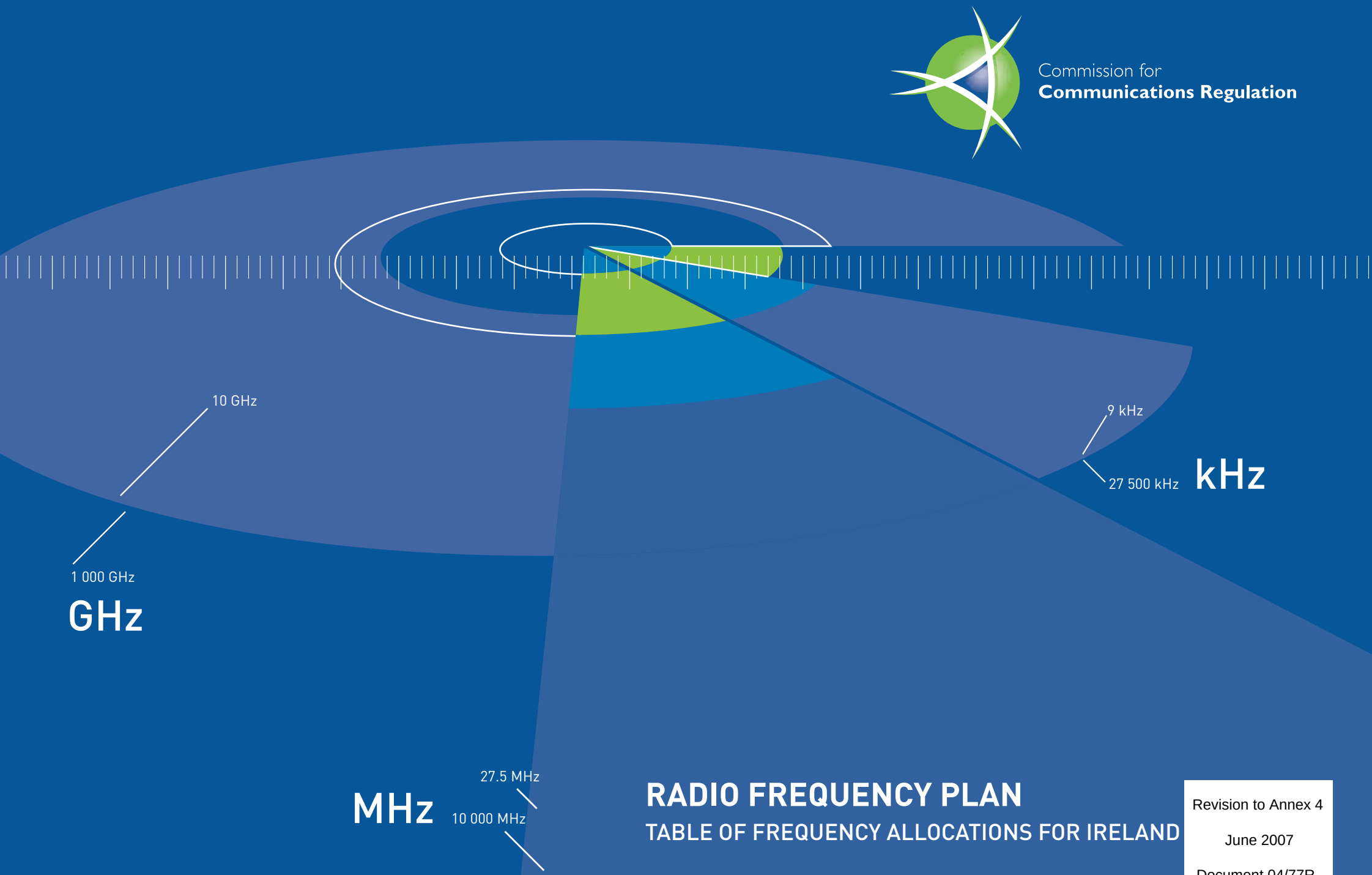


RADIO FREQUENCY PLAN

TABLE OF FREQUENCY ALLOCATIONS FOR IRELAND

Revision to Annex 4

June 2007

Document 04/77R

CONTENTS

1: INTRODUCTION

FOREWORD

I am pleased to present the third edition of the Radio Frequency Plan for Ireland. Radio frequency spectrum is a resource which forms an essential input into many of the critical sectors which underpin a modern economy. These include telecommunications, broadcasting, transport and leisure services. It is also increasingly in demand to enhance the functionality and range of many of the consumer products which we use at home, in the office and/or on the move. As technological innovation creates further need for spectrum, its efficient management becomes increasingly important.

Under Section 35 of the Communications Regulation Act, 2002, ComReg is responsible for formulating, revising, implementing and publishing the national Radio Frequency Plan detailing the frequency allocations of Ireland. This latest edition details a number of significant changes that were introduced at the World Radiocommunication Conference held in 2003 (WRC-03) and the advances made in harmonisation through the CEPT Electronic Communications Committee Decisions and Recommendations.

This publication continues ComReg's commitment to ensuring that consumers are fully informed on developments that have either taken place or are planned and is once again is aimed at current users, potential users and investors in telecommunication services in Ireland. The tables contained therein outline the types of radiocommunication services allocated to each frequency band, the standards that apply, together with some notes on future developments where applicable. They also take into account international, regional and bilateral agreements on radio spectrum usage up to the end of January 2004.

Today the use of radiocommunications is dynamic as it continues to evolve in response to the many changes that are taking place in the sectors that utilise radio spectrum. This evolution and the speed that it is taking place in is in turn reflected in a trend towards more flexible methods of assigning and using frequencies, such as spectrum trading, ultra-wide band communications, and intelligent devices which can select their operating frequencies on the basis of current interference conditions. Spectrum allocations must in turn recognise and respond to these changes. The situation outlined in this publication is a snap shot of the position at this time and is therefore subject to continuous review. In order to cater for this, it is the intention that new editions of the Table will be issued regularly, taking account of the introduction of new services and the phasing out of older services.

As before we are interested in receiving comments, ideas, suggestions or proposed corrections you may have which will assist us in making future editions more useful. To this end we have included a comment form at the back, which may be convenient for your use.

John Doherty
Chairman,
Commission for Communications Regulation
July 2004

INTRODUCTION

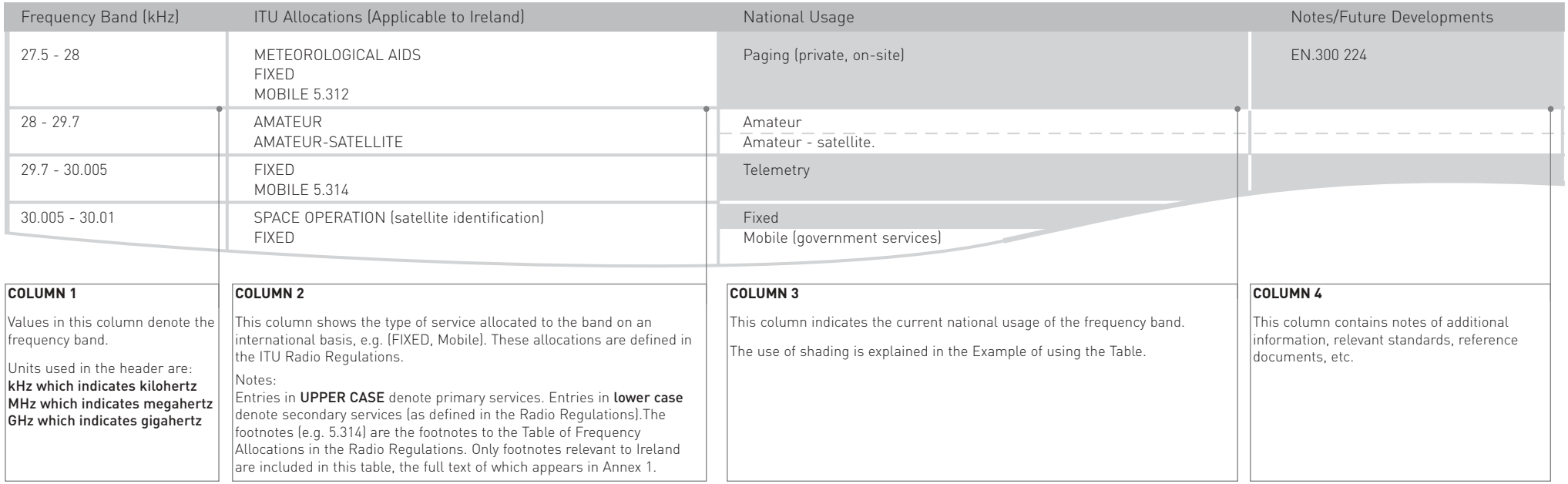
The Radio Frequency Plan contains a number of Tables. These Tables list the allocations made for the radio frequency spectrum for Ireland. The structure of the Tables, which is outlined below, is similar to that of the International Table of Frequency Allocations as printed in the Radio Regulations of the International Telecommunications Union (ITU) (Edition of 2004, as updated by the World Radiocommunications Conference held in 2003 (WRC-03)). The tables cover the frequency range 9 kilohertz (kHz) to 1000 gigahertz (GHz) and lists for each frequency range the types of radiocommunications services that are permitted and which services are currently in use in Ireland. Information is also given in some areas on possible future uses or change in use of particular frequency bands.

References are given to documentation of the International Telecommunications Union (ITU), the European Union (EU), the European Conference of Postal and Telecommunications Administrations (CEPT), the European Technical Standards Institute (ETSI) and the National Standards Association of Ireland (NSAI) where appropriate. Such documentation is available to the public from these organisations; see Annex 5 for contact details.

The Radio Frequency Plan will be updated regularly. The allocations are not static and will change in time as new radio systems are introduced and old ones phased out. Changes will also be made to reflect agreements reached on spectrum utilisation at international level, e.g. at World Radiocommunication Conferences (WRCs) of the ITU, The European Union, within CEPT, or as a consequence of national decisions made to meet specific national requirements.

Reference should also be made to ERC Report 025 which covers the frequency range 9 kHz to 275 GHz and details the European table of common frequency allocations and utilisations. This report is a useful tool when considering and planning harmonisation within the context of the European frequency spectrum. A copy of this report is available on the ERO website (see Annex 5 for contact details).

STRUCTURE OF THE TABLE



EXAMPLE OF USING THE TABLE

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Usage	Notes
2500 -2520	FIXED 5.409 5.410 5.411 Mobile except aeronautical mobile 5.384A MOBILE-SATELLITE (s-E) 5.403 5.531A 5.414 5.423	Programme Retransmission Systems (2500 – 2686 MHz)	S.I. 39 (1989), S.I. 252 (1991), SI 214 (1998) Mobile Satellite Allocation ERC/DEC(08)04

Please note, this is an example only and has been modified to show how to use the tables and does not reflect the correct usage of this band.

The first column shows that this row applies to the frequency band from 2500 – 2520 MHz.

The second column indicates that the ITU have allocated this band to three services, namely the fixed service, the mobile except aeronautical mobile service and the mobile-satellite service. Two of the allocations are on a primary basis, the fixed service and the mobile-satellite service as indicated by the use of uppercase letters. The Mobile except aeronautical mobile service is allocated to this frequency band on a secondary basis. Transmission in the mobile-satellite service is used in the space to earth direction as indicated by (S-E)

Generally where a footnote appears on the same line as a service it indicates that the footnote is directly applicable to the service it shares a line with. For example footnote 5.409 is directly applicable to the fixed service in this band.

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

Where a footnote appears below the main text and is separated by at least one empty line, it indicates that the footnote is applicable to the whole frequency band. For example footnote 5.423 is applicable to the whole of the band 2500 – 2520 MHz.

5.423 In the band 2 500-2 600 MHz, ground-based radars used for meteorological purposes are authorized to operate on a non-interference basis.

The complete text of all the footnotes mentioned in the tables are found in Annex 1 of this document.

The third column indicates national usage. Currently the band 2500 – 2520 MHz is only used for programme retransmission services.

The fourth column contains notes and future developments where applicable. Concerning programme retransmission services, these are legislated under three S.I.'s (Statutory Instruments).

A possible future development is that the band may also be used in Ireland for mobile satellite applications, if these services become available and sharing with the programme retransmission services is feasible. The acronym ERC/DEC (08)04, refers to a decision (DEC) made by the European Radiocommunications Committee (ERC) - a committee of the European Conference of Postal and Telecommunications Administrations (CEPT) responsible for radio matters. In this example, the fictitious decision is entitled "ERC Decision of 1st April 2008 on the sharing of the mobile-satellite service and fixed services in the band 2500 – 2600 MHz". Typically such a Decision would give sharing criteria between services and the date of employing these services where applicable. When ever reference is made to an ERC or ECC decision, it indicates that, unless other wise stated, Ireland has accepted and is implementing the Decision.

