: Mobile) are called “secondary” services (see Nos. 5.28 to 5.31).
5.27 2) Additional remarks shall be printed in normal characters (example: MOBILE except aeronautical mobile).

5.28 3) Stations of a secondary service:
5.29 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;
5.30 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;
5.31 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.

5.32 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. 5.28 to 5.31).
5.33 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.

2.3 New Zealand Table of Allocation

2.3.1 VLF and LF Bands (3 - 300 kHz)

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
Below 9 kHz	Not allocated 5.53 5.54	NOT ALLOCATED	Research of VLF propagation	
9-14 kHz	RADIONAVIGATION	9-90 kHz FIXED Mobile (IRR-4.4)	Leaky coaxial cable for communications underground e.g. Mining 9-190 kHz SRD usage restricted to Determination, Telemetry and Telecommand	General User Radio Licence for Short Range Devices
14-19.95 kHz	FIXED MARITIME MOBILE 5.57 5.56			
19.95-20.05 kHz	STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)			
20.05-70 kHz	FIXED MARITIME MOBILE 5.57 5.56			
70-72 kHz	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57			
72-84 kHz	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60			
84-86 kHz	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57			
86-90 kHz	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
90-110 kHz	RADIONAVIGATION 5.62 Fixed 5.64	Amateur (IRR-4.4) Mobile (IRR-4.4)	9-190 kHz SRD usage restricted to Determination, Telemetry and Telecommand Usage includes: Car locks, alarms and immobilizers Shop tag identification systems 130 – 190 kHz amateur usage	General User Radio Licence for Short Range Devices General User Radio Licence for Amateur Radio Operators
110-112 kHz	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64			
112-117.6 kHz	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64			
117.6-126 kHz	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64			
126-129 kHz	RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64			
129-130 kHz	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64			
130-135.7 kHz	FIXED MARITIME MOBILE RADIONAVIGATION 5.64			
135.7-137.8 kHz	FIXED MARITIME MOBILE RADIONAVIGATION Amateur 5.67A 5.64 5.67B			
137.8-160 kHz	FIXED MARITIME MOBILE RADIONAVIGATION 5.64			
160-190 kHz	FIXED Aeronautical radionavigation			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
190-200 kHz	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	Aeronautical NDBs	
200-285 kHz	AERONAUTICAL RADIONAVIGATION Aeronautical mobile			
285-325 kHz	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73			

2.3.2 MF Band (300 - 3000 kHz)

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
285-325 kHz	AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	AERONAUTICAL RADIONAVIGATION	Aeronautical NDBs	
325-405 kHz	AERONAUTICAL RADIONAVIGATION Aeronautical mobile			
405-415 kHz	RADIONAVIGATION 5.76 Aeronautical mobile	RADIONAVIGATION		
415-495 kHz	MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.77 5.82	MARITIME MOBILE	415 – 521 kHz Government Maritime Mobile Services 457 kHz Avalanche beacons	General User Radio Licence for Emergency Transmitters
495-505 kHz	MOBILE 5.82A 5.82B			
505-526.5 kHz	MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Land mobile			
		521-1612 kHz BROADCASTING	521-1612 kHz MF-AM Sound Broadcasting under MR regime 525-1705 kHz under Ministerial Directive	Radio Spectrum Auctions Ministerial Directive to CEO MED Broadcasting POLDOCs

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
526.5-535 kHz	BROADCASTING Mobile	521-1612 kHz BROADCASTING (Continued)	521-1612 kHz MF-AM Sound Broadcasting under MR regime 525-1705 kHz under Ministerial Directive	Radio Spectrum Auctions Ministerial Directive to CEO MED Broadcasting POLDOCs
535-1 606.5 kHz	BROADCASTING			
1 606.5-1 800 kHz	FIXED MOBILE RADIOLOCATION RADIONAVIGATION	1612-1690 kHz RADIONAVIGATION	Aeronautical NDBs 525-1705 kHz under Ministerial Directive	Ministerial Directive to CEO MED
		1690-1800 kHz FIXED MOBILE	CT1 Cordless Telephone base transmitters Generally licensed Radio Buoys Government Land & Maritime Mobile Services 525-1705 kHz under Ministerial Directive	General User Radio Licence for Cordless Telephones General User Radio Licence for Maritime Mobile Ministerial Directive to CEO MED
1 800-2 000 kHz	AMATEUR FIXED MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation 5.97	1800-1950 kHz AMATEUR FIXED MOBILE except aeronautical mobile 1950-2000 kHz MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation	Amateur 160m band Maritime Radio Buoys Government Maritime Mobile Services	General User Radio Licence for Amateur Radio Operators General User Radio Licence for Maritime Purposes PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
2 000-2 065 kHz	FIXED MOBILE	FIXED MOBILE	Maritime Mobile Land Mobile	PIB58: Radio Licence Policy Rules
2 065-2 107 kHz	MARITIME MOBILE 5.106	MARITIME MOBILE	Maritime Mobile	
2 107-2 170 kHz	FIXED MOBILE	MOBILE	Maritime Mobile - coast stations Land Mobile Government Services	
2 170-2 173.5 kHz	MARITIME MOBILE	MARITIME MOBILE	Guard band for 2182 kHz	
2 173.5-2 190.5 kHz	MOBILE (distress and calling) 5.108 5.109 5.110 5.111	MOBILE	2182 kHz distress, safety and calling	General User Radio Licence for Maritime Purposes IRR Appendix 15
2 190.5-2 194 kHz	MARITIME MOBILE	MARITIME MOBILE	Guard band for 2182 kHz	
2 194-2 300 kHz	FIXED MOBILE	FIXED MOBILE	Predominantly Mobile with some Fixed usage	PIB58: Radio Licence Policy Rules
2 300-2 495 kHz	FIXED MOBILE BROADCASTING 5.113	FIXED MOBILE	Land and Maritime Mobile	
2 495-2 501 kHz	STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)	STANDARD FREQUENCY 2.5 MHz		
2 501-2 502 kHz	STANDARD FREQUENCY AND TIME SIGNAL Space Research			
2 502-2 505 kHz	STANDARD FREQUENCY AND TIME SIGNAL			
2 505-2 850 kHz	FIXED MOBILE	MOBILE	Land, maritime and aeronautical mobile	PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
2 850-3 025 kHz	AERONAUTICAL MOBILE (R) 5.111 5.115	AERONAUTICAL MOBILE (R)	Aeronautical Base and SAR (3023 kHz)	PIB58: Radio Licence Policy Rules General User Radio Licence for Aeronautical Purposes IRR Appendix 27

2.3.3 HF Band (3 - 30 MHz)

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
3 025-3 155 kHz	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	Commercial and Government aeronautical services	PIB58: Radio Licence Policy Rules General User Radio Licence for Aeronautical Purposes IRR Appendix 26
3 155-3 200 kHz	FIXED MOBILE except aeronautical mobile (R) 5.116	MOBILE except aeronautical mobile (R)	Land Mobile simplex and Aeronautical Mobile (OR) 3180 – 3380 kHz SRD usage	PIB58: Radio Licence Policy Rules General User Radio Licence for Short Range Devices
3 200-3 230 kHz	FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.116	FIXED MOBILE except aeronautical mobile (R)	Predominantly Land Mobile with a few Fixed assignments 3180 – 3380 kHz SRD usage	
3 230-3 400 kHz	FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116			
3 400-3 500 kHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Aeronautical base transmitters at Auckland Airport	General User Radio Licence for Aeronautical Purposes IRR Appendix 27
3 500-3 900 kHz	AMATEUR FIXED MOBILE	AMATEUR MOBILE	80m Amateur Band 3640 – 4040 kHz SRD usage	General User Radio Licence for Amateur Radio Operators General User Radio Licence for Short Range Devices

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
3 900-3 950 kHz	AERONAUTICAL MOBILE BROADCASTING	AERONAUTICAL MOBILE BROADCASTING	Government Land and Aeronautical Mobile services 3640 – 4040 kHz SRD usage	General User Radio Licence for Short Range Devices PIB58: Radio Licence Policy Rules
3 950-4 000 kHz	FIXED BROADCASTING 5.126	FIXED	Government Fixed and Aeronautical Mobile services 3640 – 4040 kHz SRD usage	
4 000-4 063 kHz	FIXED MARITIME MOBILE 5.127 5.126	FIXED MARITIME MOBILE	Government Fixed Services 3640 – 4040 kHz SRD usage	
4 063-4 438 kHz	MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128	MARITIME MOBILE	Maritime mobile and coast stations 4125 kHz distress, safety and calling	General User Radio Licence for Maritime Purposes PIB58: Radio Licence Policy Rules IRR Appendix 17
4 438-4 650 kHz	FIXED MOBILE except aeronautical mobile	FIXED MOBILE	Heavily used for Fixed and Mobile services Range of 'All New Zealand' Fixed Services. Fixed service to South Pacific and sub-Antarctic islands. Extensive land mobile service to remote locations.	PIB58: Radio Licence Policy Rules
4 650-4 700 kHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Aeronautical base stations	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 27

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
4 700-4 750 kHz	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	Government Aeronautical Mobile services.	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 26
4 750-4 850 kHz	FIXED BROADCASTING 5.113 Land mobile	FIXED Land Mobile	Government Services	
4 850-4 995 kHz	FIXED LAND MOBILE BROADCASTING 5.113	LAND MOBILE	Land Mobile Simplex Services	
4 995-5 003 kHz	STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)	STANDARD FREQUENCY 5 MHz		
5 003-5 005 kHz	STANDARD FREQUENCY AND TIME SIGNAL Space research			
5 005-5 060 kHz	FIXED BROADCASTING 5.113	FIXED	Government Fixed Service	
5 060-5 250 kHz	FIXED Mobile except aeronautical mobile	FIXED Land Mobile	Government Fixed and Land Mobile services	
5 250-5 450 kHz	FIXED MOBILE except aeronautical mobile	FIXED LAND MOBILE	Fixed and Land Mobile services Extensive Government and Civil Defence use	
5 450-5 480 kHz	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	AERONAUTICAL MOBILE (OR) LAND MOBILE	Aeronautical and Land Mobile services	IRR Appendix 27

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
5 480-5 680 kHz	AERONAUTICAL MOBILE (R) 5.111 5.115	AERONAUTICAL MOBILE (R)	Flight operations based in Auckland, Christchurch, Invercargill, Queenstown and Milford	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 27
5 680-5 730 kHz	AERONAUTICAL MOBILE (OR) 5.111 5.115	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile and SAR (5680 kHz)	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 26
5 730-5 900 kHz	FIXED Mobile except aeronautical mobile (R)	Mobile except aeronautical mobile (R)	Government Fixed and Land Mobile services	
5 900-5 950 kHz	BROADCASTING 5.134 5.136	BROADCASTING FIXED	HF Sound Broadcasting and Government Fixed services	
5 950-6 200 kHz	BROADCASTING	BROADCASTING	HF sound broadcasting to the Pacific Islands	
6 200-6 525 kHz	MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137	MARITIME MOBILE	Maritime mobile and coast stations 6215 kHz distress, safety and calling	General User Radio Licence for Martitime Purposes PIB58: Radio Licence Policy Rules IRR Appendix 17
6 525-6 685 kHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Flight operations based in Auckland	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 27

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
6 685-6 765 kHz	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	Government Aeronautical Mobile services	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 26
6 765-7 000 kHz	FIXED MOBILE except aeronautical mobile (R) 5.138 5.138A	FIXED Mobile	6765-6795 kHz ISM and SRD Determination, Telemetry and Telecommand usage Government Fixed and Land Mobile services 6911.4 kHz SAR.	General User Radio Licence for Short Range Devices
7 000-7 100 kHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE	Amateur 40m Band	General User Radio Licence for Amateur Radio Operators
7 100-7 200 kHz	AMATEUR 5.141B 5.141C 5.142	AMATEUR	Amateur	
7 200 7300	BROADCASTING	BROADCASTING Amateur	HF Sound Broadcasting	
7 300-7 400 kHz	BROADCASTING 5.134 5.143 5.143A 5.143B 5.143C 5.143D	FIXED Land mobile	Government Fixed Services	
7 400 7450 kHz	BROADCASTING 5.143A 5.143C		HF Sound Broadcasting Land Mobile and Government Fixed Services	
7 450-8 100 kHz	FIXED MOBILE except aeronautical mobile (R) 5.143E 5.144	FIXED Land Mobile	Government Fixed and Land Mobile services for both national and international coverage within the South Pacific and sub-Antarctic Islands.	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
8 100-8 195 kHz	FIXED MARITIME MOBILE	FIXED MARITIME MOBILE	Maritime Mobile services	
8 195-8 815 kHz	MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111	MARITIME MOBILE	Maritime mobile and coast stations 8291 kHz distress, safety and calling	General User Radio Licence for Maritime Purposes PIB58: Radio Licence Policy Rules IRR Appendix 17
8 815-8 965 kHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Flight operations based in Auckland	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 27
8 965-9 040 kHz	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	Government Aeronautical services Flight operations based in Auckland	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 26
9 040-9 400 kHz	FIXED	FIXED	Government Fixed and Land Mobile services for national and international coverage within the South Pacific and sub-Antarctic Islands.	
9 400-9 500 kHz	BROADCASTING 5.134 5.146	BROADCASTING FIXED	HF Sound Broadcasting Government Fixed services	
9 500-9 900 kHz	BROADCASTING 5.147		HF Sound Broadcasting	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
9 900-9 995 kHz	FIXED	FIXED	Government Fixed and Land Mobile services for both national and international coverage within the South Pacific and sub-Antarctic Islands	
9 995-10 003 kHz	STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) 5.111	STANDARD FREQUENCY 10 MHz		
10. 003-10. 005 MHz	STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111			
10.005-10.100 MHz	AERONAUTICAL MOBILE (R) 5.111	AERONAUTICAL MOBILE (R)	Flight operations based in Auckland	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 27
10.100-10.150 MHz	FIXED Amateur	Amateur	Amateur 30m Band	General User Radio Licence for Amateur Radio Operators
10.150-11.175 MHz	FIXED Mobile except aeronautical mobile (R)	FIXED	Government Fixed services for both national and international coverage 10.44 – 10.76 MHz SRD usage	General User Radio Licence for Short Range Devices
11.175-11.275 MHz	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	Government Aeronautical services	General User Radio Licence for Aeronautical Purposes IRR Appendix 26