Other notes in column 4 could include, for example, references to:

- The ITU Radio Regulations e.g. Appendix 16 of Radio Regulations
- Other parts of this document e.g. Short Range Device – See details in Annex 4
- European Standards e.g. ETS 300 393
- Regional frequency plans e.g. ITU Stockholm 1961 plan which covers assignments for television broadcasting.
- Other ComReg documents that are applicable e.g. See Links Guidelines, Document ComReg 98/14R3. This directs the user to a ComReg document number98/14R3. The Third revision of the fourteen document published in 1998, available on the ComReg website.

Shading - Whenever the text in columns 2 and 3 of the table is shaded, it indicates that Ireland in not harmonised with the European table of frequency allocations and utilization. This European table is contained in ERC Report 025 and can be obtained from the ERO website (www.ero.dk).

IMPORTANT NOTICE

The information in this document is made available by the Commission for Communications Regulation (ComReg) on the understanding that it is for information purposes only. It is not intended to form the basis of any investment decision and should not be considered as a recommendation by the Commissioners or their advisors to participate in any tender for the allocation of radio spectrum.

ComReg makes no representation or warranty nor accepts any responsibility as to the accuracy or completeness of the information contained in this document and any liability in respect of any such information or any inaccuracy in, or omission from, this document is hereby expressly disclaimed.

Recipients of this document in any format should consult their own professional financial, legal or other advice in order to make an independent assessment of the potential value of any allocation of radio spectrum by what ever means applicable.

The policy of ComReg is to correct and update the document at regular intervals.

2: TABLE OF FREQUENCY ALLOCATIONS

Part A - The Radio Spectrum: kHz 9 kHz to 27 500 kHz

Frequency Band (kHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
Below 9	(Not Allocated) 5.53 5.54	Short Range Devices	Details in Annex 4
9 - 14	RADIONAVIGATION	Short Range Devices	Details in Annex 4
14 - 19.95	FIXED MARITIME MOBILE 5.57 5.56	Short Range Devices	Details in Annex 4
19.95 - 20.05	STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	Standard Freq.& Time Signal (Reception)	
20.05 - 70	FIXED MARITIME MOBILE 5.57 5.56	Short Range Devices	Details in Annex 4
70 - 72	RADIONAVIGATION 5.60	Radionavigation Short Range Devices	 Details in Annex 4
72 - 84	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56	Short Range Devices	Details in Annex 4
84 - 86	RADIONAVIGATION 5.60	Radionavigation Short Range Devices	 Details in Annex 4.
86 - 90	FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56	Paging (Commercial Firms) Short Range Devices	 Details in Annex 4
90 - 110	RADIONAVIGATION 5.62 Fixed 5.64	Radionavigation Short Range Devices	LORAN – C system Details in Annex 4.
110 - 112	FIXED MARITIME MOBILE RADIONAVIGATION 5.64	Radionavigation Short Range Devices	 Details in Annex 4.
112 - 115	RADIONAVIGATION 5.60	Radionavigation Short Range Devices	 Details in Annex 4.
115 - 117.6	RADIONAVIGATION 5.60 Fixed Maritime Mobile 5.64	Radionavigation Short Range Devices	 Details in Annex 4.
117.6 - 126	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	Short Range Devices	Details in Annex 4.

Part A - The Radio Spectrum: kHz 9 kHz to 27 500 kHz

Frequency Band (kHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
126 - 129	RADIONAVIGATION 5.60	Radionavigation	
		Short Range Devices	Details in Annex 4.
129 - 130	FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	Short Range Devices	Details in Annex 4.
130 - 148.5	MARITIME MOBILE FIXED	Weather Chart Reception	
		Amateur: Secondary	Within the band 135.7 – 137.8 kHz
	5.64	Short Range Devices (130 – 135 kHz)	Details in Annex 4.
148.5 - 255	BROADCASTING	Broadcasting (AM Sound)	ITU Geneva 1975 Plan.
255 - 283.5	BROADCASTING AERONAUTICAL RADIONAVIGATION	Broadcasting (AM Sound)	ITU Geneva 1975 Plan.
283.5 - 315	MARITIME RADIONAVIGATION (Radiobeacons) AERONAUTICAL RADIONAVIGATION	Maritime Radionavigation: Radiobeacons	Gen 85-EMA
		Maritime Radionavigation: DGPS	Transmission of DGPS signals
	5.72 5.73	Short Range Devices (from 285 kHz)	Details in Annex 4.
315 - 325	AERONAUTICAL RADIONAVIGATION Maritime Radionavigation (Radiobeacons) 5.73 5.72	Short Range Devices	Details in Annex 4.
325 - 405	AERONAUTICAL RADIONAVIGATION 5.72	Aeronautical Radionavigation: Non- Directional Beacons	Annex 10 to the Convention on International Civil Aviation.
		Short Range Devices (up to 400 kHz)	Details in Annex 4.
405 - 415	RADIONAVIGATION 5.76 5.72	Aeronautical Radionavigation: Non-Directional Beacons	Annex 10 to the Convention on International Civil Aviation.
415 - 435	AERONAUTICAL RADIONAVIGATION MARITIME MOBILE 5.79 5.72	Aeronautical Radionavigation: Radiobeacons	Gen 85-MM
		Maritime Mobile (DSC)	Gen 85-MM
435 - 495	MARITIME MOBILE 5.79 5.79A Aeronautical Radionavigation	Maritime Mobile	Gen 85-MM.
		NAVTEX reception	490 kHz used for local, non-English language transmissions
	5.72 5.82	Receiver IF	455 – 457 kHz
495 - 505	MOBILE (distress and calling) 5.83	Maritime GMDSS	500 kHz is an international Distress and Calling Frequency for Radiotelegraphy
505 - 526.5	MARITIME MOBILE 5.79 5.57A 5.84 AERONAUTICAL RADIONAVIGATION	Maritime Mobile	Gen 85-MM.
		Aeronautical Radio Beacons (510 - 526.5 kHz)	Gen 85-MM.
	5.72	NAVTEX reception	518 kHz, the international NAVTEX chnl.
526.5 - 1606.5	BROADCASTING	Broadcasting (AM Sound)	ITU Geneva 1975 Plan.

Part A - The Radio Spectrum: kHz 9 kHz to 27 500 kHz

Frequency Band (kHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
1606.5 - 1625	MARITIME MOBILE 5.90 FIXED LAND MOBILE 5.92	Maritime Mobile (DSC)	Gen 85-MM.
1625 - 1635	RADIOLOCATION	Radiolocation	
1635 - 1800	MARITIME MOBILE 5.90 FIXED LAND MOBILE 5.92 5.96	Maritime Mobile Radiolocation: Position Fixing	Gen 85-MM.
		Short Range Devices (1650–1950 kHz)	Details in Annex 4.
1800 - 1810	RADIOLOCATION	Radiolocation: Position Fixing	
		Short Range Devices	Details in Annex 4.
1810 - 1850	AMATEUR 5.100	Amateur (Primary)	
		Short Range Devices	Details in Annex 4.
1850 - 2000	FIXED MOBILE except aeronautical mobile 5.92 5.96 5.103	Radiolocation: Position Fixing	
		Amateur (Primary)	
		Short Range Devices	Details in Annex 4.
2000 - 2025	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	Fixed	
		Maritime Mobile	
		Short Range Devices	Details in Annex 4.
2025 - 2045	FIXED MOBILE except aeronautical mobile (R) Meteorological Aids 5.104 5.92 5.103	Short Range Devices	Details in Annex 4.
2045 -2160	MARITIME MOBILE FIXED LAND MOBILE 5.92	Maritime Mobile	Gen 85-MM
			International telephony frequencies – ITU RR Article 52.
		Short Range Devices	Details in Annex 4.
2160 - 2170	RADIOLOCATION	Radiolocation	
		Short Range Devices	Details in Annex 4.
2170 - 2173.5	MARITIME MOBILE	Short Range Devices	Details in Annex 4.
2173.5 - 2190.5	MOBILE (distress and calling) 5.108 5.109 5.110 5.111	Maritime GMDSS	International Distress and Calling frequencies (2182 kHz)
			DSC Distress and Calling - 2187.5 kHz
			Telex distress traffic – 2174.5 kHz
		Short Range Devices	Details in Annex 4.
2190.5 - 2194	MARITIME MOBILE	Short Range Devices	Details in Annex 4.

Part A - The Radio Spectrum: kHz 9 kHz to 27 500 kHz

Frequency Band (kHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
2194 - 2300	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	Fixed	
		Maritime Mobile	
		Short Range Devices up to 2200 kHz.	Details in Annex 4.
2300 - 2498	FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.103	Maritime Mobile	
2498 - 2501	STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)	Standard Frequency and Time Signal (Reception)	
2501 -2502	STANDARD FREQUENCY AND TIME SIGNAL Space Research	Standard Frequency and Time Signal (Reception)	
2502 -2625	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	Fixed	
		Maritime Mobile	
		Short Range Devices	Details in Annex 4.
2625 - 2650	MARITIME MOBILE MARITIME RADIONAVIGATION 5.92	Maritime Mobile	
		Short Range Devices	Details in Annex 4.
2650 - 2850	FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	Fixed	
		Maritime Mobile	
		Short Range Devices	Details in Annex 4.
2850 - 3025	AERONAUTICAL MOBILE (R) 5.111 5.115	Aeronautical Mobile (Government Services)	Appendix 27 of Radio Regulations.
			Telephony distress and calling - 3023 kHz used by rescue centres.
		Short Range Devices	Details in Annex 4.
3025 - 3155	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile (Government Services)	Search and Rescue Operations – Appendix 26 of Radio Regulations.
		Short Range Devices	Details in Annex 4.
3155 - 3200	FIXED MOBILE except aeronautical mobile (R) 5.116	Short Range Devices	Details in Annex 4.
3200 - 3230	FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.116	Short Range Devices	Details in Annex 4.
3230 - 3400	FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116	Fixed (Government Services, Commercial Firms)	
		Short Range Devices	Details in Annex 4.

Part A - The Radio Spectrum: kHz 9 kHz to 27 500 kHz

Frequency Band (kHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
3400 - 3500	AERONAUTICAL MOBILE (R)	Aeronautical Mobile	Appendix 27 of Radio Regulations including HF data links.
		Short Range Devices	Details in Annex 4.
3500 - 3800	AMATEUR FIXED MOBILE except aeronautical mobile	Fixed	
		Amateur	
		Maritime Mobile	
	5.92	Short Range Devices up to 3560 kHz	Details in Annex 4.
3800 - 3900	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE		
3900 - 3950	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile (Government Services)	Appendix 26 of Radio Regulations.
3950 - 4000	FIXED BROADCASTING	Shortwave Broadcasting (Reception)	
4000 - 4063	FIXED MARITIME MOBILE 5.127	Maritime Mobile	Appendix 17 and 25 of Radio Regulations
4063 - 4438	MARITIME MOBILE 5.79A 5.109 5.110 5.129 5.130 5.131 5.132	Maritime Mobile	Appendix 17 and 25 of Radio Regulations, DSC Calling – 4208, 4208.5, 4219.5, 4220, 4220.5 kHz DSC distress traffic – 4207.5 kHz Maritime Safety Information – 4210 kHz, Meteorological and navigation warnings – 4209.5 kHz Telex Distress Traffic – 4177.5 kHz
4438 - 4650	FIXED MOBILE except aeronautical mobile (R)	Fixed (Government Services)	
4650 - 4700	AERONAUTICAL MOBILE (R)	Aeronautical Mobile (Government Services)	Appendix 27 of Radio Regulations
4700 - 4750	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile (Government Services)	Appendix 26 of Radio Regulations.
4750 - 4850	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113		
4850 - 4995	FIXED LAND MOBILE BROADCASTING 5.113	Fixed	
4995 - 5003	STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)	Standard Frequency and Time Signal (Reception)	

Part A - The Radio Spectrum: kHz 9 kHz to 27 500 kHz

Frequency Band (kHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
5003 - 5005	STANDARD FREQUENCY AND TIME SIGNAL Space Research	Standard Frequency and Time Signal (Reception)	
5005 - 5060	FIXED BROADCASTING 5.113		
5060 - 5250	FIXED Mobile except aeronautical mobile	Fixed	
5250 - 5450	FIXED MOBILE except aeronautical mobile	Fixed (Government Services)	
5450 - 5480	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE		
5480 - 5680	AERONAUTICAL MOBILE (R) 5.111 5.115	Aeronautical Mobile	Appendix 27 of Radio Regulations
5680 - 5730	AERONAUTICAL MOBILE (OR) 5.111 5.115	Aeronautical Mobile (Government Services)	Appendix 26 of Radio Regulations.
5730 - 5900	FIXED LAND MOBILE	Fixed (Government Services)	
5900 - 5950	BROADCASTING 5.134 5.136	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
5950 - 6200	BROADCASTING	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
6200 - 6525	MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137	Maritime Mobile	Appendix 17 and 25 of Radio Regulations DSC Calling – 6312.5, 6313, 6313.5, 6331, 6331.5, 6332 kHz DSC distress traffic – 6312 kHz Maritime Safety Information – 6314 kHz, Telex Distress Traffic – 6268 kHz
6525 - 6685	AERONAUTICAL MOBILE (R)	Aeronautical Mobile (Government Services)	Appendix 27 of Radio Regulations
6685 - 6765	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile (Government Services)	Appendix 26 of Radio Regulations.
6765 - 7000	FIXED MOBILE except aeronautical mobile (R) 5.138 5.138A 5.139	Fixed Short Range Devices 6765 – 6795 kHz	 Details in Annex 4.
7000 - 7100	AMATEUR AMATEUR - SATELLITE	Amateur Amateur - Satellite	
7100 - 7200	AMATEUR 5.141C	Shortwave Broadcasting (Reception)	Amateur operation on a secondary basis limited to 100W erp under consideration

Part A - The Radio Spectrum: kHz 9 kHz to 27 500 kHz

Frequency Band (kHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
7200 – 7300	BROADCASTING	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
7300 - 7400	BROADCASTING 5.134 5.143 5.143B	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
7400 - 7450	BROADCASTING 5.143B	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
7450 - 8100	FIXED MOBILE except aeronautical mobile (R) 5.144 5.143E	Fixed Short Range Devices from 7400 kHz	 Details in Annex 4.
8100 - 8195	FIXED MARITIME MOBILE	Maritime Mobile Short Range Devices	Appendix 17 of Radio Regulations Details in Annex 4.
8195 - 8815	MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111	Maritime Mobile Short Range Devices	Appendix 17 and 25 of Radio Regulations DSC Calling – 8415, 8415.5, 8416, 8437, 8437.5 kHz DSC distress traffic – 8364 kHz and 8414.5 kHz Maritime Safety Information – 8416.5 kHz Telex Distress Traffic – 8376.5 kHz Details in Annex 4.
8815 - 8965	AERONAUTICAL MOBILE (R)	Aeronautical Mobile Short Range Devices up to 8900 kHz	Appendix 27 of Radio Regulations Details in Annex 4.
8965-9040	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile (Government Services)	Appendix 26 of Radio Regulations.
9040 - 9400	FIXED	Fixed	
9400 - 9500	BROADCASTING 5.134 5.146	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
9500 - 9900	BROADCASTING 5.147	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
9900 - 9995	FIXED		
9995 - 10003	STANDARD FREQUENCY AND TIME SIGNAL 5.111	Standard Frequency and Time Signal (Reception)	
10003 - 10005	STANDARD FREQUENCY AND TIME SIGNAL Space Research 5.111	Standard Frequency and Time Signal (Reception)	
10005 - 10100	AERONAUTICAL MOBILE (R) 5.111	Aeronautical Mobile	Appendix 27 of Radio Regulations
10100 - 10150	FIXED Amateur	Amateur (secondary)	
10150 - 11175	FIXED Mobile except aeronautical mobile (R)	Fixed	

Part A - The Radio Spectrum: kHz 9 kHz to 27 500 kHz

Frequency Band (kHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
11175 - 11275	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile (Government Service)	Appendix 26 of Radio Regulations.
11275 - 11400	AERONAUTICAL MOBILE (R)	Aeronautical Mobile (Government Service)	Appendix 27 of Radio Regulations
11400 - 11600	FIXED	Fixed (Government Services)	
11600 - 11650	BROADCASTING 5.134 5.146	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
11650 - 12050	BROADCASTING 5.147	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
12050 - 12100	BROADCASTING 5.134 5.146	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
12100 - 12230	FIXED	Fixed	
12230 - 13200	MARITIME MOBILE 5.109 5.110 5.132 5.145	Maritime Mobile	Appendix 17 and 25 of Radio Regulations DSC Calling – 12577.5, 12578, 12578.5, 12657, 12657.5, 12658 kHz DSC distress traffic – 12577 kHz Maritime Safety Information – 12579 kHz Telex Distress Traffic – 12520 kHz
13200 - 13260	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile (Government Services)	Appendix 26 of Radio Regulations.
13260 - 13360	AERONAUTICAL MOBILE (R)	Aeronautical Mobile	Appendix 27 of Radio Regulations
13360 - 13410	FIXED RADIO ASTRONOMY 5.149	Fixed	
13410 - 13570	FIXED Mobile except aeronautical mobile (R) 5.150	Short Range Devices ISM (13553-13567 kHz)	Details in Annex 4.
13570 - 13600	BROADCASTING 5.134 5.151	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
13600 - 13800	BROADCASTING	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
13800 - 13870	BROADCASTING 5.134 5.151	Shortwave Broadcasting (Reception)	Article 12 of Radio Regulations.
13870 - 14000	FIXED Mobile except aeronautical mobile (R)		
14000 - 14250	AMATEUR AMATEUR-SATELLITE	Amateur Amateur–Satellite	
14250 -14350	AMATEUR	Amateur	
14350 - 14990	FIXED	Fixed	

Part A - The Radio Spectrum: kHz 9 kHz to 27 500 kHz

Frequency Band (kHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
14990 - 15005	STANDARD FREQUENCY AND TIME SIGNAL 5.111	Standard Frequency and Time Signal (Reception)	
15005 - 15010	STANDARD FREQUENCY AND TIME SIGNAL Space Research	Standard Frequency and Time Signal (Reception)	
15010 - 15100	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile (Government Services)	Appendix 26 of Radio Regulations.
15100 - 15600	BROADCASTING	Shortwave Broadcasting (Reception)	Shortwave Broadcasting (Reception)
15600 - 15800	BROADCASTING 5.134 5.146	Shortwave Broadcasting (Reception)	Shortwave Broadcasting (Reception)
15800 - 16360	FIXED		
16360 - 17410	MARITIME MOBILE 5.109 5.110 5.132 5.145	Maritime Mobile	Appendix 17 and 25 of Radio Regulations DSC Calling - 16805, 16805.5, 16806, 16903, 16903.5, 16904 kHz DSC distress traffic - 16804.5 kHz Maritime Safety Information - 16806.5 kHz Telex Distress Traffic - 16695 kHz
17410 - 17480	FIXED		
17480 - 17550	BROADCASTING 5.134 5.146	Shortwave Broadcasting (Reception)	Shortwave Broadcasting (Reception)
17550 - 17900	BROADCASTING	Shortwave Broadcasting (Reception)	Shortwave Broadcasting (Reception)
17900 - 17970	AERONAUTICAL MOBILE (R)	Aeronautical Mobile	Appendix 27 of Radio Regulations
17970 - 18030	AERONAUTICAL MOBILE (OR)	Aeronautical Mobile	Appendix 26 of Radio Regulations
18030 - 18052	FIXED		
18052 - 18068	FIXED Space Research		
18068 - 18168	AMATEUR AMATEUR - SATELLITE	Amateur Amateur-Satellite	
18168 - 18780	FIXED Mobile except aeronautical mobile		
18780 - 18900	MARITIME MOBILE	Maritime Mobile	Appendix 17 and 25 of Radio Regulations
18900 - 19020	BROADCASTING 5.134 5.146	Shortwave Broadcasting (Reception)	Shortwave Broadcasting (Reception)
19020 - 19680	FIXED		

Part A - The Radio Spectrum: kHz 9 kHz to 27 500 kHz

Frequency Band (kHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
19680 - 19800	MARITIME MOBILE 5.132	Maritime Mobile	Appendix 17 and 25 of Radio Regulations (Coastal areas and shipboard only) DSC Calling - 19703.5, 19704, 19704.5 kHz Maritime Safety Information - 19680.5 kHz
19800 - 19990	FIXED		
19990 - 19995	STANDARD FREQUENCY AND TIME SIGNAL Space Research 5.111	Standard Frequency and Time Signal (Reception) Search and Rescue applications (Reception)	19993 kHz (±3 kHz) for manned space vehicles.
19995 - 20010	STANDARD FREQUENCY AND TIME SIGNAL 5.111	Standard Frequency and Time Signal (Reception)	
20010 - 21000	FIXED Mobile		
21000 - 21450	AMATEUR AMATEUR-SATELLITE	Amateur Amateur-Satellite	
21450 - 21850	BROADCASTING	Shortwave Broadcasting (Reception)	Shortwave Broadcasting (Reception)
21850 - 21870	FIXED		
21870 - 21924	FIXED 5.155B		
21924 - 22000	AERONAUTICAL MOBILE (R)	Aeronautical Mobile	Appendix 27 of Radio Regulations
22000 - 22855	MARITIME MOBILE 5.132	Maritime Mobile	Appendix 17 and 25 of Radio Regulations Coastal areas and shipboard only) DSC Calling - 22374.5, 22375, 22375.5, 22444, 22444.5, 22445 kHz Maritime Safety Information - 22376 kHz
22855 - 23000	FIXED		
23000 - 23200	FIXED Mobile except aeronautical mobile (R)		
23200 - 23350	FIXED 5.156A AERONAUTICAL MOBILE (OR)		
23350 - 24000	FIXED MOBILE except aeronautical mobile 5.157		
24000 - 24890	FIXED LAND MOBILE		
24890 - 24990	AMATEUR AMATEUR-SATELLITE	Amateur Amateur-Satellite	

Part A - The Radio Spectrum: kHz 9 kHz to 27 500 kHz

Frequency Band (kHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
24990 - 25005	STANDARD FREQUENCY AND TIME SIGNAL (25000 kHz)	Standard Frequency and Time Signal (Reception)	
25005 - 25010	STANDARD FREQUENCY AND TIME SIGNAL Space Research	Standard Frequency and Time Signal (Reception)	
25010 - 25070	FIXED MOBILE except aeronautical mobile		
25070 - 25210	MARITIME MOBILE	Maritime Mobile	Appendix 17 and 25 of Radio Regulations
25210 - 25550	FIXED MOBILE except aeronautical mobile		
25550 - 25670	RADIO ASTRONOMY 5.149		
25670 - 26100	BROADCASTING	Shortwave Broadcasting (Reception)	Shortwave Broadcasting (Reception)
26100 - 26175	MARITIME MOBILE 5.132	Maritime Mobile	Appendix 17 and 25 of Radio Regulations DSC Calling - 26121, 26121.5, 26122 kHz Maritime Safety Information - 26100.5 kHz
26175 - 27500	FIXED MOBILE except aeronautical mobile 5.150	Paging (private, on-site)	EN 300 224
		Citizen Band Radio (26.96 - 27.41 MHz.)	CEPT/ERC/DEC/(98)11, EN 300 135, EN 300 433 Exemption under S.I. 436 of 1998
		Surface Model Control	Treated as a Short Range Device - See Annex 4
		ISM	26.957-27.283 MHz
		Short Range Devices	See Annex 4

3: TABLE OF FREQUENCY ALLOCATIONS

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Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
27.5 - 28	METEOROLOGICAL AIDS FIXED MOBILE	Paging (private, on-site)	EN.300 224
28 - 29.7	AMATEUR AMATEUR-SATELLITE	Amateur Amateur-satellite.	
29.7 - 30.005	FIXED MOBILE	Telemetry	
30.005 - 30.01	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	Fixed Mobile (government services)	
30.01 - 37.5	FIXED MOBILE	Paging (Hospitals) Cordless telephones (fixed part) (31.025 - 31.325 MHz.) Telemetry Fixed (Government Services) Mobile (Government Services) Model Aircraft Control (AM/FM)	ETSI EN 300 224 SI 410 of 1997. See details in Annex 4
37.5 - 38.25	FIXED MOBILE Radio Astronomy 5.149	Fixed Mobile (Government services)	
38.25 - 39.986	FIXED MOBILE	Cordless telephones (portable part) (39.925 - 40.225 MHz.) Fixed (Government Services)	EN 301 489, SI 410 of 1997
39.986 - 40.02	FIXED MOBILE Space Research	Cordless telephones (portable part) (39.925 - 40.225 MHz.) Fixed (Government Services) Mobile (Government Services)	ETSI EN 301 489, SI 410 of 1997
40.02 - 40.98	FIXED MOBILE 5.150	Cordless telephones (portable part) (39.925 - 40.225 MHz.) Fixed (Government Services) Mobile (Government Services) Short Range Devices ISM (40.66 - 40.7 MHz)	ETSI EN 301 489, SI 410 of 1997 Details in Annex 4
40.98 - 41.015	FIXED MOBILE Space Research	Fixed Mobile (Government services)	