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
11.275-11.400 MHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Flight operations based in Auckland	General User Radio Licence for Aeronautical Purposes IRR Appendix 27
11.400-11.600 MHz	FIXED	FIXED	Government Fixed services	
11.600-11.650 MHz	BROADCASTING S.134 5.146	FIXED		
11.650-12.050 MHz	BROADCASTING 5.147	BROADCASTING	HF Sound Broadcasting	
12.050-12.100 MHz	BROADCASTING 5.134 5.146	FIXED	Government Fixed services	
12.100-12.230 MHz	FIXED	FIXED		
12.230-13.200 MHz	MARITIME MOBILE 5.109 5.110 5.132 5.145	MARITIME MOBILE	Maritime mobile and coast stations 12.290 MHz distress, safety and calling	General User Radio Licence for Maritime Purposes PIB58: Radio Licence Policy Rules IRR Appendix 17
13.200-13.260 MHz	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	Government Aeronautical services	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 26
13.260-13.360 MHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Flight operations based in Auckland	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 27

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
13.360-13.410 MHz	FIXED RADIO ASTRONOMY 5.149	FIXED	Governmet Fixed services	
13.410-13.570 MHz	FIXED Mobile except aeronautical mobile (R) 5.150	FIXED Mobile	Government Fixed and Land Mobile services 13.550-13.570 MHz ISM & SRD Telemetry and Telecommand usage	General User Radio Licence for Short Range Devices
13.570-13.600 MHz	BROADCASTING 5.134 5.151	BROADCASTING	HF Sound Broadcasting	
13.600-13.800 MHz	BROADCASTING			
13.800-13.870 MHz	BROADCASTING 5.134 5.151			
13.870-14.000 MHz	FIXED Mobile except aeronautical mobile (R)	FIXED	Fixed and Land Mobile services	
14.000-14.250 MHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE	Amateur 20m Band	General User Radio Licence for Amateur Radio Operators
14.250-14.350 MHz	AMATEUR	AMATEUR		
14.350-14.990 MHz	FIXED Mobile except aeronautical mobile (R)	FIXED	Government Fixed services	
14.990-15.005 MHz	STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) 5.111	STANDARD FREQUENCY 15 MHz		

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
15.005-15.010 MHz	STANDARD FREQUENCY AND TIME SIGNAL Space research			
15.010-15.100 MHz	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	Government Aeronautical services	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 26
15.100-15.600 MHz	BROADCASTING	BROADCASTING	HF Sound Broadcasting	
15.600-15.800 MHz	BROADCASTING 5.134 5.146	FIXED	Government Fixed services HF Sound Broadcasting	
15.800-16.360 MHz	FIXED 5.153	FIXED	Government Aeronautical and Fixed services	
16.360-17.410 MHz	MARITIME MOBILE 5.109 5.110 5.132 5.145	MARITIME MOBILE	Maritime mobile and coast stations 16.420 MHz distress, safety and calling	General User Radio Licence for Maritime Purposes PIB58: Radio Licence Policy Rules IRR Appendix 17
17.410-17.480 MHz	FIXED	FIXED	Government Fixed services	
17.480-17.550 MHz	BROADCASTING 5.134 5.146	FIXED		
17.550-17.900 MHz	BROADCASTING	BROADCASTING Fixed	Government Fixed services HF Sound Broadcasting	PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
17.900-17.970 MHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Flight operations based in Auckland	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 27
17.970-18.030 MHz	AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	Government Aeronautical services	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules IRR Appendix 26
18.030-18.052 MHz	FIXED	FIXED	Government Fixed services	
18.052-18.068 MHz	FIXED Space research	FIXED		
18.068-18.168 MHz	AMATEUR AMATEUR-SATELLITE	AMATEUR	Amateur 17m Band	General User Radio Licence for Amateur Radio Operators
18.168-18.780 MHz	FIXED Mobile except aeronautical mobile	FIXED	Government Fixed and Land Mobile services	
18.780-18.900 MHz	MARITIME MOBILE	MARITIME MOBILE	Maritime mobile ship station	IRR Appendix 17
18.900-19.020 MHz	BROADCASTING 5.134 5.146	BROADCASTING		
19.020-19.680 MHz	FIXED	FIXED	Government Fixed services	
19.680-19.800 MHz	MARITIME MOBILE 5.132	MARITIME MOBILE	Maritime mobile coast station	PIB58: Radio Licence Policy Rules IRR Appendix 17
19.800-19.990 MHz	FIXED	FIXED	Government Fixed services	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
19.990-19.995 MHz	STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111	STANDARD FREQUENCY 20 MHz		
19.995-20.010 MHz	STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) 5.111	STANDARD FREQUENCY 20 MHz		
20.010-21.000 MHz	FIXED Mobile	FIXED	Government Fixed and Land Mobile services	
21.000-21.450 MHz	AMATEUR AMATEUR-SATELLITE	AMATEUR	Amateur 15m Band	General User Radio Licence for Amateur Radio Operators
21.450-21.850 MHz	BROADCASTING	BROADCASTING Fixed 4.4	Government Fixed services	
21.850-21.870 MHz	FIXED	FIXED		
21.870-21.924 MHz	FIXED 5.155B	FIXED		
21.924-22.000 MHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Flight operations based in Auckland	General User Radio Licence for Aeronautical Purposes IRR Appendix 27
22.000-22.855 MHz	MARITIME MOBILE 5.132	MARITIME MOBILE	Maritime mobile and coast stations	PIB58: Radio Licence Policy Rules IRR Appendix 17
22.855-23.000 MHz	FIXED	FIXED	Government Fixed services	
23.000-23.200 MHz	FIXED Mobile except aeronautical mobile (R)			
23.200-23.350 MHz	FIXED 5.156A AERONAUTICAL MOBILE (OR)	AERONAUTICAL MOBILE (OR)	Government Aeronautical services	PIB58: Radio Licence Policy Rules
23.350-24.000 MHz	FIXED MOBILE except aeronautical mobile 5.157	FIXED	Government Fixed services	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
24.000-24.890 MHz	FIXED LAND MOBILE	FIXED LAND MOBILE	Government Fixed and Land Mobile Services	
24.890-24.990 MHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE	Amateur 12m band	General User Radio Licence for Amateur Radio Operators
24.990-25.005 MHz	STANDARD FREQUENCY AND TIME SIGNAL(25 000 kHz)	STANDARD FREQUENCY 25 MHz		
25.005-25.010 MHz	STANDARD FREQUENCY AND TIME SIGNAL Space research			
25.010-25.070 MHz	FIXED MOBILE except aeronautical mobile	FIXED MOBILE	Government Fixed services	
25.070-25.210 MHz	MARITIME MOBILE	MARITIME MOBILE	Government Maritime services	IRR Appendix 17
25.210-25.550 MHz	FIXED MOBILE except aeronautical mobile	FIXED MOBILE	Government Fixed and Land Mobile services	
25.550-25.670 MHz	RADIO ASTRONOMY 5.149	FIXED 4.4	Government Fixed services	
25 670-26 100 MHz	BROADCASTING	BROADCASTING		
26.100-26.175 MHz	MARITIME MOBILE 5.132	MARITIME MOBILE		IRR Appendix 17
26.175-27.500 MHz	FIXED MOBILE except aeronautical mobile 5.150	FIXED MOBILE except aeronautical mobile	Government Fixed Services 26.175 - 26.3 MHz Meteorological (auroral radar) at Birdlings Flat	
			26.325 – 27.41 MHz Citizen Band "CB" radio service	General User Radio Licence for Citizen Band Radio

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
26.175-27.500 MHz (Continued)	FIXED MOBILE except aeronautical mobile 5.150 (Continued)	FIXED MOBILE except aeronautical mobile	26.95 - 27.3 MHz Local area paging services ISM usage SRD unrestricted usage Aeronautical model control Amateur	General User Radio Licence for Short Range Devices General User Radio Licence for Aeronautical Model Control Short Range Devices General User Radio Licence for Amateur Radio Operators
27.500-28.000 MHz	METEOROLOGICAL AIDS FIXED MOBILE	FIXED MOBILE	Government Fixed and Land Mobile services	
28.000-29.700 MHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE	Amateur 10m Band	General User Radio Licence for Amateur Radio Operators
29.700-30.005 MHz	FIXED MOBILE	FIXED MOBILE	29.7 - 30.0 MHz SRD unrestricted usage Aeronautical model control Government Fixed and Land Mobile services 29.8 - 30.00 MHz Telemetry and telecommand	General User Radio Licence for Short Range Devices General User Radio Licence for Aeronautical Model Control Short Range Devices

2.3.4 VHF Band (30 - 300 MHz)

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
30.005-30.01 MHz	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	UNALLOCATED		
30.01-37.5 MHz	FIXED MOBILE	FIXED MOBILE	30.4 - 37.5 MHz Government Fixed and Land Mobile services 30.05 - 30.8 MHz Cordless Telephone “CT1 Band” base transmit 30.8 – 31.5 MHz SRD usage 31.3 - 31.6 Radio Paging usage 31.5 – 32 MHz Aeronautical model control SRDs 33.40 MHz TV Sound IF 35 – 37 MHz Aeronautical model control SRDs 35.5-37.2 MHz SRD unrestricted usage	General User Radio Licence for Short Range Devices General User Radio Licence for Cordless Telephones General User Radio Licence for Aeronautical Model Control Short Range Devices
37.5-38.25 MHz	FIXED MOBILE Radio astronomy 5.149	FIXED MOBILE	Government Fixed and Land Mobile services	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
38.25-39.986 MHz	FIXED MOBILE		Government Fixed and Land Mobile services 38.90 MHz TV Vision IF 39 - 39.7 MHz Aeronautical model control SRDs 39.7 - 40.5 MHz Cordless Telephone “CT1 Band” Mobile Transmit	General User Radio Licence for Aeronautical Model Control Short Range Devices General User Radio Licence for Cordless Telephones
39.986-40.02 MHz	FIXED MOBILE Space research	FIXED MOBILE		
40.020-40.980 MHz	FIXED MOBILE 5.150		Government Fixed and Land Mobile services 40.5 – 40.66 MHz Aeronautical model control SRDs 40.66 – 40.7 MHz SRD usage Telemetry and Telecommand 40.7 – 41 MHz Aeronautical model control SRDs 40.8 – 41 MHz SRD usage Auroral Radar at Birdlings Flat	General User Radio Licence for Short Range Devices General User Radio Licence for Aeronautical Model Control Short Range Devices
40.98 – 41.015	FIXED MOBILE Space research			
41.015-44 MHz	FIXED MOBILE			
44-47 MHz	FIXED MOBILE 5.162	BROADCASTING	44-51 MHz VHF television broadcasting under MR regime (MR47) Radio Spectrum Auctions	Broadcasting POLDOCs Radio Spectrum Auctions

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
47-50 MHz	FIXED MOBILE BROADCASTING	BROADCASTING	44-51 MHz VHF television broadcasting under MR regime (MR47) Radio Spectrum Auctions	Broadcasting POLDOCs Radio Spectrum Auctions
50-54 MHz	AMATEUR 5.166 5.170	50 - 51 MHz FIXED MOBILE BROADCASTING AMATEUR		
		51 - 54 MHz FIXED MOBILE AMATEUR	Government Fixed and Land Mobile services Amateur 6m Band	General User Radio Licence for Amateur Radio Operators
54-68 MHz	FIXED MOBILE BROADCASTING	FIXED MOBILE BROADCASTING	VHF television broadcasting under MR regime (MR48)	Broadcasting POLDOCs Radio Spectrum Auctions
68-74.8 MHz	FIXED MOBILE 5.149	FIXED MOBILE	Government and Commercial Fixed and Land Mobile Services 72 – 72.5 MHz SRD usage 72 - 72.8 MHz Aeronautical Model Control 72.8 - 73 MHz Cordless Telephone “CT1 Band” Mobile Transmit	General User Radio Licence for Short Range Devices General User Radio Licence for Cordless Telephones General User Radio Licence for Aeronautical Model Control Short Range Devices
74.8-75.2 MHz	AERONAUTICAL RADIONAVIGATION 5.180	AERONAUTICAL RADIONAVIGATION		
75.2-75.4 MHz	FIXED MOBILE	MOBILE	75.2 - 77.1 MHz Land Mobile “ESA” Band Base Transmit	PIB23: Mobile Service bands in New Zealand

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
75.4-87 MHz	FIXED MOBILE	MOBILE	76.1 – 78.1 MHz Land Mobile "ESA" Band Simplex 78.1 - 80 MHz Land Mobile "ESA" Band Mobile Transmit 81 – 87.475 MHz Land Mobile "A" Band	PIB58: Radio Licence Policy Rules PIB23: Mobile Service bands in New Zealand
87-100 MHz	FIXED MOBILE BROADCASTING	FIXED MOBILE BROADCASTING	81 – 87.475 MHz Land Mobile "A" Band 87.5 - 88.4 MHz Low power FM sound broadcasting 87.5 - 108 MHz SRD usage 88 - 108 MHz under Ministerial Directive	PIB58: Radio Licence Policy Rules PIB23: Mobile Service bands in New Zealand General User Radio Licence for Low Power FM Broadcasting General User Radio Licence for Short Range Devices Ministerial Directive to CEO MED
			88.4 – 106.63 MHz FM Sound broadcasting band Under MR regime (MR207)	Radio Spectrum Auctions Broadcasting POLDOCs

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
100-108 MHz	BROADCASTING	BROADCASTING	88.4 - 106.63 MHz FM sound broadcasting band Under MR regime (MR207)	Radio Spectrum Auctions Broadcasting POLDOCs
			106.63 - 108 MHz low power FM sound broadcasting 87.5 - 108 MHz SRD usage 88-108 MHz under Ministerial Directive	General User Radio Licence for Short Range Devices General User Radio Licence for Low Power FM Broadcasting Ministerial Directive to CEO MED
108-117.975 MHz	AERONAUTICAL RADIONAVIGATION 5.197A	AERONAUTICAL RADIONAVIGATION	108 - 112 MHz ILS Localisers at some airports	
			112 - 117.975 MHz VOR Aeronautical Beacons	
117.975-137 MHz	AERONAUTICAL MOBILE (R) 5.111 5.200	AERONAUTICAL MOBILE (R)	117.975 - 130 MHz widespread aeronautical use 121.5 MHz Search and Rescue 123.1 MHz Low power search and rescue transceivers 132 - 132.6 MHz aeronautical repeaters base transmit 135.4 - 136 MHz aeronautical repeaters base receive 136 - 137 MHz Aeronautical data use	General User Radio Licence for Aeronautical Purposes General User Radio Licence for Emergency Transmitters PIB23: Mobile Service bands in New Zealand PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
137-137.025 MHz	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.208	MOBILE-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile	137-138 MHz Government service usage	
137.025-137.175 MHz	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.208			
137.175-137.825 MHz	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.208			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
137.825-138 MHz	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.208			
138-143.6 MHz	FIXED MOBILE Space research (space-to-Earth)	MOBILE	138-144 MHz Land mobile "ESB Band"	PIB23: Mobile Service bands in New Zealand PIB58: Radio Licence Policy Rules
143.6-143.65 MHz	FIXED MOBILE SPACE RESEARCH(space-to-Earth)			
143.65-144 MHz	FIXED MOBILE Space research (space-to-Earth)			
144-146 MHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR SATELLITE	144-148 MHz Amateur 2m Band Limited Government service usage	General User Radio Licence for Amateur Radio Operators
146-148 MHz	AMATEUR FIXED MOBILE	AMATEUR		

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
148.000-149.900 MHz	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221	MOBILE MOBILE-SATELLITE (Earth-to-space)	Mobile Satellite Services Civil Defence and Emergency service use throughout New Zealand	General User Radio Licence for Satellite Services PIB58: Radio Licence Policy Rules
149.900-150.050 MHz	MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223	RADIONAVIGATION-SATELLITE MOBILE-SATELLITE (Earth-to-space)		
150.050-156.4875 MHz	FIXED MOBILE 5.226	MOBILE	150.05-156 MHz Land Mobile “E” Band	PIB23: Mobile Service bands in New Zealand PIB58: Radio Licence Policy Rules
156.4875-156.5625	MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227	MARITIME MOBILE	156-157.6 MHz Maritime Mobile VHF Band 156.8 MHz distress, safety, and calling	IRR Appendix 18 General User Radio Licence for Maritime Purposes PIB23: Mobile Service bands in New Zealand PIB58: Radio Licence Policy Rules
156.5625-156.7625 MHz	FIXED MOBILE 5.226			
156.7625-156.8375 MHz	MARITIME MOBILE (distress and calling) 5.111 5.226	MARITIME MOBILE (distress and calling)		
156.8375-174 MHz	FIXED MOBILE 5.226 5.227A	FIXED MOBILE		

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
156.8375-174 MHz (Continued)	FIXED MOBILE 5.226 5.227A (Continued)	FIXED MOBILE	157.6-158.07 MHz Wide-Area Paging Band 158.07-160.575 MHz Land Mobile “MS” band: Mobile transmit 158.8 – 160.1 MHz Mobile Radio Reporter “RR” band 158.6-158.775 MHz “MS” Simplex band 159.1 – 159.375 MHz Bush winch simplex band 160.1-160.6 MHz SRD unrestricted usage 160.1 - 160.3 MHz Telemetry and Telecommand 160.3 - 160.6 MHz Radio Paging 160.6-160.875 MHz Maritime Mobile 160.925-160.95 MHz Maritime Mobile 160.975-161.475 MHz “MS” Base transmit band 161.5-162.2 MHz Maritime Mobile	PIB23: Mobile Service bands in New Zealand General User Radio Licence for Short Range Devices General User Radio Licence for Maritime Purposes PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
156.8375-174 MHz (Continued)	FIXED MOBILE 5.226 5.227A (Continued)	FIXED MOBILE	162.2-162.46 MHz Fixed "EE" band 162.58 - 165.33 MHz Land Mobile "EE" band 165.47 - 165.7 MHz Fixed "EE" band 165.7 - 166.8 MHz Land Mobile "EE" band 166.8 - 167.0 MHz Fixed "EE" band 167.18 - 169.93 MHz Land Mobile "EE" band 170.05 - 170.3 MHz Fixed "EE" band 170.3 – 173 MHz Land Mobile "EE" band 173.7 – 173.975 MHz Bush winch simplex band 173 - 174 MHz SRDs with some fixed and land mobile simplex use	PIB22: Fixed Service Bands in New Zealand PIB23: Mobile Service bands in New Zealand General User Radio Licence for Short Range Devices PIB58: Radio Licence Policy Rules
174-223 MHz	FIXED MOBILE BROADCASTING	BROADCASTING	174-230 MHz Under MR regime (MR49) VHF Television (Band III) Radiomicrophones	Radio Spectrum Auctions Broadcasting POLDOCs Cabinet decisions – CAB Min (09) 45/12 Digital Switchover

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
223-230 MHz	FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation	BROADCASTING (Continued)	174-230 MHz Under MR regime (MR49) VHF Television (Band III) Radiomicrophones	Radio Spectrum Auctions Broadcasting POLDOCs Cabinet decisions – CAB Min (09) 45/12 Digital Switchover General User Spectrum Licence - VHF radiomicrophone
230-235 MHz	FIXED MOBILE AERONAUTICAL RADIONAVIGATION	FIXED MOBILE AERONAUTICAL RADIONAVIGATION	230-300 MHz Government Service usage	
235-267 MHz	FIXED MOBILE 5.111 5.199 5.254 5.256	FIXED MOBILE	230-300 MHz Government Service usage 235 – 300 MHz SRD determination, telemetry and telecommand 243 MHz Search and Rescue Service	General User Radio Licence for Short Range Devices General User Radio Licence for Emergency Transmitters
267-272 MHz	FIXED MOBILE Space operation (space-to-Earth) 5.254 5.257	FIXED MOBILE		
272-273 MHz	SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254	FIXED MOBILE		
273-312 MHz	FIXED MOBILE 5.254	FIXED MOBILE	273 - 300 MHz Government usage 300-322 MHz SRD determination, telemetry and telecommand	General User Radio Licence for Short Range Devices

2.3.5 UHF Band (300 - 3000 MHz)

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
273-312 MHz	FIXED MOBILE 5.254	FIXED MOBILE	273 - 300 MHz Government usage	General User Radio Licence for Short Range Devices
312-315 MHz	FIXED MOBILE Mobile-satellite (Earth-to-space) 5.254 5.255		300-322 MHz SRD determination, telemetry and telecommand	
315-322 MHz	FIXED MOBILE 5.254			
322-328.6 MHz	FIXED MOBILE RADIO ASTRONOMY 5.149			
328.6-335.4 MHz	AERONAUTICAL RADIONAVIGATION 5.258	AERONAUTICAL RADIONAVIGATION	Aeronautical ILS glidepath transmitters at airports	
335.4-387 MHz	FIXED MOBILE 5.254	FIXED MOBILE	335.4-399.9 MHz Government usage	
387-390 MHz	FIXED MOBILE Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255			
390-399.9 MHz	FIXED MOBILE 5.254			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
399.9-400.05 MHz	MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260 5.220	RADIONAVIGATION SATELLITE	Mobile Satellite Services	General User Radio Licence for Satellite Services
400.05-400.15 MHz	STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261	STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE		
400.15-401 MHz	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.264	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth)	Meteorological radio-sondes	
401-402 MHz	METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Land Mobile	Meteorological Aids	PIB58: Radio Licence Policy Rules
402-403 MHz	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed	402 – 406 MHz SRDs limited to biomedical telemetry	PIB58: Radio Licence Policy Rules General User Radio Licence for Short Range Devices

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
403-406 MHz	METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	METEOROLOGICAL AIDS Fixed Mobile	404 – 406 MHz Fixed "I" band 402 – 406 MHz SRDs limited to biomedical telemetry Meteorological Aids Government fixed and land mobile services	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules General User Radio Licence for Short Range Devices
406-406.1 MHz	MOBILE-SATELLITE (Earth-to-space) 5.266 5.267	MOBILE-SATELLITE (Earth-to-space)	Satellite distress beacons (SDBs)	PIB58: Radio Licence Policy Rules General User Radio Licence for Emergency Transmitters
406.1-410 MHz	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	FIXED MOBILE	Land Mobile Trunked dispatch "TD" band mobile transmit 406.1-412 MHz	PIB58: Radio Licence Policy Rules PIB22: Fixed Service Bands in New Zealand PIB23: Mobile Service bands in New Zealand
410-420 MHz	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268		412 – 414 MHz Fixed "I" band 413.8 – 414.1 MHz “TD” band simplex	
410-420 MHz (continued)			414.1-420 MHz “TD” band base transmit	PIB58: Radio Licence Policy Rules PIB23: Mobile Service bands in New Zealand
420-430 MHz	FIXED MOBILE except aeronautical mobile Radiolocation	FIXED MOBILE except aeronautical mobile	420-430 MHz Fixed “I” Band	PIB58: Radio Licence Policy Rules PIB22: Fixed Service Bands in New Zealand

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
430-432 MHz	RADIOLOCATION Amateur	RADIOLOCATION Amateur	Amateur 70cm Band	PIB58: Radio Licence Policy Rules General User Radio Licence for Short Range Devices General User Radio Licence for Amateur Radio Operators
432-438 MHz	RADIOLOCATION Amateur Earth exploration-satellite (active) 5.279A 5.282	RADIOLOCATION Amateur Amateur Satellite	433.05 - 434.79 MHz Short range devices 435 - 438 MHz Amateur 70cm Band	
438-440 MHz	RADIOLOCATION Amateur	RADIOLOCATION Amateur	Amateur 70cm Band	PIB58: Radio Licence Policy Rules General User Radio Licence for Amateur Radio Operators
440-450 MHz	FIXED MOBILE except aeronautical mobile Radiolocation 5.286	FIXED MOBILE except aeronautical mobile Radiolocation	440 - 449 MHz Fixed "JL" band 444-445 MHz SRD Biomedical telemetry usage 449.750 - 450 MHz Land Mobile “CNX” band simplex	PIB58: Radio Licence Policy Rules PIB22: Fixed Service Bands in New Zealand General User Radio Licence for Short Range Devices PIB23: Mobile Service bands in New Zealand

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
450-455 MHz	FIXED MOBILE 5.286AA 5.209 5.286 5.286A	FIXED MOBILE	450 - 450.275 MHz Fixed “JC” Band 450.275 - 453.3: MHz Land mobile "C" band, mobile transmit 453.3 - 453.625: MHz Land mobile "CNX" band simplex 453.625 - 454.975 MHz Fixed “JB” band 454.975 - 455.3: MHz Land Mobile "C" Band Simplex 455.3 - 458.3: MHz Land Mobile "C" Band base Transmit	PIB58: Radio Licence Policy Rules PIB22: Fixed Service Bands in New Zealand PIB23: Mobile Service bands in New Zealand
455-456 MHz	FIXED MOBILE 5.286AA 5.209 5.286A			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
456-459 MHz	FIXED MOBILE 5.286AA 5.287	FIXED MOBILE	455.3 - 458.3: MHz Land Mobile "C" Band base Transmit 457.5125 - 457.5875 MHz Maritime onboard communications 458.34 - 458.53 MHz Land Mobile “D” Band Simplex 458.54-458.61 MHz SRD unrestricted usage 458.61-458.66 MHz Land Mobile “D” Band Simplex	PIB58: Radio Licence Policy Rules PIB22: Fixed Service Bands in New Zealand PIB23: Mobile Service bands in New Zealand General User Radio Licence for Maritime UHF On-board Communications General User Radio Licence for Short Range Devices
459-460 MHz	FIXED MOBILE 5.286AA 5.209 5.286A		458.6625 - 460.0125 MHz Fixed “JB” and “JNB” Band 460.025 - 461.425 MHz Fixed “JD” Band	
460-470 MHz	FIXED MOBILE 5.286AA Meteorological-Satellite (space-to-Earth) 5.287 5.289		461.425 - 461.475 MHz Fixed “JE” Band	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
460-470 MHz (Continued)	FIXED MOBILE 5.286AA Meteorological-Satellite (space-to-Earth) 5.287 5.289 (Continued)	MOBILE	461.475-461.8125 MHz Land Mobile “DNX” and “DNNX” Band Simplex Channels 461.8125-464.8125: MHz Land Mobile “DN” and “DNN” Band Base Transmit 464.8125-465.1875: MHz Land Mobile “DNX” and “DNNX” Band Simplex Channels	PIB58: Radio Licence Policy Rules PIB23: Mobile Service bands in New Zealand PIB22: Fixed Service Bands in New Zealand General User Radio Licence for Short Range Devices General User Radio Licence for Maritime UHF On-board Communications
		FIXED	465.1875-465.2375 MHz Fixed “JF” Band 465.2375 - 466.6375 MHz Fixed “JD” Band Beta Transmit	
		MOBILE	466.675 - 466.8 MHz Land Mobile “DNX” and “DNNX” Band Simplex Channels	
			466.8-466.850 MHz Short range devices	
			466.85-467.0 MHz Land Mobile "DNX" and “DNNX” Band Simplex Channels 467.0-470.0 MHz "DN" and “DNN” Band Mobile Transmit 467.5125 - 467.5875 MHz Maritime onboard communications	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
470-585 MHz	FIXED MOBILE BROADCASTING	MOBILE	470-470.5 MHz SRD usage 470.5-471 MHz Land Mobile “FNX” and “FNNX” Band Simplex 471.0 - 471.5 MHz SRD usage 471.5-472.0 MHz Land Mobile “FNX” and “FNNX” Band Simplex 472-476.0 MHz Land Mobile "FN" and “FNN” Band Mobile Transmit channels 476.0-476.4 MHz Land Mobile "FNX" and “FNNX” Band Simplex 476.4-477.425 MHz Personal Radio Service “PRS” Band	General User Radio Licence for Short Range Devices PIB58: Radio Licence Policy Rules PIB23: Mobile Service bands in New Zealand General User Radio Licence for Citizen band radio

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
470-585 MHz (Continued)	FIXED MOBILE BROADCASTING (Continued)	MOBILE (Continued)	477.425-477.9875 MHz Land Mobile "FNX" and "FNNX" Band Simplex 477.9875 - 481.9875 MHz Land Mobile "FN" and "FNN" Band Base Transmit 481.9875-483.9875 MHz Land Mobile "FNX" and "FNNX" Band Simplex 483.9875 - 487.9875 MHz Land Mobile "FN" and "FNN" Band Base Transmit 487.9875-490.0 MHz Land Mobile "FNX" and "FNNX" Band Simplex 490.0-494.0 MHz Land Mobile "FN" and "FNN" Band Mobile Transmit	PIB23: Mobile Service bands in New Zealand PIB58: Radio Licence Policy Rules Ministerial Directive to CEO MED
			494 - 502 MHz Land Mobile "ESC" Band reserved for public safety	
		502 - 694 MHz BROADCASTING	UHF Television Digital Terrestrial Television Analog Television (until December 2013)	Ministerial Directive to CEO MED Cabinet decisions – CAB Min (09) 45/12 Digital Switchover