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
41.015 - 44	FIXED MOBILE	Fixed	
		Mobile (Government services)	
44 - 47	FIXED MOBILE	Fixed (Government Services)	
		Mobile (Government Services)	
	5.162A	Radiolocation (secondary) (46-68 MHz)	Wind profiler radar - ITU Res. 217
47 - 68	BROADCASTING 5.162A 5.164		ITU Stockholm 1961 Plan: Television Broadcasting ceased.
		Amateurs (secondary) (50-52.0 MHz)	
		Radiolocation (secondary) (46-68 MHz)	Wind profiler radar - ITU Res. 217
		Short Range Devices	See Annex 4
68 - 74.8	FIXED MOBILE except aeronautical mobile 5.149	Land mobile (Gov. Services, Commercial, Local Authorities) Public Broadcasters)	
		Amateur (secondary) (70.125-70.450 MHz)	
74.8 - 75.2	AERONAUTICAL RADIONAVIGATION 5.180	Aeronautical Radionavigation	ILS/Marker Beacons Annex 10 to the Convention on International Civil Aviation.
75.2 - 87.5	FIXED MOBILE except aeronautical mobile	Land mobile (Gov. Services, Commercial, Local Authorities)	PMR (VHF Low Band) mainly commercial users and Local Authorities (Channel spacing 12.5 kHz)
87.5 - 100	BROADCASTING	Broadcasting (FM Sound)	ITU Geneva 1984 Plan
100 - 108	BROADCASTING	Broadcasting (FM Sound)	ITU Geneva 1984 Plan
108 - 117.975	AERONAUTICAL RADIONAVIGATION	Aeronautical Radionavigation	Instrument Landing Systems (ILS) VHF Omni-Range (VOR) (108 - 118 MHz). Annex 10 to the Convention on International Civil Aviation.
117.975 - 137	AERONAUTICAL MOBILE (R) 5.111 5.198 5.199 5.200 5.203	Aeronautical Radionavigation: air-ground-air communications (ATC)	Aeronautical Emergency Freq-121.5 MHz Auxiliary Frequency to 121.5 MHz - 123.1 MHz Annex 10 to the Convention on International Civil Aviation.
137 - 137.025	SPACE OPERATION (s-E) METEOROLOGICAL-SATELLITE (s-E) SPACE RESEARCH (s-E) MOBILE-SATELLITE (s-E) 5.208A 5.209 Fixed Mobile except aeronautical mobile (R) 5.208	Satellite Personal Communication Service	CEPT/ERC/DEC (99) 06 Leotelcom - 1 only.

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
137.025 - 137.175	SPACE OPERATION (s-E) METEOROLOGICAL-SATELLITE (s-E) SPACE RESEARCH (s-E) Mobile-Satellite (s-E) 5.208A 5.209 Fixed Mobile except aeronautical mobile (R) 5.208	Satellite Personal Communication Service	CEPT/ERC/DEC (99) 06 Leotelcom - 1 only.
137.175 - 137.825	SPACE OPERATION (s-E) METEOROLOGICAL-SATELLITE (s-E) SPACE RESEARCH (s-E) MOBILE-SATELLITE (s-E) 5.208A 5.209 Fixed Mobile except aeronautical mobile (R) 5.208	Meteorological-Satellite (LEO Reception) Satellite Personal Communication Service	Typically 137.5MHz and 137.62 MHz CEPT/ERC/DEC (99) 06 Leotelcom - 1 only.
137.825 - 138	SPACE OPERATION (s-E) METEOROLOGICAL-SATELLITE (s-E) SPACE RESEARCH (s-E) Mobile-Satellite (s-E) 5.208A 5.209 Fixed Mobile except aeronautical Mobile (R) 5.208	Meteorological-Satellite (LEO Reception)	Typically 137.85 MHz
138 - 143.6	AERONAUTICAL MOBILE (OR) 5.211	Land Mobile	VHF mid-Band. (Channel spacing 12.5 kHz)
143.6 - 143.65	AERONAUTICAL MOBILE (OR) SPACE RESEARCH (s-E) 5.211	Land Mobile	VHF mid-Band. (Channel spacing 12.5 kHz)
143.65 - 144	AERONAUTICAL MOBILE (OR) 5.211	Land Mobile	VHF mid-Band. (Channel spacing 12.5 kHz)
144 - 146	AMATEUR AMATEUR-SATELLITE	Amateur Amateur-Satellite	
146 - 148	FIXED MOBILE except aeronautical mobile (R)	Land Mobile	VHF mid-Band. (Channel spacing 12.5 kHz)
148 - 149.9	FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-space) 5.209 5.218 5.219 5.221	Land Mobile Satellite Personal Communication Service	VHF mid-Band. (Channel spacing 12.5 kHz) CEPT/ERC/DEC (99) 06 Leotelcom - 1 only.

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
149.9 - 150.05	RADIONAVIGATION-SATELLITE 5.224B MOBILE-SATELLITE (E-s) 5.209 5.224A 5.220 5.222 5.223	Satellite Personal Communication Service	CEPT/ERC/DEC (99) 06 Leotelcom - 1 only.
150.05 - 153	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	Land Mobile	VHF mid-Band. (Channel spacing 12.5 kHz)
153 - 154	FIXED MOBILE except aeronautical mobile (R) Meteorological Aids	Paging	EN 300 224
154 - 156.7625	FIXED MOBILE except aeronautical mobile (R) 5.226 5.227	Maritime Mobile Coast Stations (156 - 162 MHz)	Appendix 18 Radio Regulations. EN 300 162
		Land Mobile	PMR VHF Mid Band (Civil). (12.5 kHz Channels)
156.7625 - 156.8375	MARITIME MOBILE (distress and calling) 5.111 5.226	Maritime Mobile Coast Stations (156 - 162 MHz)	Appendix 18 Radio Regulations. EN 300 162
		Land Mobile	PMR VHF High Band, mainly commercial users and Local Authorities. (12.5 kHz Channels)
156.8375 - 174	FIXED MOBILE except aeronautical mobile 5.226	ERMES (169.4 -169.8 MHz.)	E.C Directive 90/543/EEC, S.I.No.28 of 1995, CEPT/ERC/DEC(94)02
		Maritime Mobile Coast Stations (156 - 162 MHz)	Appendix 18 Radio Regulations. EN 300 162 CEPT/ERC/DEC (99)17 from 01/01/2000
		AIS (161.975 & 162.025 MHz reserved)	
		Fixed	
		Land Mobile and Telemetry	PMR VHF High Band, mainly commercial users and Local Authorities (Channel spacing 12.5 kHz)
		Short Range Devices	Details in Annex 4
174 - 223	BROADCASTING	Broadcasting: Television	ITU Stockholm 1961 Plan
		Broadcasting: T-DAB	Planned introduction of T-DAB under T-DAB 1995 Wiesbaden Arrangement, revised Maastricht 2002.
		Short Range Devices	Details in Annex 4
223 - 230	BROADCASTING Fixed Mobile	Broadcasting: Television	ITU Stockholm 1961 Plan
		Broadcasting: T-DAB	Planned introduction of T-DAB in Ireland (223-230 MHz) under T-DAB 1995 Wiesbaden Arrangement revised Maastricht 2002.
230 - 235	FIXED MOBILE		

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
235 - 267	FIXED MOBILE 5.111 5.199 5.254 5.256	Fixed (Government Services)	
		Mobile (Government Services)	243 MHz Emergency SAR, SAR Training Frequencies, ATC, Air to Air
		Naval Intership Communications	
			242.9-243.1 SARSAT uplink
267 - 272	FIXED MOBILE Space Operation (s-E) 5.254 5.257	Fixed	
272 - 273	SPACE OPERATION (s-E) FIXED MOBILE 5.254		
273 - 312	FIXED MOBILE 5.254	Mobile: Emergency Search & Rescue-SAR (Government Services)	
		Position Fixing	
312 - 315	FIXED MOBILE MOBILE-SATELLITE (E-s) 5.254 5.255	Satellite Personal Communication System	CEPT/ERC/DEC(99) 06
315 - 322	FIXED MOBILE 5.254	Low Power Security Devices	
322 - 328.6	FIXED MOBILE RADIO ASTRONOMY 5.149		
328.6 - 335.4	AERONAUTICAL RADIONAVIGATION 5.258	Aeronautical Radionavigation	ILS/Glide slope indicators Annex 10 to the Convention on International Civil Aviation.
335.4 - 387	FIXED MOBILE 5.254	Mobile: Trunked Radio (Planned)	
		Digital Land Mobile(Emergency) (380-385 MHz/390-395 MHz)	CEPT/ERC/DEC(96) 01, TETRA System
			CEPT/ERC/DEC(01) 19, CEPT/ERC/DEC(01) 20
		Digital Land Mobile(Civil) (385-390 MHz /395-399.9 MHz)	CEPT/ERC/DEC(96) 04, EN 300 392, ETS 300 393
387 - 390	FIXED MOBILE Mobile-Satellite (s-E) 5.208A 5.254 5.255	Mobile: Trunked Radio (Planned)	
		Digital Land Mobile(Civil) (385-390 MHz/395-399.9 MHz)	CEPT/ERC/DEC(96) 04, EN 300 392, ETS 300 393
		Satellite Personal Communication System	CEPT/ERC/DEC(99) 06 - Secondary Basis Only.

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
390 - 399.9	FIXED MOBILE 5.254	Mobile: Trunked Radio (Planned) Digital Land Mobile (Emergency) (380-85 MHz/390-395 MHz) Digital Land Mobile (Civil) (385 -390 MHz/395-399.9 MHz)	 CEPT/ERC/DEC(96) 01, TETRA System CEPT/ERC/DEC(01) 19, CEPT/ERC/DEC(01) 20 CEPT/ERC/DEC(96) 04, EN 300 392, ETS 300 393
399.9 - 400.05	RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260 MOBILE SATELLITE (E-s) 5.209 5.224A 5.220	Radionavigation satellite Satellite Personal Communication System	 CEPT/ERC/DEC(99) 06
400.05 - 400.15	STANDARD FREQUENCY AND TIME SIGNAL -SATELLITE (400.1 MHz) 5.261	Standard Frequency and Time Signal (Reception)	
400.15 - 401.00	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (s-E) SPACE RESEARCH (s-E) MOBILE-SATELLITE (s-E) 5.208A 5.209 Space Operation (s-E) 5.263 5.264	Meteorological Aids (Radiosondes) Satellite Personal Communication System	 CEPT/ERC/DEC(99) 06
401 - 402	METEOROLOGICAL AIDS SPACE OPERATION (s-E) EARTH EXPLORATION-SATELLITE (E-s) Fixed METEOROLOGICAL SATELLITE (E-s) Mobile except aeronautical mobile	Meteorological Aids (Radiosondes)	
402 - 403	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (E-s) Fixed METEOROLOGICAL-SATELLITE (E-s) Mobile except aeronautical mobile	Meteorological Aids (Radiosondes) Short Range Devices	 Details in Annex 4
403 - 406	METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	Meteorological Aids (Radiosondes) Short Range Devices	 Details in Annex 4
406 - 406.1	MOBILE-SATELLITE (E-s) 5.266 5.267	EPIRB (Emergency beacons)	Cospar/Sarsat - This band is only available for distress and safety purposes.
406.1 - 410	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149		

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
410 - 420	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (s-s) 5.268	Land Mobile: Analogue Trunked Radio (415.775-418.9875 MHz / 425.775 -428.9875 MHz)	
		Digital Land Mobile(Civil)	CEPT/ERC/DEC(96) 04, (04)06. EN 300 392, ETS 300 393
420 - 430	FIXED MOBILE except aeronautical mobile Radiolocation	Land Mobile: Analogue Trunked Radio: (415.775-418.9875 MHz / 425.775-428.9875 MHz)	
		Fixed (429.5-429.975 / 440.025-440.5 MHz)	Fixed to be phased out
		Digital Land Mobile(Civil)	CEPT/ERC/DEC(96) 04, (04)06. EN 300 392, ETS 300 393
430 - 432	AMATEUR RADIOLOCATION	Amateur	
		Radiolocation	
432 - 438	AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.138 5.279A 5.282	Amateur	
		Radiolocation	
		Short Range Devices	Details in Annex 4
438 - 440	AMATEUR RADIOLOCATION	Amateur	
		Radiolocation	
440 - 450	FIXED MOBILE except aeronautical mobile Radiolocation 5.286	Fixed (429.5-429.975 / 440.025-440.5 MHz)	Fixed to be phased out.
		Mobile: PMR 446 (446-446.1 MHz): 8 channels 446.00625 MHz, 446.01875 MHz, 446.03125 MHz, 446.04375 MHz, 446.05625 MHz, 446.06875 MHz, 446.08125 MHz, 446.09375 MHz	SI 93 of 1998 exempts PMR446 in this band from requiring a licence. CEPT/ERC/DEC(98) 25, ETSI EN 300 296
		Digital Land Mobile	CEPT/ERC/DEC/(01) 21
450 - 455	FIXED MOBILE 5.209 5.286 5.286A 5.286B 5.286C	Fixed	Fixed to be phased out
		Land mobile	PMR UHF Band (Channel spacing 12.5 kHz)
			Digital Land Mobile Civil, CEPT/ERC/DEC(96) 04 (not planned at present)
455 - 456	FIXED MOBILE 5.209 5.286A 5.286B 5.286C	Fixed	Fixed to be phased out
		Land mobile	PMR UHF Band (Channel spacing 12.5 kHz)
			Digital Land Mobile Civil, CEPT/ERC/DEC(96) 04 (not planned at present)
456 - 459	FIXED MOBILE 5.287	Fixed	Fixed to be phased out
		Land mobile (Gov. Services, Commercial, Local Authorities)	PMR UHF Band (Channel spacing 12.5 kHz) T/R 32-02
			Digital Land Mobile Civil, CEPT/ERC/DEC(96) 04 (not planned at present
		On-board ship communications	Within the band 457.525 - 457.575 MHz.

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
459 - 460	FIXED MOBILE 5.209 5.286A 5.286B 5.286C	Fixed	Fixed to be phased out.
		Land mobile	PMR UHF Band (Channel spacing 12.5 kHz)
			T/R 32-02 Digital Land Mobile Civil, CEPT/ERC/DEC(96)04 (not planned at present)
460 - 470	FIXED MOBILE METEOROLOGICAL-SATELLITE (s-E) 5.287 5.289	Land mobile (Gov. Services, Commercial, Local Authorities)	PMR UHF Band (Channel spacing 12.5 kHz)
		On-board ship communications	
		Fixed	
			Digital Land Mobile Civil, CEPT/ERC/DEC(96)04 (not planned at present)
470 - 790	BROADCASTING 5.149 5.296 5.302 5.306 5.311	Broadcasting (Television)	ITU Stockholm 1961 Plan Mobile (services ancillary to broadcasting only as per 5.296) Digital Broadcasting (DTT), CEPT Chester Agreement (1997)
790 - 862	FIXED BROADCASTING	Broadcasting (Television)	ITU Stockholm 1961 Plan Digital Broadcasting (DTT) CEPT Chester Agreement (1997)
		Broadcasting (OB Links)	Links to be relocated to 1.3 GHz.
862 - 890	FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322	Digital Land Mobile Civil 870-876 MHz / 915-921 MHz	CEPT/ERC/DEC/(96)04, EN 300 392, ETS 300 393
		Public Mobile Radio GSM Extension Bands 880 - 890 MHz / 925 -935 MHz	CEPT/ERC/ DEC/ (97)02 (E-GSM) S.I. 158 of 2003
		Cordless Telephones (864.1 - 868.1 MHz)	Handled as a short range device. CT2 - CAI, I-ETS 300 131, SI 410 of 1997.
		Short Range Devices	Details in Annex 4
890 - 942	FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation	Public Cellular Mobile Radio: GSM (Digital) (892-915/937-960 MHz)	E.C. Dir. 87/372/EEC, S.I. 416 of 1994, S.I. 158 of 2003
		Broadcasting (Links)	Existing links to be relocated
		GSM extension Bands 880-890 MHz / 925-935 MHz	CEPT/ERC/DEC/(97)02 (E-GSM) S.I. 158 of 2003
		Digital Land Mobile (Civil) 870-876 MHz / 915-921 MHz.	CEPT/ERC/DEC/(96)04,(04)06. EN 300 392, ETS 300 393
942 - 960	FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322	Public Cellular Mobile Radio: GSM (Digital) (900 - 915/945 - 960 MHz)	E.C. Dir. 87/372/EEC, S.I. 416 of 1994, S.I. 158 of 2003
		Broadcasting (Links)	Existing links to be relocated
960 - 1164	AERONAUTICAL RADIONAVIGATION 5.328	Aeronautical Radionavigation	Flight safety, navigation and information distribution (DME, TACAN, MIDS) Annex 10 to the Convention on International Civil Aviation.

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
1164 - 1215	AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (s-E) (s-s) 5.328A 5.328B	Aeronautical Radionavigation	Flight safety, navigation and information distribution (DME, TACAN, MIDS) Annex 10 to the Convention on International Civil Aviation.
1215 - 1240	EARTH EXPLORATION-SATELLITE (Active) RADIOLOCATION RADIONAVIGATION-SATELLITE (s-E) (s-s) 5.329 5.329A 5.328A SPACE RESEARCH (Active) 5.332	Radionavigation: Radar, Navigation Systems and Active Sensors, GPS, Galileo	
		Amateur (Secondary)	
1240 - 1300	EARTH EXPLORATION-SATELLITE (Active) RADIOLOCATION RADIONAVIGATION-SATELLITE (s-E)(s -s) 5.329 5.329A SPACE RESEARCH (Active) Amateur 5.332 5.282 5.335A	Radionavigation: Radar, Navigation Systems, Active Sensors, Glonass and Galileo	
		Amateur (Secondary)	Extension to 1304 MHz @ 0dBW under consideration
1300 - 1350	AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION-SATELLITE (Earth-space) 5.149 5.337A	Radio Navigation Systems	Radar, Navigation Systems, Satellite Navigation.
1350 - 1400	FIXED MOBILE RADIOLOCATION 5.149 5.339 5.339A	Fixed: Point-Point Links (Infrastructure)	CEPT/ERC/ REC 13- 01 E: Annex A - 1.3/1.5 GHz band, Annex B - 1.4 GHz band See Links Guidelines in ComReg Doc. 98/14R3
1400 - 1427	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	Radio Astronomy (all emissions prohibited)	
1427 - 1429	FIXED SPACE OPERATION (E-s) MOBILE except aeronautical mobile 5.341	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/ REC 13- 01 E: Annex B. See Links Guidelines in ComReg Doc. 98/14R3
1429 - 1452	FIXED MOBILE except aeronautical mobile 5.341 5.339A	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/ REC 13- 01 E: Annex B. See Links Guidelines in ComReg Doc. 98/14R3
1452 - 1492	FIXED MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.345 5.347 BROADCASTING 5.345 5.347 5.341 5.347A	Fixed	Band Closed to Fixed Service.
			Digital Audio Broadcasting Resolution 528 (WARC-92) (CEPT 2002 Maastricht Arrangement)
			S-DAB Allocation 1479.5-1492 MHz, CEPT /ECC/DEC(03

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
1492 - 1518	FIXED MOBILE except aeronautical mobile 5.341 5.342	Fixed	CEPT/ERC/ REC 13- 01 E: Annex A. 1.3/1.5 GHz band, Annex B See Links Guidelines in ComReg Doc. 98/14R3
1518 - 1525	FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (s-E) 5.348 5.348A 5.348C 5.341 5.342	Fixed	Band Closed.
1525 - 1530	SPACE OPERATION (s-E) FIXED MOBILE-SATELLITE (s-E) 5.351A EARTH EXPLORATION-SATELLITE Mobile except aeronautical mobile 5.341 5.351 5.352A 5.354 5.347A	Mobile-satellite	Inmarsat-D and Mini-M, EMS-MSSAT and EMS PRODAT terminals
1530 - 1535	SPACE OPERATION (s-E) MOBILE-SATELLITE (s-E) 5.351A 5.353A EARTH EXPLORATION-SATELLITE Fixed Mobile except aeronautical mobile 5.341 5.351 5.354 5.347A	Maritime Mobile-Satellite (s-E): Inmarsat System	Other Mobile-Satellite Systems
1535 - 1559	MOBILE-SATELLITE (s-E) 5.351A 5.341 5.351 5.353A 5.354 5.356 5.357 5.347A 5.357A	Maritime Mobile-Satellite (s-E): Inmarsat-M (receive) Search and Rescue (SAR) Satellite Systems including GMDSS	 1544-1545 MHz SASAT Downlink
1559 - 1610	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION SATELLITE (s-E) (s-s) 5.329A 5.328A 5.341	Aeronautical Radionavigation: GPS, Glonass and Galileo.	
1610 - 1610.60	AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (E-s) 5.351A 5.341 5.364 5.366 5.367 5.368 5.371 5.372	Aeronautical Radionavigation: Glonass Satellite Personal Communications Service	 S-PCS (planned) CEPT/ERC/DEC/(97)03, SI 214 (1998)
1610.60 - 1613.80	AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (E-s) 5.351A RADIO ASTRONOMY 5.149 5.341 5.364 5.366 5.367 5.368 5.371 5.372	Aeronautical Radionavigation: Glonass Satellite Personal Communications Service	 S-PCS (planned) CEPT/ERC/DEC/(97)03, SI 214 (1998)
1613.80 - 1626.50	AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (E-s) 5.351A MOBILE-SATELLITE (s-E) 5.341 5.364 5.365 5.366 5.367 5.368 5.371 5.372 5.347A	Aeronautical Radionavigation: Glonass Satellite Personal Communications Service	 S-PCS (planned) CEPT/ERC/DEC/(97)03, SI 214 (1998)
1626.50 - 1660.00	MOBILE-SATELLITE (E-s) 5.351A 5.341 5.351 5.353A 5.354 5.357A 5.374 5.375 5.376	Maritime Mobile-Satellite (E-s): Inmarsat-M (transmit) Search and Rescue (SAR) Satellite Systems including GMDSS	CEPT/ERC/DEC(04) 98 1645.5-1646.5 MHz SARSAT Uplink

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
1660.00 - 1660.50	RADIO ASTRONOMY MOBILE-SATELLITE (E-s) 5.351A 5.149 5.341 5.351 5.354 5.376A	Radio Astronomy	Important band for Radio Astronomy
1660.50 - 1668	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379A	Radio Astronomy	Important band for Radio Astronomy
1668 - 1668.4	MOBILE-SATELLITE (E-s) 5.348C 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A 5.379D	Radio Astronomy	Important band for Radio Astronomy
1668.4 - 1670	METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (E-s) 5.348C 5.379B 5.379C RADIO ASTRONOMY 5.149 5.341 5.379D	Radio Astronomy	Important band for Radio Astronomy
1670 - 1675	METEOROLOGICAL AIDS FIXED METEOROLOGICAL - SATELLITE (s-E) MOBILE 5.380 MOBILE-SATELLITE (E-s) 5.348C 5.379B 5.341 5.379D 5.379E 5.380A	TFTS (ground-air) 1670-1675 MHz	TFTS System removed from service. Band reserved for harmonised European use under CEPT/ECC/DEC/(02)07
1675 - 1690	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (s-E) MOBILE except aeronautical mobile 5.341	Meteorological-Satellites	
1690 - 1700	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (s-E) Fixed Mobile except aeronautical mobile 5.289 5.341 5.382	Meteorological-Satellites	Weather satellite reception (HRPT) 1690 - 1710 MHz

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
1700 - 1710	FIXED METEOROLOGICAL-SATELLITE (s-E) MOBILE except aeronautical mobile 5.289 5.341	Meteorological-Satellites	Weather satellite reception (HRPT) 1690 - 1710 MHz
1710 - 1930	FIXED MOBILE 5.380 5.384A 5.888A 5.149 5.341 5.385 5.388	Digital Enhanced Cordless Telephone (DECT) (1880 - 1900 MHz.)	E.C. DIR 91/287/EEC S.I. No. 168, 1994 SI 410 of 1997.
		Mobile - IMT-2000	UMTS (terrestrial) 1900-1980 MHz / 2110 - 2170 MHz. CEPT/ERC/DEC/(97)07 (UMTS) CEPT/ERC/DEC (99)25, (00)01 SI 158 of 2002
		Short Range Devices	Details in Annex 4
		DCS-1800, 1710-1785 / 1805-1880 MHz	CEPT/ERC/DEC/(95)03 SI 158 of 2002
		TFTS (air - ground) 1800 -1805 MHz	TFTS System removed from service. Band reserved for harmonised European use under CEPT/ECC/DEC/(02)07
1930 - 1970	FIXED MOBILE 5.888A 5.388	Mobile - IMT-2000	IMT-2000 (terrestrial) 1900-1980 MHz / 2110-2170 MHz. CEPT/ERC/DEC/(97)07(UMTS) CEPT/ERC/DEC (99)25, (00)01 SI 158 of 2002
1970 - 1980	FIXED MOBILE 5.888A 5.388	Mobile - IMT-2000	IMT-2000 (terrestrial) 1900-1980 MHz / 2110 - 2170 MHz. CEPT/ERC/DEC/(97)07(UMTS) CEPT/ERC/DEC (99)25, (00)01 SI 158 of 2002
1980 - 2010	FIXED MOBILE MOBILE-SATELLITE (E-s) 5.351A 5.388 5.389A	Mobile - IMT-2000	IMT-2000/S-PCS (satellite, Earth-space) (1980-2010 MHz.) CEPT/ERC/DEC/(97)03 (S-PCS) CEPT/ERC/DEC/(97)07 (UMTS) CEPT/ERC/DEC/(97)04 (S-PCS Transition) SI 214 of 1998, SI 158 of 2002
2010 - 2025	FIXED MOBILE 5.888A 5.388	Mobile - IMT-2000	IMT-2000 (terrestrial) planned (2010-2025 MHz.) CEPT/ERC/DEC/(97)07 (UMTS) CEPT/ERC/DEC (99)25, (00)01 SI 158 of 2002