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
470-585 MHz (Continued)	FIXED MOBILE BROADCASTING (Continued)	502 - 694 MHz BROADCASTING (Continued)	UHF Television Digital Terrestrial Television Analog Television (until December 2013) under the Management Rights Regime Audio/video senders SRDs Radiomicrophone SRDs	Radio Spectrum Auctions Broadcasting POLDOCs General User Radio Licence for Short Range Devices General User Spectrum Licence for UHF radiomicrophones Cabinet decisions – CAB Min (09) 45/12 Digital Switchover Maori Television Service (Te Aratuku Whakaata Irirangi Maori) Act 2003
585-610 MHz	FIXED MOBILE BROADCASTING RADIONAVIGATION 5.149			
610-890 MHz	FIXED MOBILE 5.313A 5.317A BROADCASTING 5.149 5.311A 5.320	694 – 806 MHz BROADCASTING (until December 2013) MOBILE (from December 2013)		

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
610-890 MHz (Continued)	FIXED MOBILE 5.313A 5.317A BROADCASTING 5.149 5.311A 5.320 (Continued)	FIXED	806 - 812 MHz Fixed "KK" Band (12 x 500 kHz channelling)	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
		MOBILE	812 - 813 MHz Land Mobile "ESD" Band (Emergency Services) Mobile Transmit 813 - 819 MHz Land Mobile "TS" Band (Trunked Dispatch) Mobile Transmit 819 - 824 MHz SRD and spread spectrum device usage 824 - 825.015 MHz unused	PIB23: Mobile Service bands in New Zealand General User Radio Licence for Short Range Devices PIB58: Radio Licence Policy Rules
		MOBILE	825.015 - 840 MHz Cellular Communication Services (Private Management Rights)	Radio Spectrum Auctions
		FIXED MOBILE	841 - 851 MHz Fixed "KL" Band restricted for Studio to Transmitter Linking 851 - 857 MHz Fixed "KK" Band (12 x 500 kHz channelling) 857 - 858 MHz Land Mobile "ESD" Band (Emergency Services) Base Transmit	PIB22: Fixed Service Bands in New Zealand PIB23: Mobile Service bands in New Zealand PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
610-890 MHz (Continued)	FIXED MOBILE 5.313A 5.317A BROADCASTING 5.149 5.311A 5.320 (Continued)	FIXED MOBILE (Continued)	858 - 864 MHz Land Mobile "TS" Band (Trunked Dispatch) Base Transmit 864 - 868.1 MHz Cordless Telephone "CT2" Band 864 - 870 MHz Short range devices GURL band 868.1 - 869.025 MHz Land Mobile "TX" Band Simplex operation 869.025 - 870.015 MHz unused	PIB23: Mobile Service bands in New Zealand PIB58: Radio Licence Policy Rules General User Radio Licence for Cordless Telephones General User Radio Licence for Short Range Devices
			870.015 - 890 MHz Cellular Communication Services (Private Management Rights)	Radio Spectrum Auctions
890-942 MHz	FIXED MOBILE 5.317A BROADCASTING Radiolocation	FIXED MOBILE	890 - 915 MHz Cellular Communication Services (Private Management Rights)	Radio Spectrum Auctions
			915 - 921 MHz Fixed "K" Band - Studio to Transmitter Links (STLs) *No new Fixed licences permitted. Allocated for SRDs from 24 December 2015* 915 – 921 MHz SRD usage	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules General User Radio Licence for Short Range Devices

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
890-942 MHz (continued)	FIXED MOBILE 5.317A BROADCASTING Radiolocation (continued)	FIXED MOBILE (continued)	921 - 928 MHz ISM, SRD, and Amateur usage 928 - 935 MHz Fixed "K" Band - Studio to Transmitter Links (STLs)	General User Radio Licence for Short Range Devices General User Radio Licence for Amateur Radio Operators PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
942-960 MHz	FIXED MOBILE 5.317A BROADCASTING 5.320	FIXED MOBILE	935 - 960 MHz Cellular Communication Services (Private Management Rights)	Radio Spectrum Auctions
960-1 164 MHz	AERONAUTICAL RADIONAVIGATION 5.328 AERONAUTICAL MOBILE (R) 5.327A	AERONAUTICAL RADIONAVIGATION	Aeronautical Radionavigation (Distance Measuring Equipment and Secondary Surveillance Radar)	General User Radio Licence for Aeronautical Purposes
1 164-1 215 MHz	AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.328A			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
1 215-1 240 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.332	RADIOLOCATION RADIONAVIGATION-SATELLITE	Radiolocation Radionavigation	
1 240-1 300 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.282 5.332 5.335A	RADIOLOCATION RADIONAVIGATION-SATELLITE Amateur	1240-1300 MHz Amateur Radio	General User Radio Licence for Amateur Radio Operators
1 300-1 350 MHz	AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.149 5.337A	AERONAUTICAL RADIONAVIGATION Radiolocation	Aeronautical Radar	
1 350-1 400 MHz	RADIOLOCATION 5.338A 5.149 5.339	RADIOLOCATION		
1 400-1 427 MHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	RADIO ASTRONOMY SPACE RESEARCH (passive)	Astronomy and Space Research All emissions prohibited	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
1 427-1 429 MHz	SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.338A 5.341	FIXED	1427-1429.5 MHz Fixed "LL" Band for narrow band high efficiency digital fixed links 1429-1461.5 MHz Fixed "L" Band point to point linking	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
1 429-1 452 MHz	FIXED MOBILE 5.338A 5.341			
1 452-1 492 MHz	FIXED MOBILE BROADCASTING 5.345 BROADCASTING-SATELLITE 5.208B 5.345 5.341	FIXED BROADCASTING BROADCASTING SATELLITE (Sound)	1461.5-1490 MHz under Ministerial Directive 1490 - 1522 MHz Fixed "L" band	POLDOC Spectrum Band Plans 005 PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules Ministerial Directive to CEO MED
1 492-1 518 MHz	FIXED MOBILE 5.341	FIXED	1490 - 1522 MHz Fixed "L" Band 1522-1524 MHz Fixed "LL" Band for narrow band high efficiency digital fixed links	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
1 518-1 525	FIXED MOBILE MOBILE-SATELLITE (space-to-earth) 5.348 5.348A 5.348B 5.351A 5.341			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
1 525-1 530 MHz	SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A Earth exploration-satellite Mobile 5.341 5.351 5.354	MOBILE-SATELLITE (space-to-Earth)	1525 - 1559 MHz Mobile Satellite service downlink	
1 530-1 535 MHz	SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth)) 5.208B 5.351A 5.353A Earth exploration-satellite Fixed Mobile 5.341 5.351 5.354			
1 535-1 559 MHz	MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.341 5.351 5.353A 5.354 5.356 5.357 5.357A			
1 559-1 610 MHz	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space to space) 5.208B 5.328B 5.329A 5.341	RADIONAVIGATION-SATELLITE (Space-to-Earth)	1559 - 1610 MHz Radionavigation Satellite (space-to-Earth) Global Positioning System (GPS)	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
1 610-1 610.6 MHz	MOBILE – SATELLITE (Earth-to-Space) 5.351A AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-Space) 5.341 5.364 5.366 5.367 5.368 5.372	MOBILE SATELLITE (Earth-to-Space)	1610 - 1660.5 GHz Mobile Satellite Service 1610 - 1660.5 GHz Aeronautical Mobile Satellite Service 1610 - 1660.5 GHz Maritime Mobile Satellite Service	General User Radio Licence for Satellite Services General User Radio Licence for Aeronautical Purposes General User Radio Licence for Maritime Purposes
1 610.6-1 613.8 MHz	MOBILE-SATELLITE (Earth-To-Space 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-Space) 5.149 5.341 5.364 5.366 5.367 5.368			
1 613.8-1 626.5 MHz	MOBILE-SATELLITE (Earth-to-Space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-Satellite (Space-to-Earth) 5.208B Radiodetermination-satellite (Earth-to-Space) 5.341 5.364 5.365 5.366 5.367 5.368 5.372			
1 626.5-1 660 MHz	MOBILE-SATELLITE (Earth-to-Space) 5.351A 5.341 5.351 5.353A 5.354 5.357A 5.374 5.375 5.376	MOBILE-SATELLITE (Earth-to-Space)	1626.5 - 1660 MHz Mobile Satellite (Earth-to-Space) - INMARSAT uplinks paired with 1525 - 1559 MHz	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
1 660-1 660.5 MHz	MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY 5.149 5.341 5.351 5.354 5.376A	RADIO ASTRONOMY		
1 660.5-1 668 MHz	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379A	RADIO ASTRONOMY SPACE RESEARCH (passive) METEOROLOGICAL AIDS		
1 668-1 668.4 GHz	MOBILE-SATELLITE (Earth-to-space 5.351A 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (Passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A			
1 668.4-1 670 MHz	METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C RADIO ASTRONOMY 5.149 5.341 5.379D 5.379E			
1 670-1 675 MHz	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.341 5.379D 5.379E 5.380A	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE	Meteorological satellite downlinks	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
1 675-1 690 MHz	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341	METEOROLOGICAL-SATELLITE (Space-to-Earth)	Meteorological Satellite	
1 690 - 1 700 MHz	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341			
1 700-1 710 MHz	FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341			
1 710-1 930 MHz	FIXED MOBILE 5.384A 5.388A 5.149 5.341 5.385 5.388	FIXED MOBILE	1710 - 1880 MHz Cellular communication services (Private Management Rights)	Radio Spectrum Auctions
			1880 - 1900 MHz DECT cordless telephone systems 1895 - 1920 MHz PHS cordless telephone systems	General User Radio Licence for Cordless Telephones
1 930-1 970 MHz	FIXED MOBILE 5.388A 5.388		1920 - 1980 MHz Cellular communication services (Private Management Rights)	Radio Spectrum Auctions
1 970-1 980 MHz	FIXED MOBILE 5.388A 5.388			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
1 980-2 010 MHz	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space)	Mobile Satellite Service uplink	General User Radio Licence for Satellite Services
2010-2 025 MHz	FIXED MOBILE 5.388A 5.388	FIXED MOBILE	2010 - 2025 MHz TDD, 3G cellular technologies and fixed services (Private Management Rights)	Radio Spectrum Auctions
2 025-2 110 MHz	SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392		2025-2110 MHz Fixed Wireless Access and Fixed services (Private Management Rights)	
2 110-2 120 MHz	FIXED MOBILE 5.388A SPACE RESEARCH (deep space) (Earth-to-space) 5.388		2110-2170 MHz Cellular communication services (Private Management Rights)	
2 120-2 160 MHz	FIXED MOBILE 5.388A 5.388			
2 160-2 170 MHz	FIXED MOBILE 5.388A 5.388			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
2 170-2 200 MHz	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A 5.388 5.389A	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth)		
2 200-2 290 MHz	SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) 5.392	FIXED MOBILE	2200 - 2300 MHz Private Management Rights - suitable for FWA and fixed services	Radio Spectrum Auctions
2 290-2 300 MHz	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)			
2 300-2 450 MHz	FIXED MOBILE 5.384A RADIOLOCATION Amateur 5.150 5.282 5.396	FIXED MOBILE Amateur	2300 - 2395 MHz Private Management Rights - suitable for MMDS, FWA or Fixed services	
			2396-2450 MHz Amateur radio usage 2400 – 2483.5 MHz ISM band, short range devices	General User Radio Licence for Amateur Radio Operators
2 450-2 483.5 MHz	FIXED MOBILE RADIOLOCATION 5.150	FIXED MOBILE		General User Radio Licence for Short Range Devices

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
2 483.5-2 500 MHz	FIXED MOBILE MOBILE-SATELLITE (Space-to-Earth) 5.351A RADIOLOCATION Radiodetermination-satellite (space-to-Earth) 5.398 5.150 5.402	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth)	Mobile Satellite Service downlink	
2 500-2 520 MHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.414	FIXED MOBILE	2500 - 2690 MHz Private Management Rights for cellular and FWA services 2575 – 2620 MHz Managed Spectrum Park for local wireless services	Radio Spectrum Auctions Managed Spectrum Park
2 520-2 535 MHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.403			
2 535-2 655 MHz	FIXED MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.417C 5.417D 5.418A 5.418B 5.418C	FIXED MOBILE		

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
2 655-2 670 MHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical Mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.208B 5.420			
2 670-2 690 MHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A 5.419 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149			
2 690-2 700 MHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	RADIO ASTRONOMY SPACE RESEARCH	Astronomy Space Research	
2 700-2 900 MHz	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423	AERONAUTICAL RADIONAVIGATION Radiolocation Fixed under IRR 4.4	2700-2900 Fixed “OX” band Itinerant fixed linking for Television outside broadcast operations	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
2 900-3 100 MHz	RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427	RADIONAVIGATION RADIOLOCATION	2900 - 3400 MHz SRD use limited to radiolocation	General User Radio Licence for Short Range Devices