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
2025 - 2110	FIXED MOBILE 5.391 SPACE RESEARCH (E-s) (s-s) SPACE OPERATION (E-s) (s-s) EARTH EXPLORATION-SATELLITE (E-s) (s-s) 5.392	Fixed: Point - Point Radio Links (Infrastructure)	CEPT/ERC/REC 13-01 E, 2.0-2.3 GHz Annex C Typical Capacity ≤ 34 Mbit/s See Links Guidelines in ComReg Doc. 98/14R3
2110 - 2120	FIXED MOBILE 5.888A SPACE RESEARCH (deep space) (Earth-space) 5.388	Mobile - IMT-2000	IMT-2000 (terrestrial) 2110-2170 MHz/1920 - 1980 MHz) CEPT/ERC/DEC/(97)07 (UMTS) CEPT/ERC/DEC (99)25, (00)01 SI 158 of 2002
2120 - 2160	FIXED MOBILE 5.888A 5.388	Mobile - IMT-2000	IMT-2000 (terrestrial) 2110-2170 MHz/1920 - 1980 MHz) CEPT/ERC/DEC/(97)07 (UMTS) CEPT/ERC/DEC (99)25, (00)01 SI 158 of 2002
2160 - 2170	FIXED MOBILE 5.888A 5.388	Mobile - IMT-2000	IMT-2000 (terrestrial) 2110-2170 MHz/1920 - 1980 MHz) CEPT/ERC/DEC/(97)07 (UMTS) CEPT/ERC/DEC (99)25, (00)01 SI 158 of 2002
2170 - 2200	FIXED MOBILE MOBILE-SATELLITE (s-E) 5.351A 5.388 5.389A	Mobile - IMT-2000	IMT-2000/S-PCS (satellite, space - Earth) (2170-2200 MHz.) CEPT/ERC/DEC/(97)03 (S-PCS) CEPT/ERC/DEC/(97)07 (UMTS) CEPT/ERC/DEC/(97)04 (S-PCS Transition) SI 214 of 1998, SI 158 of 2002
2200 - 2290	FIXED SPACE RESEARCH (s-E) (s-s) SPACE OPERATION (s-E) (s-s) EARTH EXPLORATION-SATELLITE(s-E) (s-s) MOBILE 5.391 5.392	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 13-01 E, Annex C (new fixed service plan, 2.0 - 2.3 GHz) Typical Capacity ≤ 34 Mbit/s See Link Guidelines ComReg Doc 98/14R3
2290 - 2300	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (s-E)	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 13-01 E, Annex C 2 GHz band Typical capacity ≤ 34 Mbit/s See Link Guidelines ComReg Doc 98/14R3

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
2300 - 2450	FIXED MOBILE Amateur Radiolocation 5.150 5.282	Multi-Access-Radiolinks (RURTEL) (2307 - 2326 MHz paired with 2407-2427 MHz with geographical restrictions on use)	ITU-R F. 746 Annex 2 (2.3-2.5 GHz)
		Amateur (secondary)	
		Short Range Devices (2400-2483.5 MHz) including	
		RLANS (2400-2483.5 MHz)	Details in Annex 4
		ISM (2400-2500 MHz)	
2450 - 2483.5	FIXED MOBILE Radiolocation 5.150	Short Range Devices (2400-2483.5 MHz) including RLANS (2400-2483.5 MHz)	Details in Annex 4
		ISM (2400-2500 MHz)	
2483.5 - 2500	FIXED MOBILE MOBILE-SATELLITE (s-E) 5.351A Radiolocation 5.150 5.371 5.398 5.399 5.402	Satellite Personal Communications Service	(S-PCS) CEPT/ERC/DEC/(97)03, SI 214 of 1998
		ISM (2400-2500 MHz)	
2500 -2520	FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (s-E) 5.403 5.531A 5.414	Programme Services Distribution (2500-2686 MHz)	S.I. 529 (2003)
			Mobile Satellite Allocation (2500-2535 MHz) See 5.403 & 5.414
			Under consideration for Terrestrial IMT-2000
2520 - 2655	FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.403 5.418B 5.418 5.417C 5.417D	Programme Services Distribution (2500-2686 MHz)	S.I. 529 (2003)
			Mobile Satellite Allocation (2520-2535 MHz) See 5.403
			Channel plan for the fixed service in CEPT/ERC/REC 13 - 01 E, Annex D will not be implemented as the band is used by Programme Services Distribution.
			Under consideration for Terrestrial IMT-2000
2655 - 2670	FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 EARTH EXPLORATION-SATELLITE (passive) Radio Astronomy Space Research (passive) 5.149 5.420 5.347A	Programme Services Distribution (2500 - 2686 MHz)	S.I. 529 (2003)
			Channel plan for the fixed service in CEPT/ERC/REC 13 - 01 E, Annex D will not be implemented as the band is used by Programme Services Distribution.
			Under consideration for Terrestrial IMT-2000
2670 - 2690	FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (E-s) 5.351A Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive) 5.149 5.419 5.420 5.347A	Programme Services Distribution (2500 - 2686 MHz)	S.I. 529 (2003)
			Mobile Satellite allocation (2670 - 2690 MHz) See Footnote 5.419
			Under consideration for Terrestrial IMT-2000

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
2690 - 2700	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive Services Radio Astronomy (all emissions prohibited in the band 2690-2700 MHz)	
2700 - 2900	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423	Radar and Navigation Systems, Meteorological radar	ATC Radar
2900 - 3100	RADIONAVIGATION 5.426 RADIOLOCATION 5.424A 5.425 5.427	Radar (S-band) (2920 - 3100 MHz)	
3100 - 3300	RADIOLOCATION Earth exploration-Satellite (active) Space research (active) 5.149	Maritime Racons (2920 - 3100 MHz) Radars, Active Sensors, Racons	 Weather Radar
3300 - 3400	RADIOLOCATION 5.149	Radar	Upper limit for Airborne Radars - 3410 MHz
3400 - 3600	FIXED FIXED-SATELLITE (s-E) Mobile Radiolocation 5.431	Fixed (Public Broadcaster) FWALA (parts of 3410 - 3760 MHz for FDD and TDD operation) VSAT (3.4 - 4.25) Radiolocation (Government Services)	 Licences issued 2004 (See Doc. ComReg 03/97 for band plan) ComReg 00/64R Receiver exemption SI 273 of 2000
3600 - 4200	FIXED FIXED-SATELLITE (s-E) Mobile	Fixed: Point - Point Radio Links (Infrastructure) VSAT (3.4 - 4.25)	See ComReg 98/14R3 ComReg 00/64R VSAT Receiver exemption SI 273 of 2000
4200 - 4400	AERONAUTICAL RADIONAVIGATION 5.438 5.440	Radio Altimeters	
4400 - 4500	FIXED MOBILE		
4500 - 4800	FIXED FIXED-SATELLITE (s-E) 5.441 MOBILE		National Allotment for FIXED-SATELLITE (space-Earth) (4500 - 4800 MHz) Appendix 30B, Radio Regulations
4800 - 4990	FIXED MOBILE 5.442 Radio Astronomy 5.149 5.339		

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
4990 - 5000	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space Research (passive) 5.149		
5000 - 5010	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (E-s) 5.367	Microwave Landing Systems (MLS)	
5010 - 5030	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (E-s) (s-s) 5.443B 5.328B 5.367	Microwave Landing Systems (MLS)	
5030 - 5150	AERONAUTICAL RADIONAVIGATION 5.367 5.444 5.44A	Microwave Landing Systems (MLS)	5.444 gives priority to MLS in this band over other users. Annex 10 to the Convention on International Civil Aviation.
5150 - 5250	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (E-s) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B 5.446 5.447B 5.447C	Short Range Devices WAS/RLANS (5150 - 5250 MHz) indoor use only	WAS/RLANS See Annex 4 and CEPT/ERC/DEC/(99)23, EN 301 893
5250 - 5255	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448A	Short Range Devices WAS/RLANS - indoor use only	WAS/RLANS See Annex 4 and CEPT/ECC/DEC/(04)08, EN 301 893
5255 - 5350	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448A	Short Range Devices WAS/RLANS - indoor and outdoor use.	WAS/RLANS See Annex 4 and CEPT/ECC/DEC/(04)08, EN 301 893
5350 - 5460	EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D		
5460 - 5470	RADIONAVIGATION 5.449 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.448D		

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
5470 - 5570	MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.451 5.452	Meteorological Service Radar	
		Radiolocation: Position Fixing Equipment	
		Amateur (Secondary) FSTV	
		Weather Radar	
		Short Range Devices WAS/RLANS - indoor and outdoor use	WAS/RLANs: CEPT/ECC/DEC/(04)08, EN 301 893 ETS 300 836
5570 - 5650	MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.451 5.452	Meteorological Service Radar	
		Radiolocation: Position Fixing Equipment	
		Amateur (Secondary) FSTV	
		Short Range Devices WAS/RLANS - indoor and outdoor use.	WAS/RLANs: CEPT/ECC/DEC/(04)08, EN 301 893, ETS 300 836
		Weather Radar	
5650 - 5725	RADIOLOCATION MOBILE except aeronautical mobile 5.446A 5.450A Amateur Space Research (deep space) 5.282 5.451	Amateur (5650-5850 MHz) (Secondary)	
		Short Range Devices WAS/RLANS - indoor and outdoor use.	WAS/RLANs: CEPT/ECC/DEC/(04)08, EN 301 893, ETS 300 836
5725 - 5830	FIXED-SATELLITE (E-s) RADIOLOCATION Amateur 5.150 5.451	Road Transport & Traffic Telematics (RTTT) (5795 - 5805 MHz)	5805-5815 MHz possible RTTT extension band under CEPT/ECC/DEC/(02)01.
		FWA (5725 - 5875 MHz)	Licence exempt fixed access systems
		Amateur (5650 - 5850 MHz) (secondary)	
		Short Range Devices	Details in Annex 4
		ISM (5725 - 5875 MHz)	
5830 - 5850	FIXED-SATELLITE (E-s) RADIOLOCATION Amateur Amateur-Satellite (s-E) 5.150 5.451	FWA (5725 - 5875 MHz)	Licence exempt fixed access systems
		Amateur (5650 - 5850 MHz) (secondary)	
		Short Range Devices	Details in Annex 4
		ISM (5725 - 5875 MHz)	
5850 - 5925	FIXED FIXED-SATELLITE (E-s) MOBILE 5.150	Short Range Devices	Details in Annex 4
		VSAT (5850 - 6650 MHz)	See ComReg 00/64R
		ISM (5725 - 5875 MHz)	
		FWA (5725 - 5875 MHz)	Licence exempt fixed access systems
5925 - 6700	FIXED FIXED-SATELLITE (E-s) 5.457A 5.477B MOBILE 5.149 5.440 5.458	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 14-01 E Annex 1 L6GHz Band (5.925 - 6.425GHz) CEPT/ERC/REC 14-02 E Annex 1 U6GHz Band (6.425 - 7.125 GHz) Typical capacity 140mbit/s See Links Guidelines in ComReg Doc. 98/14R3
		VSAT (5850 - 6650 MHz)	See ComReg 00/64R