2.3.6 SHF Band (3 - 30 GHz)

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
2 900-3 100 MHz (continued)	RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427	RADIONAVIGATION RADIOLOCATION	2900 - 3400 MHz SRD use limited to radiolocation	General User Radio Licence for Short Range Devices
3 100-3 300 MHz	RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149	RADIOLOCATION		
3 300-3 400 MHz	RADIOLOCATION Amateur 5.149	RADIOLOCATION Amateur	2900 - 3400 MHz SRD use limited to radiolocation 3300 – 3410 MHz Amateur radio usage	General User Radio Licence for Amateur Radio Operators General User Radio Licence for Short Range Devices
3 400-3 500 MHz	FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile 5.432B Radiolocation 5.433 5.282	3400 - 3410 MHz RADIOLOCATION AMATEUR Amateur Satellite		
		3410 - 3500 MHz FIXED MOBILE	3410 – 3487 MHz Under Management Rights regime 3510 – 3587 MHz Under Management Rights regime	Radio Spectrum Auctions
3 500-3 600 MHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.433A Radiolocation 5.433	3500 - 3589 MHz FIXED RADIOLOCATION 3589 - 3600 MHz FIXED FIXED-SATELLITE (Space-to-Earth)		
			3589 – 3600 MHz Fixed Satellite “C” Band downlink	PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
3 600-3 700 MHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433 5.435	FIXED FIXED-SATELLITE (Space-to-Earth)	3600 - 4200 MHz Fixed 'P' band - usage must be co-ordinated with satellite earth stations operating in this band.	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
3 700-4 200 MHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	FIXED FIXED-SATELLITE (space-to-Earth)		
4 200-4 400 MHz	AERONAUTICAL RADIONAVIGATION 5.438 5.440	AERONAUTICAL RADIONAVIGATION	Radio Altimeters and associated ground transponders	General User Radio Licence for Aeronautical Purposes
4 400-4 500 MHz	FIXED MOBILE	FIXED	4400 – 5000 MHz Fixed “5 GHz” Band 4500 – 4800 MHz Planned fixed satellite service (space-to-Earth) as per IRR	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules IRR Appendix 30B
4 500-4 800 MHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE			
4 800-4 990 MHz	FIXED MOBILE 5.442 Radio astronomy 5.149 5.339			
4 990-5 000 MHz	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
5 000-5 010 MHz	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367			
5 010-5 030 MHz	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) (space-to-space) 5.328B 5.443B 5.367			
5 030-5091 MHz	AERONAUTICAL RADIONAVIGATION 5.367 5.444	RADIOLOCATION RADIONAVIGATION		
5 091-5150 MHz	AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE 5.444B 5.367 5.444 5.444A	RADIOLOCATION RADIONAVIGATION		
5 150-5 250 MHz	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B 5.446 5.447B 5.447C	AERONAUTICAL RADIONAVIGATION MOBILE except aeronautical mobile	5150 – 5350 MHz SRD usage, wireless LAN systems	General User Radio Licence for Short Range Devices PIB58: Radio Licence Policy Rules
5 250-5 255 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F 5.448A			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
5 255- 5 350 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.448A	MOBILE except aeronautical mobile	5150 – 5350 MHz SRD usage, wireless LAN systems	General User Radio Licence for Short Range Devices
5 350-5 460 MHz	EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D	AERONAUTICAL RADIONAVIGATION	5350 – 5470 MHz Airborne Doppler radar	General User Radio Licence for Aeronautical Purposes
5 460-5 470 MHz	RADIONAVIGATION 5.449 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.448D 5.448B			
5 470-5 570 MHz	MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.448B 5.452	MARITIME RADIONAVIGATION MOBILE except aeronautical mobile Radiolocation	5 470-5 725 MHz SRD usage GURL for radiolocation and wireless LAN 5 470-5 650 MHz Ground based Meteorological RADAR	General User Radio Licence for Short Range Devices PIB58: Radio Licence Policy Rules
5 570-5 650 MHz	MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.452			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
5 650-5 725 MHz	RADIOLOCATION MOBILE except aeronautical mobile 5.446A 5.450A Amateur Space research (deep space) 5.282	RADIOLOCATION MOBILE except aeronautical mobile Amateur	5 470 – 5 725 MHz SRD GURL for radiolocation and wireless LAN 5 650 – 5850 MHz Amateur radio GURL 5 725 – 5 875 MHz ISM band, SRD GURL 5 725 – 5 825 MHz Fixed radio links GURL	General User Radio Licence for Amateur Radio Operators General User Radio Licence for Short Range Devices General User Radio Licence for Fixed Radio Link Devices
5 725-5 830 MHz	RADIOLOCATION Amateur 5.150			
5 830-5 850 MHz	RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150	RADIOLOCATION Amateur Amateur Satellite (space-to-Earth)		
5 850-5 925 MHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Radiolocation 5.150	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	5 725 – 5 875 MHz ISM band, SRD GURL 5850 – 6725 MHz Fixed Satellite Service "C" band uplink 5925 - 6420 MHz Fixed “R” band 6420 - 7100 MHz Fixed “T” band	General User Radio Licence for Short Range Devices PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
5 925-6 700 MHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B MOBILE 5.149 5.440 5.458	FIXED FIXED-SATELLITE (Earth-to-space)		

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
6 700-7 075 MHz	FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C	FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth)	6420 – 7100 MHz Fixed “T” band 6725 – 7025 MHz Fixed Satellite Service	PIB22: Fixed Service Bands in New Zealand
7 075-7 145 MHz	FIXED MOBILE 5.458	FIXED	6420 – 7100 MHz Fixed “T” band 7100 – 7425 MHz Fixed “V” Band utilised for point to point linking and itinerant TV outside broadcasting	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
7 145-7 235 MHz	FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458 5.460			
7 235-7 250 MHz	FIXED MOBILE 5.458			
7 250-7 300 MHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 5.461			
7 300-7 450 MHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461		7425 – 7730 MHz Fixed “U” Band for point-to-point linking	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
7 450-7 550 MHz	FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461A	FIXED (continued)	7425 – 7730 MHz Fixed "U" Band for point-to-point linking	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
7 550-7 750 MHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile			
7 750-7 850 MHz	FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile		7730 – 8290 MHz Fixed "W" Band for point-to-point linking	
7 850-7 900 MHz	FIXED MOBILE except aeronautical mobile			
7 900-8 025 MHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.461			
8 025-8 175 MHz	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
8 175-8 215 MHz	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A	FIXED (continued)	7730 – 8290 MHz Fixed "W" Band	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
8 215-8 400 MHz	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A		8290 – 8500 MHz Fixed "Y" band	
8 400-8 500 MHz	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (Space-to-Earth)5.465			
8 500-8 550 MHz	RADIOLOCATION	RADIOLOCATION	8500 – 10600 MHz SRD GURL	General User Radio Licence for Short Range Devices
8 550-8 650 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.469A			
8 650-8 750 MHz	RADIOLOCATION			
8 750-8 850 MHz	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470	RADIOLOCATION AERONAUTICAL RADIONAVIGATION	8750 – 8850 MHz GURL for airborne Doppler radar 8500 – 10600 MHz SRD GURL	General User Radio Licence for Aeronautical Purposes General User Radio Licence for Short Range Devices

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
8 850-9 000 MHz	RADIOLOCATION MARITIME RADIONAVIGATION 5.472	RADIOLOCATION MARITIME RADIONAVIGATION	8500 – 10600 MHz SRD GURL	General User Radio Licence for Short Range Devices
9 000-9 200 MHz	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.473A	AERONAUTICAL RADIONAVIGATION Radiolocation		
9 200-9 300 MHz	RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.474	RADIOLOCATION MARITIME RADIONAVIGATION	8500 – 10600 MHz SRD GURL 9200 – 9500 MHz Maritime Radionavigation (RADAR)	General User Radio Licence for Short Range Devices General User Radio Licence for Maritime Purposes
9 300-9 500 MHz	RADIONAVIGATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.427 5.474 5.475 5.475A 5.475B 5.476A	RADIONAVIGATION Radiolocation		
9 500-9 800 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A	RADIOLOCATION	8500 – 10600 MHz SRD GURL	General User Radio Licence for Short Range Devices
9 800-9 900 MHz	RADIOLOCATION Earth exploration-satellite (active) Space research (active) Fixed 5.478A 5.478B			
9 900-10 000 MHz	RADIOLOCATION Fixed 5.479			
10-10.45 GHz	FIXED MOBILE RADIOLOCATION Amateur 5.479	RADIOLOCATION Amateur	10.00 – 10.50 GHz Amateur radio GURL 8500 – 10600 MHz SRD GURL	General User Radio Licence for Amateur Radio Operators

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
10.45-10.5 GHz	RADIOLOCATION Amateur Amateur-satellite	RADIOLOCATION	8500 – 10600 MHz SRD GURL	General User Radio Licence for Short Range Devices
10.5-10.55 GHz	FIXED MOBILE RADIOLOCATION	RADIOLOCATION FIXED	10.5 – 10.68 GHz Fixed "H" Band	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
10.55-10.6 GHz	FIXED MOBILE except aeronautical mobile Radiolocation			
10.6-10.68 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482 5.482A			
10.68-10.7 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	RADIO ASTRONOMY SPACE RESEARCH (passive)	Space Research (passive)	
10.7-11.7 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	FIXED	10.7 – 11.7 GHz Fixed "Z" Band	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
11.7-12.2 GHz	FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492 5.487 5.487A	BROADCASTING SATELLITE	11.7 – 12.75 GHz Satellite Ku band downlink 11.7 – 12.2 GHz under Ministerial Directive Broadcast satellite service	PIB58: Radio Licence Policy Rules EDC Min (03) 19/6 13 August 2003 Ministerial Directive to CEO MED
12.2-12.5 GHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING 5.484A 5.487	BROADCASTING (including DATACASTING) FIXED SATELLITE (space-to-Earth)	Fixed Satellite “Ku” Band downlink Broadcast Satellite “Ku” Band downlink Freeview and Sky TV satellite service	PIB58: Radio Licence Policy Rules EDC Min (03) 19/6 13 August 2003
12.5-12.75 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.493	BROADCASTING SATELLITE FIXED-SATELLITE (space-to-Earth)	Broadcast Satellite “Ku” Band downlink Freeview and Sky TV satellite service	PIB58: Radio Licence Policy Rules EDC Min (03) 19/6 13 August 2003
12.75-13.25 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth)	FIXED	Fixed “X” Band	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
13.25-13.4 GHz	EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A	EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION SPACE RESEARCH (active)	Aeronautical Radionavigation GURL for Airborne Doppler radar	General User Radio Licence for Aeronautical Purposes PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
13.4-13.75 GHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.501B	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH	Government radiolocation usage	
13.75-14 GHz	FIXED-SATELLITE (Earth-to-space) 5.484A RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research 5.502 5.503	FIXED SATELLITE (Earth-to-space)		
14-14.25 GHz	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.506A Space research 5.504A	FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space)	Fixed Satellite “Ku” Band uplink 14 - 14.25 GHz Maritime Mobile Satellite Service 14 - 14.5 GHz Aeronautical Mobile Satellite Service 14 - 14.5 GHz Mobile Satellite Service	PIB58: Radio Licence Policy Rules General User Radio Licence for Maritime Purposes General User Radio Licence for Aeronautical Purposes General User Radio Licence for Satellite Services
14.25-14.3 GHz	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.506A Space research 5.504A			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
14.3-14.4 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space) (Continued)	14 - 14.5 GHz Aeronautical Mobile Satellite Service 14 - 14.5 GHz Mobile Satellite Service	PIB58: Radio Licence Policy Rules General User Radio Licence for Aeronautical Purposes General User Radio Licence for Satellite Services
14.4-14.47 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A Space research (space-to-Earth) 5.504A			
14.47-14.5 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A Radio astronomy 5.149 5.504A			
14.5-14.8 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research	FIXED	14.5 – 15.35 GHz Fixed “G” Band	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
14.8-15.35 GHz	FIXED MOBILE Space research 5.339	FIXED (Continued)	14.5 – 15.35 GHz Fixed "G" Band	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
15.35-15.4 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	RADIO ASTRONOMY SPACE RESEARCH (passive)		
15.4-15.43 GHz	AERONAUTICAL RADIONAVIGATION 5.511D	AERONAUTICAL RADIONAVIGATION		
15.43-15.63 GHz	FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION 5.511C	FIXED-SATELLITE (space-to-Earth) (Earth-to-space) AERONAUTICAL RADIONAVIGATION		
15.63-15.7 GHz	AERONAUTICAL RADIONAVIGATION 5.511D	AERONAUTICAL RADIONAVIGATION		
15.7-16.6 GHz	RADIOLOCATION 5.513	RADIOLOCATION	15.70 – 17.30 GHz SRD usage	General User Radio Licence for Short Range Devices
16.6-17.1 GHz	RADIOLOCATION Space research (deep space) (Earth-to-space) 5.513	RADIOLOCATION Space research (deep space) (Earth-to-space)		
17.1-17.2 GHz	RADIOLOCATION	RADIOLOCATION		

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
17.2-17.3 GHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.513A	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active)	15.70 – 17.30 GHz SRD usage (Continued)	General User Radio Licence for Short Range Devices
17.3-17.7 GHz	FIXED-SATELLITE (Earth-to-space) 5.516 Radiolocation	FIXED-SATELLITE (Earth-to-space) Radiolocation		PIB58: Radio Licence Policy Rules
17.7-18.1 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	FIXED	17.7 – 19.7 GHz Fixed “18G” Band	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
18.1-18.4 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B (Earth-to-space) 5.520 MOBILE 5.519			
18.4-18.6 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE			
18.6-18.8 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
18.8-19.3 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.523A MOBILE	FIXED (Continued)	17.7 – 19.7 GHz Fixed "18G" Band (Continued)	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
19.3-19.7 GHz	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B 5.523C 5.523D 5.523E MOBILE			
19.7-20.1 GHz	FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth)			
20.1-20.2 GHz	FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528			
20.2-21.2 GHz	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth			
21.2-21.4 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	FIXED	21.2 – 23.6 GHz Fixed "23G" Band	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
21.4-22 GHz	FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
22-22.21 GHz	FIXED MOBILE except aeronautical mobile 5.149	FIXED (continued)	21.2 – 23.6 GHz Fixed "23G" Band 22 - 26.625 GHz Vehicular Radar	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules General User Radio Licence for Vehicular Radar Short Range Devices
22.21-22.5 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532			
22.5-22.55 GHz	FIXED MOBILE			
22.55-23.55 GHz	FIXED INTER-SATELLITE 5.338A MOBILE 5.149			
23.55-23.6 GHz	FIXED MOBILE			
23.6-24 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	RADIO ASTRONOMY SPACE RESEARCH (passive)		
24-24.05 GHz	AMATEUR AMATEUR-SATELLITE 5.150	AMATEUR AMATEUR-SATELLITE	Amateur usage 24 – 24.25 GHz ISM band, SRD usage 22 – 26.625 GHz Vehicular Radar	General User Radio Licence for Amateur Radio Operators General User Radio Licence for Short Range Devices

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
24.05-24.25 GHz	RADIOLOCATION Amateur Earth exploration-satellite (active) 5.150	RADIOLOCATION Amateur	Amateur usage 24 – 24.25 GHz ISM band, SRD usage 22 – 26.625 GHz Vehicular Radar	General User Radio Licence for Amateur Radio Operators General User Radio Licence for Short Range Devices General User Radio Licence for Vehicular Radar Short Range Devices
24.25-24.45 GHz	RADIONAVIGATION FIXED MOBILE	RADIONAVIGATION FIXED MOBILE		
24.45-24.65 GHz	FIXED INTER-SATELLITE MOBILE RADIONAVIGATION 5.533	FIXED MOBILE RADIONAVIGATION	24.549 – 25.392 GHz Private Management Rights suitable for LMDS and Fixed services 22 – 26.625 GHz Vehicular Radar	Radio Spectrum Auctions General User Radio Licence for Vehicular Radar Short Range Devices
24.65-24.75 GHz	FIXED INTER-SATELLITE MOBILE 5.533	FIXED MOBILE		
24.75-25.25 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE	FIXED MOBILE		
25.25-25.5 GHz	FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	FIXED MOBILE	22 – 26.625 GHz Vehicular Radar	General User Radio Licence for Vehicular Radar Short Range Devices