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
6700 - 7075	FIXED FIXED-SATELLITE (E-s) (s-E) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 14-02 E Annex 1 U6GHz Band (6.425 - 7.125 GHz) Typical capacity links: minimum 140mbit/s See Links Guidelines, Doc: ComReg 98/14R3
		Fixed Satellite	National Allotment for Fixed-Satellite Uplink (6725 - 7025 MHz) Appendix 30B, Radio Regulations
7075 - 7145	FIXED MOBILE 5.458 5.459	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 14-02 E Annex 1 U6GHz Band (6.425 - 7.125 GHz) Typical capacity 140mbit/s See Links Guidelines, Doc: ComReg 98/14R3
		Outside Broadcast Links (Public Broadcasters)	
7145 - 7235	FIXED MOBILE SPACE RESEARCH (E-s) 5.460 5.458 5.459	Fixed: Outside Broadcast Links (Public Broadcasters), Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 14-02 E Annex 1 U6GHz Band (6.425 - 7.125 GHz) Typical capacity 140mbit/s See Links Guidelines, Doc: ComReg 98/14R3
7235 - 7250	FIXED MOBILE 5.458	Outside Broadcast Links (Public Broadcasters)	
7250 -7300	FIXED FIXED-SATELLITE (s-E) MOBILE 5.461	Fixed	
7300 - 7450	FIXED FIXED-SATELLITE (s-E) MOBILE except aeronautical mobile 5.461	Fixed	ITU-R F. 385-6 Annex 1 7 GHz band (7425 - 7725 MHz) Typical capacity 140mbit/s See Links Guidelines in ComReg Doc. 98/14R3
7450 - 7550	FIXED FIXED-SATELLITE (s-E) METEOROLOGICAL-SATELLITE (s-E) MOBILE except aeronautical mobile 5.461A	Fixed: Point-Point Radio Links (Infrastructure)	ITU-R F. 385-6 Annex 1 7 GHz band (7425 - 7725 MHz) Typical capacity 140mbit/s See Links Guidelines in ComReg Doc. 98/14R3
7550 - 7750	FIXED FIXED-SATELLITE (s-E) MOBILE except aeronautical mobile	Fixed: Point-Point Radio Links (Infrastructure)	ITU-R F. 385-6 Annex 1 7 GHz band (7425 - 7725 MHz) ITU-R F.386-6 Annex 1 L8 GHz band (7725 - 8275 MHz) Typical capacity 140Mbit/s See Links Guidelines in ComReg Doc. 98/14R3

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
7750 - 7850	FIXED METEOROLOGICAL-SATELLITE (s-E) 5.461B MOBILE except aeronautical mobile	Fixed: Point-Point Radio Links (Infrastructure)	ITU-R F.386-6 Annex 1 L8 GHz band (7725 - 8275 MHz) Typical capacity 140Mbit/s See Links Guidelines in ComReg Doc. 98/14R3
7850 - 7900	FIXED MOBILE except aeronautical mobile	Fixed: Point-Point Radio Links (Infrastructure)	ITU-R F.386-6 Annex 1 L8 GHz band (7725 - 8275 MHz) Typical capacity 140Mbit/s See Links Guidelines in ComReg Doc. 98/14R3
7900 - 8025	FIXED FIXED-SATELLITE (E-s) MOBILE 5.461	Fixed: Point-Point Radio Links (Infrastructure)	ITU-R F.386-6 Annex 1 L8 GHz band (7725 - 8275 MHz) Typical capacity 140Mbit/s See Links Guidelines in ComReg Doc. 98/14R3
8025 - 8175	EARTH EXPLORATION-SATELLITE (s-E) FIXED FIXED-SATELLITE (E-s) MOBILE 5.463 5.462A	Fixed: Point-Point Radio Links (Infrastructure)	ITU-R F.386-6 Annex 1 L8 GHz band (7725 - 8275 MHz) Typical capacity 140Mbit/s See Links Guidelines in ComReg Doc. 98/14R3
8175 - 8215	EARTH EXPLORATION-SATELLITE (s-E) FIXED FIXED-SATELLITE (E-s) METEOROLOGICAL-SATELLITE (E-s) MOBILE 5.463 5.462A	Fixed: Point-Point Radio Links (Infrastructure)	ITU-R F.386-6 Annex 1 L8 GHz band (7725 - 8275 MHz) Typical capacity 140Mbit/s See Links Guidelines in ComReg Doc. 98/14R3
8215 - 8400	EARTH EXPLORATION-SATELLITE (s-E) FIXED FIXED-SATELLITE (Earth - space) MOBILE 5.463 5.462A	Fixed: Point-Point Radio Links (Infrastructure)	ITU-R F.386-6 Annex 1 L8 GHz band (7725 - 8275 MHz) Typical capacity 140Mbit/s ITU-R F.386-6 Annex 3 U8 GHz band (8275 - 8500 MHz) Typical capacity ≤ 34 Mbit/s See Links Guidelines in ComReg Doc. 98/14R3
8400 - 8500	FIXED MOBILE except aeronautical Mobile SPACE RESEARCH (space -Earth) 5.465 5.467	Fixed: Point-Point Radio Links (Infrastructure)	ITU-R F.386-6 Annex 3 U8 GHz band (8275 - 8500 MHz) Typical capacity ≤ 34 Mbit/s See Links Guidelines in ComReg Doc. 98/14R3
8500 - 8550	RADIOLOCATION		
8550 - 8650	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.469A		
8650 - 8750	RADIOLOCATION		

Part B - The Radio Spectrum: MHz 27.5 MHz TO 10 000 MHz

Frequency Band (MHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
8750 - 8850	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470	Airborne Doppler Radar	
8850 - 9000	RADIOLOCATION MARITIME RADIONAVIGATION 5.472		
9000 - 9200	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation	Radar (Government services)	
9200 - 9300	RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.474	Short Range Devices	Details in Annex 4
9300 - 9500	RADIONAVIGATION 5.476 Radiolocation 5.427 5.474 5.475	Radar (X-Band) Radiolocation: Position Fixing (Private operators) Maritime Racons (9320 - 9500 MHz) Short Range Devices	 Details in Annex 4
9500 - 9800	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A	Short Range Devices	Details in Annex 4
9800 - 10000	RADIOLOCATION Fixed 5.479	Short Range Devices	Details in Annex 4

4: TABLE OF FREQUENCY ALLOCATIONS

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Part C - The Radio Spectrum: GHz 10 GHz TO 1 000 GHz

Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
10 - 10.45	FIXED MOBILE RADIOLOCATION Amateur 5.479	Fixed	FWA services (10-10.3 GHz) - ComReg Doc. 03/34 details band plan and pairing arrangements.
		Amateur (secondary) (10-10.5 GHz)	
10.45 - 10.5	RADIOLOCATION Amateur Amateur-Satellite	Amateur-Satellite (secondary)	
		Amateur (secondary) (10-10.5 GHz)	
10.5 - 10.55	FIXED MOBILE Radiolocation	Fixed	FWA services (10.5 - 10.6 GHz)- ComReg Doc. 03/34 details band plan and pairing arrangements.
		Radiolocation (Radars and sensors)	
		Short Range Devices	Motion Sensors - See Annex 4
10.55 - 10.6	FIXED MOBILE except aeronautical mobile Radiolocation	Fixed	FWA services (10.5 - 10.6 GHz)- ComReg Doc. 03/34 details band plan and pairing arrangements.
		Radiolocation (Radars and sensors)	
		Short Range Devices	Motion Sensors - See Annex 4
10.6 - 10.68	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482	Radiolocation (security devices)	
10.68 - 10.7	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive Sensing Band	All emissions prohibited
10.7 - 11.7	FIXED FIXED-SATELLITE (s-E) 5.441 5.484A (E-s) 5.484 MOBILE except aeronautical mobile	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 12 - 06 Annex E 11 GHz band (10.7 - 11.7 GHz) Typical capacity 140 Mbit/s See Link Guidelines ComReg Doc 98/14R3
		Earth Stations (Satellite Down Links) (Broadcasters)	Euteltracs Omnitracs Terminals CEPT/ERC/DEC (98) 15
			National Allotment for Fixed-SATELLITE Down Link (10.7 - 10.95 GHz, 11.2-11.45 GHz) Appendix 30B, Radio Regulations
		VSAT and Transportable Earth Stations	ComReg 00/64R refers. S.I. 273 of 2000 exempts VSAT receivers from licensing

Part C - The Radio Spectrum: GHz 10 GHz TO 1 000 GHz

Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
11.7 - 12.5	FIXED BROADCASTING BROADCASTING-SATELLITE Mobile except aeronautical mobile 5.487 5.487A 5.491 5.492	Programme Service Distribution	S.I. 529 of 2003
			Broadcast-Satellite plans as per Radio Regulations, Appendix 30
		SNG	Downlink
		ENG (Public Broadcasters)	Downlink
12.5 - 12.75	FIXED-SATELLITE (s-E) 5.484A (E-s)	VSAT and Transportable Earth Stations	ComReg 00/64R refers. S.I. 273 of 2000 exempts VSAT receivers from licensing
12.75 - 13.25	FIXED FIXED-SATELLITE (E-s) 5.441 MOBILE Space Research (deep space) (s-E)	Fixed: Point-to-Point Radio Links	CEPT/ERC/REC 12-02 E 13 GHz band (12.75-13.25 GHz) Typical capacity ≤ 34 Mbit/s See Link Guidelines ComReg Doc 98/14R33
			Euteltracs Omnitracs Terminals CEPT/ERC/DEC (98) 15
			National Allotment for Fixed-SATELLITE Uplink (12.75 - 13.25 GHz) Appendix 30B, Radio Regulations
		Transportable Earth Stations	ComReg 00/64R refers.
13.25 - 13.4	EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A		
13.4 - 13.75	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard Frequency and Time Signal - Satellite (E-s) 5.501 5.501B	Short Range Devices	See Annex 4
13.75 - 14	RADIOLOCATION FIXED-SATELLITE (E-s) 5.484A Standard Frequency and Time Signal-SATELLITE (E-s) Space Research Earth-satellite 5.501 5.502 5.503	VSAT and Transportable Earth Stations	ComReg 00/64R refers.
		Short Range Devices	See Annex 4
14 - 14.25	FIXED-SATELLITE (E-s) 5.484A 5.506 5.457A 5.457B 5.506B RADIONAVIGATION 5.504 Mobile-SATELLITE (E-s) 5.506A Space Research 5.504A	Earth Stations (Satellite uplinks) (Public Broadcasters) Uplinks	Euteltracs Omnitracs Terminals CEPT/ERC/DEC (98) 15
		VSAT (14-14.5 GHz) Uplinks	ComReg 00/64R refers. S.I. 273 of 2000 exempts VSAT receivers from licensing
		Transportable Earth Stations (SNG) uplinks	ComReg 00/64R refers.
		ENG uplinks	

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
14.25 - 14.3	FIXED-SATELLITE (E-s) 5.484A 5.506 5.506B 5.5547A 5.457B RADIONAVIGATION 5.504 Mobile-SATELLITE (E-s) 5.506A 5.508A Space Research 5.508 5.504A	Earth Stations (Satellite uplinks) (Public Broadcasters) uplinks	
		VSAT (14-14.5 GHz) uplinks	ComReg 00/64R refers. S.I. 273 of 2000 exempts VSAT receivers from licensing
		Transportable Earth Stations (SNG) uplinks	ComReg 00/64R refers.
14.3 - 14.4	FIXED FIXED-SATELLITE (E-s) 5.484A 5.506 5.547A 5.506B 5.547B MOBILE except aeronautical mobile Mobile-SATELLITE (E-s) 5.506B 5.509A Radionavigation-SATELLITE 5.504A	ENG uplinks	
		VSAT (14-14.5 GHz) uplinks	ComReg 00/64R refers. S.I. 273 of 2000 exempts VSAT receivers from licensing
		SNG uplinks	
14.4 -14.47	FIXED FIXED-SATELLITE (E-s) 5.484A 5.506 5.547A 5.506B 5.457B MOBILE except aeronautical mobile Mobile-SATELLITE (E-s) 5.506B 5.509A Space Research (s-E) 5.504A	ENG uplinks	
		VSAT (14-14.5 GHz) uplinks	ComReg 00/64R refers. S.I. 273 of 2000 exempts VSAT receivers from licensing
		SNG uplinks	
14.47 -14.5	FIXED FIXED-SATELLITE (E-s) 5.484A 5.506 5.547A 5.506B 5.547B MOBILE except aeronautical mobile Mobile-SATELLITE (E-s) 5.506B 5.504B 5.509A Radio Astronomy 5.149 5.504A	ENG uplinks	
		VSAT uplinks	
		SNG uplinks	
14.5 - 14.8	FIXED FIXED-SATELLITE (E-s) 5.510 MOBILE Space Research	Fixed: Point-Point Radio Links (Infrastructure)	ITU-R F. 636-3 15 GHz band (14.5 - 15.35 GHz) Typical capacity ≤ 34 Mbit/s See Link Guidelines ComReg Doc 98/14R33
14.8 - 15.35	FIXED MOBILE Space Research 5.339	Fixed: Point-Point Radio Links (Infrastructure)	ITU-R F. 636-3 15 GHz band (14.5 - 15.35 GHz) Typical capacity ≤ 34 Mbit/s See Link Guidelines ComReg Doc 98/14R33
15.35 - 15.4	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive Sensing Band	All emissions prohibited
15.4 - 15.43	AERONAUTICAL RADIONAVIGATION 5.511D		