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
25.5-27 GHz	EARTH EXPLORATION-SATELLITE (space-to Earth) FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) Standard frequency and time signal-satellite (Earth-to-space) 5.536A	EARTH EXPLORATION-SATELLITE (space-to Earth) FIXED INTER-SATELLITE MOBILE Standard frequency and time signal-satellite (Earth-to-space)	25.557 – 28.35 GHz Private Management Rights suitable for LMDS and Fixed services 22 – 26.625 GHz Vehicular Radar	Radio Spectrum Auctions General User Radio Licence for Vehicular Radar Short Range Devices
27-27.5 GHz	FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE	FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE MOBILE		
27.5-28.5 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		
28.5-29.1 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
29.1-29.5 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		
29.5-29.9 GHz	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540			
29.9-30 GHz	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540	FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space)		

2.3.7 EHF Band (30 – 1 000 GHz)

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
30-31 GHz	FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth)	FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space)		
31-31.3 GHz	FIXED 5.338A MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.149	FIXED		
31.3-31.5 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	RADIO ASTRONOMY SPACE RESEARCH (passive)		
31.5-31.8 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile		
31.8-32 GHz	FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.548	FIXED RADIONAVIGATION		
32-32.3 GHz	FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.548	FIXED RADIONAVIGATION		

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
32.3-33 GHz	FIXED 5.547A INTER-SATELLITE RADIONAVIGATION SPACE RESEARCH (deep space) (spaceto-Earth) 5.547 5.548	FIXED RADIONAVIGATION		
33-33.4 GHz	FIXED 5.547A RADIONAVIGATION 5.547	FIXED RADIONAVIGATION		
33.4-34.2 GHz	RADIOLOCATION	RADIOLOCATION	33.4 – 36 GHz SRD usage	General User Radio Licence for Short Range Devices
34.2-34.7 GHz	RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space)	RADIOLOCATION		
34.7-35.2 GHz	RADIOLOCATION Space research	RADIOLOCATION		
35.2-35.5 GHz	METEOROLOGICAL AIDS RADIOLOCATION	METEOROLOGICAL AIDS RADIOLOCATION		
35.5-36 GHz	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A	METEOROLOGICAL AIDS RADIOLOCATION SPACE RESEARCH (active)		
36-37 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A	FIXED MOBILE SPACE RESEARCH		
37-37.5 GHz	FIXED MOBILE SPACE RESEARCH (space-to-Earth) 5.547	FIXED	37 – 40 GHz Fixed “38G” Band	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
37.5-38 GHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547			
38-39.5 GHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth 5.547			
39.5-40 GHz	FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
40-40.5 GHz	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)			
40.5-41 GHz	FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547			
41-42.5 GHz	FIXED FIXED-SATELLITE (space to Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551H 5.551I			
42.5-43.5 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.547			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
43.5-47 GHz	MOBILE .5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554		46.7 – 46.9 GHz SRD usage	General User Radio Licence for Short Range Devices
47-47.2 GHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE	Amateur radio usage	General User Radio Licence for Amateur Radio Operators
47.2-47.5 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A			
47.5-47.9 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE			
47.9-48.2 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A			
48.2-50.2 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.338A 5.552 MOBILE 5.149 5.340 5.555			
50.2-50.4 GHz	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340			
50.4-51.4 GHz	FIXED FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE Mobile-satellite (Earth-to-space)	FIXED	50.4 – 51.15 GHz Fixed “50G” Band	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
51.4-52.6 GHz	FIXED 5.338A MOBILE 5.547 5.556			
52.6-54.25 GHz	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556			
54.25-55.78 GHz	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE.5.556A SPACE RESEARCH (passive)	SPACE RESEARCH (passive)		
55.78-56.9 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A INTER-SATELLITE.5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547			
56.9-57 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547			
57-58.2	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547	FIXED MOBILE	57 – 66 GHz SRD usage	General User Radio Licence for Short Range Devices

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
58.2-59 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547.5.556	FIXED MOBILE	57 – 66 GHz SRD usage 61 – 61.5 GHz ISM band	General User Radio Licence for Short Range Devices
59-59.3 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)			
59.3-64 GHz	FIXED INTER-SATELLITE MOBILE.5.558 RADIOLOCATION 5.559 5.138			
64-65 GHz	FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556			
65-66 MHz	EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH 5.547			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
66-71 GHz	INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554			
71-74 GHz	FIXED FIXED-SATELLITE -(space to Earth) MOBILE MOBILE-SATELLITE (space to Earth)	FIXED	71.125 – 75.875 GHz Fixed "80G" Band	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
74-76 GHz	FIXED FIXED-SATELLITE (space to Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) 5.561		75.5 – 81 GHz Amateur radio usage	General User Radio Licence for Amateur Radio Operators
76-77.5 GHz	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-Satellite Space research (space-to-Earth) 5.149		76 – 77 GHz SRD usage 75.5 – 81 GHz Amateur radio usage	General User Radio Licence for Short Range Devices General User Radio Licence for Amateur Radio Operators
77.5-78 GHz	AMATEUR AMATEUR-SATELLITE Radio astronomy Space research (space to Earth) 5.149	AMATEUR AMATEUR-SATELLITE	75.5 – 81 GHz Amateur radio usage	General User Radio Licence for Amateur Radio Operators

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
78-79 GHz	RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space to Earth) 5.149 5.560	AMATEUR AMATEUR-SATELLITE	75.5 – 81 GHz Amateur radio usage	General User Radio Licence for Amateur Radio Operators
79-81 GHz	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149			
81-84 GHz	FIXED FIXED-SATELLITE (Earth to space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) 5.149 5.561A	FIXED RADIOLOCATION Amateur Amateur-satellite	81.125 – 85.875 GHz Fixed “80G” Band	PIB22: Fixed Service Bands in New Zealand PIB58: Radio Licence Policy Rules
84-86 GHz	FIXED FIXED-SATELLITE (Earth to space) MOBILE RADIO ASTRONOMY 5.149			
86-92 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
92-94 GHz	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149		All emissions prohibited	
94-94.1 GHz	EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy .5.562 5.562A			
94.1-95 GHz	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149			
95-100 GHz	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation 5.149 5.554			
100-102 GHz	EARTH EXPLORATION- SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			
102-105 GHz	FIXED MOBILE RADIO ASTRONOMY 5.149 5.341		All emissions prohibited	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
105-109.5 GHz	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (Passive) 5.562B 5.149 5.341			
109.5-111.8 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			
111.8-114.25 GHz	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341		All emissions prohibited	
114.25-116 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			
116-119.98 GHz	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341			
119.98-122.25 GHz	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341		122 – 123 GHz ISM band, SRD usage	General User Radio Licence for Short Range Devices

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
122.25-123 GHz	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE MOBILE 5.558 Amateur 5.138		122 – 123 GHz ISM band, SRD usage Amateur radio usage	General User Radio Licence for Short Range Devices General User Radio Licence for Amateur Radio Operators
123-130 GHz	FIXED-SATELLITE (space to Earth) MOBILE-SATELLITE (space to Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.149 5.554			
130-134 GHz	EARTH EXPLORATION-SATELLITE (active) 5.562E FIXED INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A			
134-136 GHz	AMATEUR AMATEUR-SATELLITE Radio astronomy	AMATEUR AMATEUR-SATELLITE	134 – 141 GHz Amateur radio usage	General User Radio Licence for Amateur Radio Operators
136-141 GHz	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149			
141-148.5 GHz	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
148.5-151.5 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			
151.5-155.5	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149			
155.5-158.5 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.562F 5.562G			
158.5-164 GHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space to Earth)			
164-167 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			
167-174.5 GHz	FIXED FIXED-SATELLITE (space to Earth) INTER-SATELLITE MOBILE 5.558 5.149			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
174.5-174.8 GHz	FIXED INTER-SATELLITE MOBILE 5.558			
174.8-182 GHz	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)			
182-185 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			
185-190 GHz	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)			
190-191.8 GHz	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340			
191.8-200 GHz	FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554			
200-202 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A		All emissions prohibited	

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
202-209 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A		All emissions prohibited	
209-217 GHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.341			
217-226 GHz	FIXED FIXED-SATELLITE (Earth to space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341			
226-231.5 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			
231.5-232 GHz	FIXED MOBILE Radiolocation			
232-235 GHz	FIXED FIXED-SATELLITE (space to Earth) MOBILE Radiolocation			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
235-238 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B			
238-240 GHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE			
240-241 GHz	FIXED MOBILE RADIOLOCATION			
241-248 GHz	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149	RADIOLOCATION Amateur Amateur-satellite	241 – 250 GHz Amateur radio usage 244 – 246 GHz ISM band, SRD usage	General User Radio Licence for Amateur Radio Operators General User Radio Licence for Short Range Devices
248-250 GHz	AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149	Amateur Amateur-satellite	241 – 250 GHz Amateur radio usage	General User Radio Licence for Amateur Radio Operators
250-252 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340.5.563A			

Frequency Range	International Region 3 Allocation	New Zealand Allocation	Summary of Usage	References and Policies
252-265 GHz	FIXED MOBILE MOBILE-SATELLITE (Earth–to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554			
265-275 GHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.563A			
275-1 000 GHz	(Not allocated) 5.565			

2.4 ITU Region 3 Article 5 Footnotes

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

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

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

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

5.60 In the bands 70-90 kHz (70-86 kHz in Region 1) and 110-130 kHz (112-130 kHz in Region 1), pulsed radionavigation systems may be used on condition that they do not cause harmful interference to other services to which these bands are allocated.

5.62 Administrations which operate stations in the radionavigation service in the band 90-110 kHz are urged to coordinate technical and operating characteristics in such a way as to avoid harmful interference to the services provided by these stations.

5.64 Only classes A1A or F1B, A2C, A3C, F1C or F3C emissions are authorized for stations of the fixed service in the bands allocated to this service between 90 kHz and 160 kHz (148.5 kHz in Region 1) and for stations of the maritime mobile service in the bands allocated to this service between 110 kHz and 160 kHz (148.5 kHz in Region 1). Exceptionally, class J2B or J7B emissions are also authorized in the bands between 110 kHz and 160 kHz (148.5 kHz in Region 1) for stations of the maritime mobile service.

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

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

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

5.73 The band 285-325 kHz (283.5-325 kHz in Region 1) in the maritime radionavigation service may be used to transmit supplementary navigational information using narrow-band techniques, on condition that no harmful interference is caused to radiobeacon stations operating in the radionavigation service.

5.76 The frequency 410 kHz is designated for radio direction-finding in the maritime radionavigation service. The other radionavigation services to which the band 405-415 kHz is allocated shall not cause harmful interference to radio direction-finding in the band 406.5-413.5 kHz.

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

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

5.79A When establishing coast stations in the NAVTEX service on the frequencies 490 kHz, 518 kHz and 4209.5 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)

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

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

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

5.84 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)

5.97 In Region 3, the Loran system operates either on 1850 kHz or 1950 kHz, the bands occupied being 1825-1875 kHz and 1925-1975 kHz respectively. Other services to which the band 1800-2000 kHz is allocated may use any frequency therein on condition that no harmful interference is caused to the Loran system operating on 1850 kHz or 1950 kHz.

5.106 In Regions 2 and 3, provided no harmful interference is caused to the maritime mobile service, the frequencies between 2065 kHz and 2107 kHz may be used by stations of the fixed service communicating only within national borders and whose mean power does not exceed 50 W. In notifying the frequencies, the attention of the Bureau should be drawn to these provisions.

5.108 The carrier frequency 2182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2173.5-2190.5 kHz are prescribed in Articles S31 and S52 and in Appendix S13.

5.109 The frequencies 2187.5 kHz, 4207.5 kHz, 6312 kHz, 8414.5 kHz, 12577 kHz and 16804.5 kHz are international distress frequencies for digital selective calling. The conditions for the use of these frequencies are prescribed in Article S31.

5.110 The frequencies 2174.5 kHz, 4177.5 kHz, 6268 kHz, 8376.5 kHz, 12520 kHz and 16695 kHz are international distress frequencies for narrow-band direct-printing telegraphy. The conditions for the use of these frequencies are prescribed in Article S31.

5.111 The carrier frequencies 2182 kHz, 3023 kHz, 5680 kHz, 8364 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 10003 kHz, 14993 kHz and 19993 kHz, but in each of these cases emissions must be confined in a band of ± 3 kHz about the frequency.

5.113 For the conditions for the use of the bands 2300-2495 kHz (2498 kHz in Region 1), 3200-3400 kHz, 4750-4995 kHz and 5005-5060 kHz by the broadcasting service, see Nos. 5.16 to 5.20, 5.21 and S23.3 to S23.10.

5.115 The carrier (reference) frequencies 3023 kHz and 5680 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.

5.116 Administrations are urged to authorize the use of the band 3155-3195 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 3155 kHz and 3400 kHz to suit local needs.

5.126 In Region 3, the stations of those services to which the band 3995-4005 kHz is allocated may transmit standard frequency and time signals.

5.127 The use of the band 4000-4063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. S52.220 and Appendix S17).

5.129 On condition that harmful interference is not caused to the maritime mobile service, the frequencies in the bands 4063-4123 kHz and 4130-4438 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.

5.130 The conditions for the use of the carrier frequencies 4125 kHz and 6215 kHz are prescribed in Articles S31 and S52 and in Appendix S13.

5.131 The frequency 4209.5 kHz is used exclusively for the transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing techniques. (WRC-97)

5.132 The frequencies 4210 kHz, 6314 kHz, 8416.5 kHz, 12579 kHz, 16806.5 kHz, 19680.5 kHz, 22376 kHz and 26100.5 kHz are the international frequencies for the transmission of maritime safety information (MSI) (see Appendix S17).

5.134 The use of the bands 5900-5950 kHz, 7300-7350 kHz, 9400-9500 kHz, 11600-1650 kHz, 12050-12100 kHz, 13570-13600 kHz, 15600-15800 kHz, 17480-17550 kHz and 18900-19020 kHz by the broadcasting service as from 1 April 2007 is subject to the application of the procedure of Article 12. Administrations are urged to use these bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution **517 (Rev WRC-03).** (WRC-03)

5.136 The band 5900-5950 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.

5.137 On condition that harmful interference is not caused to the maritime mobile service, the bands 6200- 6213.5 kHz and 6220.5-6525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above conditions.

5.138 The following bands:

6765-6795 kHz (centre frequency 6780 kHz),

433.05-434.79 MHz (centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. 5.280,

61-61.5 GHz (centre frequency 61.25 GHz),

122-123 GHz (centre frequency 122.5 GHz), and

244-246 GHz (centre frequency 245 GHz)

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

5.138A Until 29 March 2009, the band 6765-7000 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. After this date, this band is allocated to the fixed and the mobile except aeronautical mobile (R) services on a primary basis. (WRC-03)

5.141C In Regions 1 and 3, the band 7100-7200 kHz is allocated to the broadcasting service until 29 March 2009 on a primary basis. (WRC-03)

5.142 Until 29 March 2009, the use of the band 7100-7300 kHz in region 2 by the amateur service shall not impose constraints on the broadcasting service intended for the use within Region 1 and Region 3. After 29 March 2009 the use of the band 7200-7300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. (WRC-03)

5.143 The band 7300-7350 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.

5.143A In Region 3, the band 7350-7450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-03)

5.143C *Additional allocation*: after 29 March 2009 in Algeria, Saudi Arabia, Bahrain, Comoros, Dijibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), Jordan, Kuwait, Libyan Ara Jamahiriya, Morocco, Mauritania, Oman, Qatar, Syrian Arab Republic, Sudan, Tunisia and Yemen, the bands 7350-7400 kHz and 7400-7450 kHz are also allocated to the fixed service on a primary basis. (WRC-03)

5.143D In Region 2, the band 7350-7400 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-03)

5.143E Until 29 March 2009, the band 7450-8100 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. (WRC-03)

5.144 In Region 3, the stations of those services to which the band 7995-8005 kHz is allocated may transmit standard frequency and time signals.

5.145 The conditions for the use of the carrier frequencies 8291 kHz, 12290 kHz and 16420 kHz are prescribed in Articles S31 and S52 and in Appendix S13.

5.146 The bands 9400-9500 kHz, 11600-11650 kHz, 12050-12100 kHz, 15600-15800 kHz, 17480-17550 kHz and 18900-19020 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.

5.147 On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9775-9900 kHz, 11650-11700 kHz and 11975-12050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.

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

13 360 - 13 410 kHz,
37.5 - 38.25 MHz,
150.05 - 153 MHz in Region 1,
406.1 - 410 MHz,
1 330 - 1 400 MHz,
1 660 - 1 670 MHz,
25 550 - 25 670 kHz,
73 - 74.6 MHz in Regions 1 and 3,
322 - 328.6 MHz,
608 - 614 MHz in Regions 1 and 3,
1 610.6 - 1 613.8 MHz,
1 718.8 - 1 722.2 MHz,

2 655 - 2 690 MHz,
3 260 - 3 267 MHz,
3 332 - 3 339 MHz,
3 345.8 - 3 352.5 MHz,
4 825 - 4 835 MHz,
4 950 - 4 990 MHz,
4 990 - 5 000 MHz,
6 650 - 6 675.2 MHz,
10.6 - 10.68 GHz,
14.47 - 14.5 GHz,
22.01 - 22.21 GHz,
22.21 – 22.5 GHz,
22.81 - 22.86 GHz,
23.07 - 23.12 GHz,
31.2 - 31.3 GHz,
31.5 - 31.8 GHz in Regions 1 and 3,
36.43 - 36.5 GHz,
42.5 - 43.5 GHz,
42.77 - 42.87 GHz,
43.07 - 43.17 GHz,
43.37 - 43.47 GHz,
48.94 - 49.04 GHz,
76 - 86 GHz,
92 - 94 GHz,
94.1 - 100 GHz,
102 - 109.5 GHz,
111.8 - 114.25 GHz,
128.33 - 128.59 GHz,
129.23 – 129.49 GHz,
130 - 134 GHz,
136 - 148.5 GHz,
151.5 - 158.5 GHz,
168.59 - 168.93 GHz,
171.11 - 171.45 GHz,
172.31 - 172.65 GHz,
173.52 - 173.85 GHz,
195.75 - 196.15 GHz,
209 - 226 GHz,
241 - 250 GHz,
252 - 275 GHz

are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **4.5** and **4.6** and Article **29**). (WRC-2000)

5.150 The following bands:

13553-13567 kHz (centre frequency 13560 kHz),

26957-27283 kHz (centre frequency 27120 kHz),

40.66-40.70 MHz (centre frequency 40.68 MHz),

902-928 MHz in Region 2 (centre frequency 915 MHz),

2400-2500 MHz (centre frequency 2450 MHz),

5725-5875 MHz (centre frequency 5800 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.

5.151 The bands 13570-13600 kHz and 13800-13870 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.

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

5.155B The band 21870-21924 kHz is used by the fixed service for provision of services related to aircraft flight safety.

5.156A The use of the band 23200-23350 kHz by the fixed service is limited to provision of services related to aircraft flight safety.

5.157 The use of the band 23350-24000 kHz by the maritime mobile service is limited to inter-ship radiotelegraphy.

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

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

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

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

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

5.197A The band 108-117.975 MHz may also be used by the aeronautical mobile (R) service on a primary basis, limited to systems that transmit navigational information in support of air navigation and surveillance functions in accordance with recognized international aviation standards. Such use shall be in accordance with Resolution 413 (WRC-03) and shall not cause harmful interference to nor claim protection from stations operating in the aeronautical radionavigation service which operate in accordance with international aeronautical standards. (WRC-03)

5.198 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)

5.199 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).

5.200 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.

5.203 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)

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

5.208A In making assignments to space stations in the mobile-satellite service in the bands 137-138 MHz, 387-390 MHz and 400.15-401 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions. The threshold levels of interference detrimental to the radio astronomy service are shown in Table 1 of Recommendation ITU-R RA.769-1. (WRC-97)

5.208B[*] In the bands:

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

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

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

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

5.218 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.

5.219 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.

5.220 The use of the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the mobile-satellite service is subject to coordination under No. 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)

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

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

5.223 Recognizing that the use of the band 149.9-150.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation-satellite service, administrations are urged not to authorize such use in application of No. S4.4.

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

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

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

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

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

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

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

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

5.227A *Additional allocation:* the bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz are also allocated to the mobile-satellite service (Earth-to-space) on a secondary basis for the reception of automatic identification system (AIS) emissions from stations operating in the maritime-mobile service (see Appendix **18**). (WRC-07)

5.254 The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. 9.21, on condition that stations in this service do no cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations except for the additional allocation made in footnote No. **5.256A**. (WRC-03)

5.255 The bands 312-315 MHz (Earth-to-space) and 387-390 MHz (space-to-Earth) in the mobile-satellite service may also be used by non-geostationary-satellite systems. Such use is subject to coordination under No. S9.11A.

5.256 The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes. (WRC-07)

5.257 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.

5.260 Recognizing that the use of the band 399.9-400.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation satellite service, administrations are urged not to authorize such use in application of No. S4.4.

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

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

5.264 The use of the band 400.15-401 MHz by the mobile-satellite service is subject to coordination under No. 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.

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

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

5.268 Use of the band 410-420 MHz by the space research service is limited to communications within 5km 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° <= Ø <= 5°, -153 + 0.077 (Ø - 5) dB(W/m^2) for 5° <= Ø <= 70° and -148 dB(W/m^2) for 70° <= Ø <= 90°, where Ø 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)

5.279A The use of this band by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU-R SA.1260-1. Additional, the Earth exploration-satellite service (active) in the band 432-438 MHz shall not cause harmful interference to the aeronautical radionavigation service in China.

The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. 5.29 and 5.30. (WRC-03)

5.282 In the bands 435-438 MHz, 1260-1270 MHz, 2400-2450 MHz, 3400-3410 MHz (in Regions 2 and 3 only) and 5650-5670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. 5.43). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. 25.11. The use of the bands 1260- 1270 MHz and 5650-5670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.

5.286 The band 449.75-450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), subject to agreement obtained under No. S9.21.

5.286A The use of the bands 454-456 MHz and 459-460 MHz by the mobile-satellite service is subject to coordination under No. S9.11A. (WRC-97)

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

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

5.289 Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460-470 MHz and 1690-1710 MHz for space-to-Earth transmissions subject to not causing harmful interference to stations operating in accordance with the Table.

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

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

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

5.320 Additional allocation: in Region 3, the bands 806-890 MHz and 942-960 MHz are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service on a primary basis, subject to agreement obtained under No. S9.21. The use of this service is limited to operation within national boundaries. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table, to ensure that no harmful interference is caused to such services.

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

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

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

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

5.329 Use of the radionavigation-satellite service in the band 1215-1300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No**. 5.331**. Furthermore, the use of the radionavigation-satellite service in the band 1215-1300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. No. **5.43** shall not apply in respect of the radiolocation services. Resolution **608 (WRC-03)** shall apply. (WRC-03)

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

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

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

5.337 The use of the bands 1300-1350 MHz, 2700-2900 MHz and 9000-9200 MHz by the aeronautical radionavigation service is restricted to ground-based radars and to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.

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

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

5.339 The bands 1370-1400 MHz, 2640-2655 MHz, 4950-4990 MHz and 15.20-15.35 GHz are also allocated to the space research (passive) and earth exploration-satellite (passive) services on a secondary basis.

5.340 All emissions are prohibited in the following bands:

1400-1427 MHz
2690-2700 MHz, except those provided for by No. **5.422,**
10.68-10.7 GHz, except those provided for by No. **5.483**,
15.35-15.4 GHz, except those provided for by No. **5.511**,
23.6-24 GHz,
31.3-31.5 GHz
31.5-31.8 GHz, in Region 2,
48.94-49.04 GHz, from airborne stations
50.2-50.4 GHz[2]
52.6-54.25 GHz
86-92 GHz
100-102 GHz
109.5-111.8 GHz
114.25-116 GHz
148.5-151.5 GHz
164-167 GHz,

182-185 GHz
190-191.8 GHz
200-209 GHz
226-231.5 GHz
250-252 GHz. (WRC-03)

5.341 In the bands 1400-1727 MHz, 101-120 GHz and 197-220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.

5.345 Use of the band 1452-1492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (WARC-92).

5.348 The use of the band 1 518-1 525 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from the stations in the fixed service. No. **5.43A** does not apply. (WRC-03)

5.348A In the band 1518-1525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. **911A** for space stations in the mobile-satellite (space to Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be –150 dB(W/m^2) in any 4 kHz band for all angles of arrival, instead of those given in Table 5-2 of Appendix 5. In the band 1518-1525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan No. **5.43A** does not apply. (WRC-03)

5.348B In the band 1518-1525 MHz, stations in the mobile-satellite service shall not claim protection from aeronautical mobile telemetry stations in the mobile service in the territory of the United State (see Nos. **5.343** and **5.344**) and in the countries listed in No. **5.342**. Nos. **5.43A** does not apply. (WRC-03)

5.351 The bands 1525-1544 MHz, 1545-1559 MHz, 1626.5-1645.5 MHz and 1646.5-1660.5 MHz shall not be used for feeder links of any service. In exceptional circumstances, however, an earth station at a specified fixed point in any of the mobile-satellite services may be authorized by an administration to communicate via space stations using these bands.

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

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

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

5.354 The use of the bands 1525-1559 MHz and 1626.5-1660.5 MHz by the mobile-satellite services is subject to coordination under No. S9.11A.

5.356 The use of the band 1544-1545 MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications (see Article S31).

5.357 Transmissions in the band 1545-1555 MHz from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorized when such transmissions are used to extend or supplement the satellite-to-aircraft links.

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

5.364 The use of the band 1610-1626.5 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. 5.366 (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. 5.366 and stations in the fixed service operating in accordance with the provisions of No. 5.359. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. 5.366.

5.365 The use of the band 1613.8-1626.5 MHz by the mobile-satellite service (space-to-Earth) is subject to coordination under No. S9.11A.

5.366 The band 1610-1626.5 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.

5.367 Additional allocation: The bands 1610-1626.5 MHz and 5000-5150 MHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. S9.21.

5.368 With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. S4.10 do not apply in the band 1610-1626.5 MHz, with the exception of the aeronautical radionavigation-satellite service.

5.372 Harmful interference shall not be caused to stations of the radio astronomy service using the band 1610.6-1613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. S29.13 applies).

5.374 Mobile earth stations in the mobile-satellite service operating in the bands 1631.5-1634.5 MHz and 1656.5-1660 MHz shall not cause harmful interference to stations in the fixed service operating in the countries listed in No. 5.359. (WRC-97)

5.375 The use of the band 1645.5-1646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article S31).

5.376 Transmissions in the band 1646.5-1656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.

5.376A Mobile earth stations operating in the band 1660-1660.5 MHz shall not cause harmful interference to stations in the radio astronomy service. (WRC-97)

5.379A Administrations are urged to give all practicable protection in the band 1660.5-1668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1664.4-1668.4 MHz as soon as practicable.

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

5.379C In order to protect the radio astronomy service in the band 1668-1670 MHz, the aggregate power flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed –181 dB(W/m²) in 10 MHz and –194 dB(W/m²) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2000s. (WRC-03)

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

5.379E For sharing of the band 1668-1675 MHz between the mobile-satellite service and the fixed, mobile and space research (passive) services. Resolution **744 (WRC-03)** shall apply. (WRC-03)

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

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

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

5.388A In Regions 1 and 3, the bands 1885-1980 MHz, 2010-2025 MHz and 2110-2170 MHz and, in Region 2, the bands 1885-1980 MHz and 2110-2160 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications-2000 (IMT-2000), in accordance with Resolution **221 (Rev.WRC-03)**. Their use by IMT-2000 applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-03)

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

5.391 In making assignments to the mobile service in the bands 2025-2110 MHz and 2200-2290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154, and shall take that Recommendation into account for the introduction of any other type of mobile system. (WRC-97)

5.392 Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2025-2110 MHz and 2200-2290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.

5.396 Space stations of the broadcasting-satellite service in the band 2310-2360 MHz operating in accordance with No. 5.393 that may affect the services to which this band is allocated in other countries shall be coordinated and notified in accordance with Resolution 33 (Rev.WRC-97). Complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use.

5.398 In respect of the radiodetermination-satellite service in the band 2483.5-2500 MHz, the provisions of No. S4.10 do not apply.

5.402 The use of the band 2483.5-2500 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 2483.5-2500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4990-5000 MHz band allocated to the radio astronomy service worldwide.

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

5.413 In the design of systems in the broadcasting-satellite service in the bands between 2500 MHz and 2690 MHz, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2690-2700 MHz.

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

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

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

5.417C Use of the band 2605-2630 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No**. 5.417A**, for which complete Appendix **4** coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No. **9.12**. (WRC-03)

5.417D Use of the band 2605-2630 MHz by geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, has been received after 4 July 2003 is subject to the application of the provisions of No. **9.13** with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No**. 5.417A**, and No**. 22.2** does not apply. (WRC-03)

5.418A In certain Region 3 countries listed in No**. 5.418**, use of the band 2630-2655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound) for which complete Appendix **4** coordination information or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. **9.12A**, in respect of geostationary-satellite networks for which complete Appendix **4**, coordination information, or notification information, is considered to have been received after 2 June 2000, and No**. 22.2** does not apply. No**. 22.2** shall continue to apply with respect to geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, is considered to have been received before 3 June 200. (WRC-03)

5.418B Use of the band 2630-2655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No**. 5.418,** for which complete Appendix **4** coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No**. 9.12**. (WRC-03)

5.418C Use of the band 2630-2655 MHz by geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, has been received after 2 June 2000 is subject to the application of the provisions of No. **9.13** with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound) pursuant to No**. 5.418** and No**. 2.22** does not apply. (WRC-03)

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

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

5.423 In the band 2700-2900 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the aeronautical radionavigation service.

5.424A In the band 2900-3100 MHz, stations in the radiolocation service shall not cause harmful inteference to, nor claim protection from, radar systems in the radionavigation service on a primary basis. (WRC-03)

5.425 In the band 2900-3100 MHz, the use of the shipborne interrogator-transponder system (SIT) shall be confined to the sub-band 2930 -2950 MHz.

5.426 The use of the band 2900-3100 MHz by the aeronautical radionavigation service is limited to ground-based radars.

5.427 In the bands 2900-3100 MHz and 9300-9500 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.

5.433 In Regions 2 and 3, in the band 3400-3600 MHz the radiolocation service is allocated on a primary basis. However, all administrations operating radiolocation systems in this band are urged to cease operations by 1985. Thereafter, administrations shall take all practicable steps to protect the fixed-satellite service and coordination requirements shall not be imposed on the fixed-satellite service.

5.438 Use of the band 4200-4400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. However, passive sensing in the earth exploration-satellite and space research services may be authorized in this band on a secondary basis (no protection is provided by the radio altimeters).

5.440 The standard frequency and time signal-satellite service may be authorized to use the frequency 4202 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.

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

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

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

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

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

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

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

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

5.446 Additional allocation: in the countries listed in Nos. 5.369 and 5.400, the band 5150-5216 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. 5.369 and 5.400, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1610-1626.5 MHz and/or 2483.5-2500 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.

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

5.446B In the band 5150-5250 MHz, stations in the mobile-satellite service shall not claim protection from earth stations in the fixed-satellite service. No. **5.43A** does not apply to the mobile service with respect to fixed-satellite service earth stations. (WRC-03)

5.447A 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.

5.447B Additional allocation: the band 5150-5216 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 5150-5216 MHz shall in no case exceed -164 dB(W/m^2) in any 4 kHz band for all angles of arrival.

5.447C Administrations responsible for fixed-satellite service networks in the band 5150-5250 MHz operated under Nos. 5.447A and 5.447B shall coordinate on an equal basis in accordance with No. S9.11A with administrations responsible for non-geostationary-satellite networks operated under No. 5.446 and brought into. use prior to 17 November 1995. Satellite networks operated under No. 5.446 brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. 5.447A and 5.447B.

5.447D The allocation of the band 5250-5255 MHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis. (WRC-97)

5.447F In the band 5250-5350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU-R **M.1638** and ITU-R **SA.1632**. (WRC-03)

5.448A The Earth exploration-satellite (active) and space research (active) services in the frequency band 5250-5350 MHz shall not claim protection from the radiolocation service. No. **5.43A** does not apply. (WRC-03)

5.448B The Earth exploration-satellite service (active) operating in the band 5350-5570 MHz and research service (active) operating in the band 5460-5570 MHz shall not cause harmful interference to the aeronautical radionavigation service in the band 5350-5460 MHz, the radionavigation service in the band 5460-5470 MHz and the maritime radionavigation service in the band 5470-5570 MHz. (WRC-03)

5.448C The space research service (active) operating in the band 5350-5460 MHz shall nto cause harmful interference to nor claim protection from other services to which this band is allocated. (WRC-03)

5.448D In the frequency band 5350-5470 MHZ, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radio systems in the aeronautical radionavigation service operating in accordance with No**. 5.449**. (WRC-03)

5.449 The use of the band 5350-5470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.

5.450A In the band 5470-5725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation IUT-R **M.1638**. (WRC-03)

5.450B In the frequency band 5470-5650 MHz, stations in the radiolocation service, except ground-based radars used for meteorological purposes in the band 5600-5650 MHz, shall not cause harmful interference to, nor claim protection from, radar systems in the maritime radionavigation service. (WRC-03)

5.452 Between 5600 MHz and 5650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.

5.452 Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.

5.457A In the bands 5 625-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with **Resolution 902 (WRC-03)** (WRC-03)

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

5.458 In the band 6425-7075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7075-7250 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 6425-7025 MHz and 7075-7250 MHz.

5.458A In making assignments in the band 6700-7075 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 6650-6675.2 MHz from harmful interference from unwanted emissions.

5.458B The space-to-Earth allocation to the fixed-satellite service in the band 6700-7075 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 6700-7075 MHz (space-to-Earth) by feeder links for non-geostationary satellite systems in the mobile-satellite service is not subject to No. S22.2.

5.458C Administrations making submissions in the band 7025-7075 MHz (Earth-to-space) for geostationary-satellite systems in the fixed-satellite service after 17 November 1995 shall consult on the basis of relevant ITU-R Recommendations with the administrations that have notified and brought into use non-geostationary-satellite systems in this frequency band before 18 November 1995 upon request of the latter administrations. This consultation shall be with a view to facilitating shared operation of both geostationary-satellite systems in the fixed-satellite service and non-geostationary-satellite systems in this band.

5.460 The use of band 7145-7190 MHz by the space research service (Earth-to-space) is restricted to deep space; no emissions to deep space shall be effected in the band 7190-7235 MHz. Geostationary satellites in the space research service operating in the band 7190-7235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. **5.43A** does not apply. (WRC-03)

5.461 Additional allocation: the bands 7250-7375 MHz (space-to-Earth) and 7900-8025 MHz (Earth-to-space) are also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. S9.21.

5.461A The use of the band 7450-7550 MHz by the meteorological-satellite service (space-to-Earth) is limited to geostationary-satellite systems. Non-geostationary meteorological-satellite systems in this band notified before 30 November 1997 may continue to operate on a primary basis until the end of their lifetime. (WRC-97)

5.461B The use of the band 7750-7850 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems. (WRC-97)

5.462A In Regions 1 and 3 (except for Japan), in the band 8025-8400 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 (Ø), without the consent of the affected administration:

-174 dB(W/m^2) in a 4 kHz band for 0° <= Ø < 5°

-174 + 0.5 (Ø - 5) dB(W/m^2) in a 4 kHz band for 5° <= Ø < 25°

-164 dB(W/m^2) in a 4 kHz band for 25° <= Ø <= 90°

5.463 Aircraft stations are not permitted to transmit in the band 8025-8400 MHz. (WRC-97)

5.465 In the space research service, the use of the band 8400-8450 MHz is limited to deep space.

5.469A In the band 8550-8650 MHz, stations in the earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radiolocation service. (WRC-97)

5.470 The use of the band 8750-8850 MHz by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8800 MHz.

5.472 In the bands 8850-9000 MHz and 9200-9225 MHz, the maritime radionavigation service is limited to shore-based radars.

5.473A In the band 9 000-9 200 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, systems identified in No. **5.337** operating in the aeronautical radionavigation service, or radar systems in the maritime radionavigation service operating in this band on a primary basis in the countries listed in No. **5.471**. (WRC-07)

5.474 In the band 9200-9500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article S31).

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

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

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

5.476A In the band 9 300-9 800 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from, stations of the radio-navigation and radiolocation services. (WRC 07)

5.479 The band 9975-10 025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.

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

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

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

the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)

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

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

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

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

5.498A The Earth exploration-satellite (active) and space research (active) services operating in the band 13.25-13.4 GHz shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service. (WRC-97)

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

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

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

> -115 dB(W/(m² - 10 MHz)) for more than 1% of the time produced at 36m above sea levela t the low water mark, as officially recognised by the coastal state;
>
> -115 dB(W/(m² - 10 MHz)) for more than 1% of the time produced 3 m above ground at the border fo the territory of an administration deploying or planning to deploy land mobile radars in this band, unless prior agreement has been obtained.

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

5.503 In the band 13.75-14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1002 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. Until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 19092 cease to operate in this band:

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

  i) 4.7D + 28 dB(w/40 kHz), where *D* is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equals to or greater than 1.2m and less than 4.5m;

  ii) 49.2 + 20 log(*D*/4.5) dB(W/40 kHz), where *D* is the fixed-satellite service earth station antenna diameter (me) for antenna diameters equl to or greater than 4.5m and less than 31.9m;

  iii) 66.2 dB(W/40 kHz) for any fixed-satellite servic earth station for antenna diameters (m) equal to or greater than 31.9m;

  iv) 56.2 dB(W/4 kHz) for narrow-band (less than 40 kHz of necessary bandwidth) fixed-satellite service earth station emissions from any fixed-satellite service earth station having an antenna diameter of 4.5m or greather;

- the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in non-geostationary-satellite orbit shall not exceed 51 dBW in the 6 MHz band from 13.772 to 13.778 GHz.

Automatic power control may be used to increase the e.i.r.p. density in the frequency ranges to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use by an earth station of an e.i.r.p. meeting the above limits in clear-sky conditions. (WRC-03)

5.504 The use of the band 14-14.3 GHz by the radionavigation service shall be such as to provide sufficient protection to space stations of the fixed-satellite service.

5.504A In the band 14.14-5 GHz, aircraft earth stations in the secondary aeronautical mobile-satellite service may also communicate with space stations in the fixed-satellite service. The provisions of Nos. **5.29**, **5.30** and **5.31** apply. (WRC-03)

5.504B Aircraft earth stations operating in the aeronautical mobile-satellite service I the band 14-14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M.1643, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz band located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa. (WRC-03)

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

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

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

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

5.511A The band 15.43-15.63 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. Use of the band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth and Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. **9.11A**. The use of the frequency band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth) is limited to feeder links of non-geostationary systems in the mobile-satellite service for which advance publication information has been received by the Bureau prior to 2 June 2000. In the space-to-Earth direction, the minimum earth station elevation angle above and gain towards the local horizontal plane and the minimum coordination distances to protect an earth station

from harmful interference shall be in accordance with Recommendation ITU-R S.1341. In order to protect the radio astronomy service in the band 15.35-15.4 GHz, the aggregate power flux-density radiated in the 15.35-15.4 GHz band by all the space stations within any feeder-link of a non-geostationary system in the mobile-satellite service (space-to-Earth) operating in the 15.43-15.63 GHz band shall not exceed the level of –156 dB(W/m^2) in a 50 MHz bandwidth, into any radio astronomy observatory site for more than 2% of the time. (WRC-2000)

5.511C 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)

5.511D Fixed-satellite service systems for which complete information for advance publication has been received by the Bureau by 21 November 1997 may operate in the bands 15.4-15.43 GHz and 15.63-15.7 GHz in the space-to-Earth direction and 15.63-15.65 GHz in the Earth-to-space direction. In the bands 15.4-15.43 GHz and 15.65-15.7 GHz, emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of -146 dB(W/m^2/ 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)

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

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

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

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

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

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

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

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

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

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

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

5.523A 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)

5.523B The use of the band 19.3-19.6 GHz (Earth-to-space) by the fixed-satellite service is limited to feeder links for non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. S9.11A, and No. S22.2 does not apply.

5.523C 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)

5.523D The use of the band 19.3-19.7 GHz (space-to-Earth) by geostationary fixed-satellite service systems and by feeder links for non-geostationary-satellite systems in the mobile-satellite service is subject to the application of the provisions of No. 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. 5.523C and 5.523E, 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)

5.523E 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)

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

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

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

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

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

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

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

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

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

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

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

5.537 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.

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

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

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

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

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

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

5.544 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.

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

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

5.548 In designing systems for the inter-satellite service in the band 32.3-33 GHz, for the radionavigation service in the band 32-33 GHz, and for the space research service (deep space) in the band 31.8-32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation services (see Recommendation 707). (WRC-03)

5.549A In the band 35.5-36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed –73.3 dB(W/m²) in this band. (WRC-03)

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

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

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

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

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

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

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

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

5.551I The power flux-density in the band 42.5-43.5 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth), or the broadcasting-satellite service operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station:

–137 dB(W/m^2) in 1 GHz and –153 dB(W/m^2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and

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

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

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

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

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

5.552 The allocation of the spectrum for the fixed-satellite service in the bands 42.5-43.5 GHz and 47.2-50.2 GHz for Earth-to-space transmission is greater than that in the band 37.5-39.5 GHz for space-to-Earth transmission in order to accommodate feeder links to broadcasting satellites. Administrations are urged to take all practicable steps to reserve the band 47.2-49.2 GHz for feeder links for the broadcasting-satellite service operating in the band 40.5-42.5 GHz.

5.552A The allocation to the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2-47.5 GHz and 47.9 48.2 GHz is subject to the provisions of Resolution **122 (Rev.WRC-07)**. (WRC 07)

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

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

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

5.555B The power flux-density in the band 48-94-49.04 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth) operating in the bands 48.2-48.54 GHz and 49.44-50.2 GHz shall not exceed –151.8 dB(W/m²) in any 500 kHz band at the site of any radio astronomy station. (WRC-03)

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

5.556A Use of the bands 54.25-56.9 GHz, 57-58.2 GHz and 59-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0km to 1000km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed -147 dB(W/m^2/100 MHz) for all angles of arrival. (WRC-97)

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

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

5.558A Use of the band 56.9-57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0km to 1000km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed -147 dB(W/m^2/100 MHz) for all angles of arrival. (WRC-97)

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

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

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

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

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

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

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

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

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

5.563A In the bands 200-209 GHz, 235-238 GHz, 250-252 GHz and 265-275 GHz, ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents. (WRC-2000)

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

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

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

– Earth exploration-satellite service (passive) and space research service (passive): 275-277 GHz, 294-306 GHz, 316-334 GHz, 342-349 GHz, 363-365 GHz, 371-389 GHz, 416-434 GHz, 442-444 GHz, 496-506 GHz, 546-568 GHz, 624-629 GHz, 634-654 GHz, 659-661 GHz, 684-692 GHz, 730-732 GHz, 851-853 GHz and 951-956 GHz.

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