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
15.43 - 15.63	FIXED-SATELLITE (E-s) 5.511A AERONAUTICAL RADIONAVIGATION 5.511C		Radio Regulations footnotes 5.511A and 5.511C give the provisions relating to the use of the band by satellite systems.
15.63 - 15.7	AERONAUTICAL RADIONAVIGATION 5.511D		
15.7 - 16.6	RADIOLOCATION	Radar	
16.6 - 17.1	RADIOLOCATION Space Research (deep space) (E-s)		
17.1 - 17.2	RADIOLOCATION	Short range Devices HIPERLANS (secondary)	See Annex 4
17.2 - 17.3	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.513A	Short range Devices HIPERLANS (secondary)	See Annex 4
17.3 - 17.7	FIXED-SATELLITE (E-s) 5.516 (s-E) 5.516A 5.516B Radiolocation		Feeder Link plans for Broadcast Satellites as per Appendix 30A, Radio Regulations
17.7 - 18.1	FIXED FIXED-SATELLITE (s-E) 5.484A (E-s) 5.516 MOBILE	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 12-03 E, Annex A 18 GHz band (17.7 - 19.7 GHz) Typical capacity ≥ 34 Mbit/s See Link Guidelines ComReg Doc 98/14R3 Feeder Link plans for Broadcast Satellites as per Appendix 30A, Radio Regulation
18.1 - 18.4	FIXED FIXED-SATELLITE (s-E) 5.484A 5.516B (E-s) 5.520 MOBILE 5.519	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 12-03 E, Annex A 18 GHz band (17.7 - 19.7 GHz) Typical capacity ≥ 34 Mbit/s See Link Guidelines ComReg Doc 98/14R3
18.4 - 18.6	FIXED FIXED-SATELLITE (s-E) 5.484A 5.516B MOBILE	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 12-03 E, Annex A 18 GHz band (17.7 - 19.7 GHz) Typical capacity ≥ 34 Mbit/s See Link Guidelines ComReg Doc 98/14R3
18.6 - 18.8	FIXED FIXED-SATELLITE (s-E) 5.552B MOBILE except aeronautical mobile EARTH EXPLORATION-SATELLITE (passive) Space Research (passive) 5.522A	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 12-03 E, Annex A 18 GHz band (17.7 - 19.7 GHz) Typical capacity ≥ 34 Mbit/s See Link Guidelines ComReg Doc 98/14R3

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
18.8 - 19.3	FIXED FIXED-SATELLITE (s-E) 5.523A 5.516B MOBILE	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 12-03 E, Annex A 18 GHz band (17.7 - 19.7 GHz) Typical capacity ≥ 34 Mbit/s See Link Guidelines ComReg Doc 98/14R3
		Earth Station Down Links (Educational Institutions)	Radio Regulations Footnote 5.523A refers to the use of this band by satellite systems
19.3 - 19.7	FIXED FIXED-SATELLITE (s-E) (E-s) 5.523B 5.523C 5.523D 5.523E MOBILE	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 12-03 E, Annex A 18 GHz band (17.7 - 19.7 GHz) Typical capacity ≥ 34 Mbit/s See Link Guidelines ComReg Doc 98/14R3
		Earth Station Down Links (Educational Institutions)	Radio Regulations Footnote 5.523A refers to the use of this band by satellite systems
19.7 - 20.1	FIXED-SATELLITE (s-E) 5.484A 5.516B Mobile-SATELLITE (s-E)		
20.1 - 20.2	FIXED-SATELLITE (s-E) 5.484A 5.516B MOBILE-SATELLITE (s-E) 5.525 5.526 5.527 5.528		
20.2 - 21.2	FIXED-SATELLITE (s-E) MOBILE-SATELLITE (s-E) Standard Frequency and Time Signal-Satellite (space-Earth)	Fixed: Point-Point Radio Links (Infrastructure)	Band closed for point to point links.
21.2 - 21.4	EARTH EXPLORATION - SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)		
21.4 - 22	FIXED MOBILE BROADCASTING -SATELLITE 5.530 5.347A	Fixed: Point-Point Radio Links (Infrastructure)	Band closed for point to point links.
22 - 22.21	FIXED MOBILE except aeronautical mobile 5.149	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/ TR 13-02 E, Annex A 23 GHz band (22 - 23.6 GHz) Typical capacity ≥ 2 Mbit/s CEPT/ERC/DEC/(96)09, EN 300 198 See Link Guidelines ComReg Doc 98/14R3 Existing links to ITU-R Rec. 637-2 (21.4 - 23.6 GHz) to be relocated.

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
22.21 - 22.5	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/ TR 13-02 E, Annex A 23 GHz band (22 - 23.6 GHz) Typical capacity ≥ 2 Mbit/s CEPT/ERC/DEC/(96)09, EN 300 198 See Link Guidelines ComReg Doc 98/14R3 Existing links to ITU-R Rec. 637-2 (21.4-23.6 GHz) to be relocated.
22.5 - 22.55	FIXED MOBILE	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/ TR 13-02 E, Annex A 23 GHz band (22 - 23.6 GHz) Typical capacity ≥ 2 Mbit/s CEPT/ERC/DEC/(96)09, EN 300 198 See Link Guidelines ComReg Doc 98/14R3 Existing links to ITU-R Rec. 637-2 (21.4-23.6 GHz) to be relocated.
22.55 - 23.55	FIXED INTER-SATELLITE MOBILE 5.149	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/ TR 13-02 E, Annex A 23 GHz band (22-23.6 GHz) Typical capacity ≥ 2 Mbit/s CEPT/ERC/DEC/(96)09, EN 300 198 See Link Guidelines ComReg Doc 98/14R3 Existing links to ITU-R Rec. 637-2 (21.4-23.6 GHz) to be relocated.
23.55 - 23.6	FIXED MOBILE	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/ TR 13-02 E, Annex A 23 GHz band (22 - 23.6 GHz) Typical capacity ≥ 2 Mbit/s CEPT/ERC/DEC/(96)09, EN 300 198 See Link Guidelines ComReg Doc 98/14R3 Existing links to ITU-R Rec. 637-2 (21.4-23.6 GHz) to be relocated.
23.6 - 24	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive Sensing Band	All emission prohibited
24 - 24.05	AMATEUR AMATEUR-SATELLITE 5.150	Amateur Amateur-Satellite Short Range Devices (24 - 24.25 GHz.) ISM (24-24.25 GHz)	 See Annex 4
24.05 - 24.25	RADIOLOCATION Amateur Earth Exploration-Satellite (active) 5.150	Short Range Devices (24 - 24.25 GHz.) ISM (24 - 24.25 GHz)	See Annex 4

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
24.25 - 24.45	FIXED		
24.45 - 24.65	FIXED INTER-SATELLITE	Fixed	CEPT/ERC/REC 13-02 Annex B 26 GHz band (24.5 - 26.5 GHz) Typical capacity ≥ 2 Mbit/s See Link Guidelines ComReg Doc 98/14R3
		FWA (24.5 - 26.0 GHz)	National FWPMA ComReg Doc 03/34
24.65 - 24.75	FIXED INTER-SATELLITE	Fixed	CEPT/ERC/REC 13-02 Annex B 26 GHz band (24.5 - 26.5 GHz) Typical capacity ≥ 2 Mbit/s See Link Guidelines ComReg Doc 98/14R3
		FWA (24.5 - 26.0 GHz)	National FWPMA ComReg Doc 03/34
24.75 - 25.25	FIXED	Fixed	CEPT/ERC/REC 13-02 Annex B 26 GHz band (24.5 - 26.5 GHz) Typical capacity ≥ 2 Mbit/s See Link Guidelines ComReg Doc 98/14R3
		FWA (24.5 - 26.0 GHz)	National FWPMA ComReg Doc 03/34
25.25 - 25.5	FIXED MOBILE INTER-SATELLITE 5.536 Standard Frequency and Time Signal-Satellite (E-s)	Fixed	CEPT/ERC/REC 13-02 Annex B 26 GHz band (24.5 - 26.5 GHz) Typical capacity ≥ 2 Mbit/s See Link Guidelines ComReg Doc 98/14R3
		FWA (24.5 - 26.0 GHz)	National FWPMA ComReg Doc 03/34
25.5 - 27	EARTH EXPLORATION-SATELLITE (s-E) 5.536A 5.536B FIXED INTER-SATELLITE 5.536 MOBILE Standard Frequency and Time Signal-Satellite (E-s) SPACE RESEARCH 5.536A	Fixed	CEPT/ERC/REC 13-02 Annex B 26 GHz band (24.5 - 26.5 GHz) Typical capacity ≥ 2 Mbit/s See Link Guidelines ComReg Doc 98/14R3
		FWA (24.5 - 26.0 GHz)	National FWPMA ComReg Doc 03/34
27 -27.5	FIXED MOBILE INTER-SATELLITE 5.536		
27.5 - 28.5	FIXED FIXED-SATELLITE (E-s) 5.484A 5.539 5.516B MOBILE 5.538 5.540	Fixed	CEPT/ERC/REC 13-02 Annex c 28 GHz band (part of 27.5 - 29.5 GHz) Typical capacity ≥ 2 Mbit/s See Link Guidelines ComReg Doc 98/14R3
			Designated for FWA services (27.5 - 29.5 GHz) - Subject to review.

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
28.5 - 29.1	FIXED FIXED-SATELLITE (E-s) 5.484A 5.523A 5.539 MOBILE Earth Exploration-Satellite (E-s) 5.541 5.540	Fixed	CEPT/ERC/REC 13-02 Annex c 28 GHz band (part of 27.5 - 29.5 GHz) Typical capacity ≥ 2 Mbit/s See Link Guidelines ComReg Doc 98/14R3 Designated for FWA services (27.5 - 29.5 GHz) - Subject to review.
29.1 - 29.5	FIXED FIXED-SATELLITE (E-s) 5.523C 5.523E 5.535A 5.539 5.541A 5.516B MOBILE Earth Exploration-Satellite (E-s) 5.541 5.540	Fixed	CEPT/ERC/REC 13-02 Annex c 28 GHz band (part of 27.5 - 29.5 GHz) Typical capacity ≥ 2 Mbit/s\ See Link Guidelines ComReg Doc 98/14R3 Designated for FWA services (27.5 - 29.5 GHz) - Subject to review.
29.5 -29.9	FIXED-SATELLITE (E-s) 5.484A 5.539 5.516B Mobile-SATELLITE (E-s) Earth Exploration-Satellite (E-s) 5.541 5.540		
29.9 - 30	FIXED-SATELLITE (E-s) 5.484A 5.539 5.516B MOBILE-SATELLITE (E-s) Earth Exploration-Satellite (E-s) 5.541 5.543 5.525 5.526 5.527 5.538 5.540		
30 - 31	FIXED-SATELLITE (E-s) MOBILE-SATELLITE (E-s) Standard Frequency and Time Signal-Satellite (space - Earth)		
31 - 31.3	FIXED MOBILE Standard Frequency and Time Signal-Satellite (space - Earth) Space Research 5.544 5.149		
31.3 - 31.5	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive Sensing Band	All emissions prohibited
31.5 - 31.8	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149		

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
31.8 - 32	FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (s-E) 5.547 5.548		
32 - 32.3	FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (s-E) 5.547 5.548		
32.3 - 33	FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.548		
33 - 33.4	FIXED 5.547A RADIONAVIGATION 5.547		
33.4 - 34.2	RADIOLOCATION		
34.2 - 34.7	RADIOLOCATION SPACE RESEARCH (deep space) (E-s)		
34.7 - 35.2	RADIOLOCATION Space Research		
35.2 - 35.5	METEOROLOGICAL AIDS RADIOLOCATION		
35.5 - 36	EARTH EXPLORATION-SATELLITE (active) METEOROLOGICAL AIDS RADIOLOCATION SPACE RESEARCH (active) 5.549A		
36 - 37	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149		
37 -37.5	FIXED MOBILE SPACE RESEARCH (s-E) 5.547	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 12-01 E Annex A CEPT/REC/DEC(98)08, 38 GHz band (37 - 39.5 GHz) 38 GHz band (37 - 39.5 GHz) Typical capacity ≥ 2 Mbit/s CEPT/ERC/DEC/(96)08, EN 300 197 See Link Guidelines ComReg Doc 98/14R3

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
37.5 - 38	FIXED FIXED-SATELLITE (s-E) MOBILE SPACE RESEARCH (s-E) Earth Exploration-Satellite (s-E) 5.547	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 12-01 E Annex A, CEPT/REC/DEC(98)08, 38 GHz band (37 - 39.5 GHz) Typical capacity ≥ 2 Mbit/s CEPT/ERC/DEC/(96)08, EN.300 197 See Link Guidelines ComReg Doc 98/14R3
38 - 39.5	FIXED FIXED-SATELLITE (s-E) MOBILE Earth Exploration-SATELLITE (s-E) 5.547	Fixed: Point-Point Radio Links (Infrastructure)	CEPT/ERC/REC 12-01 E Annex A, CEPT/REC/DEC(98)08, 38 GHz band (37 - 39.5 GHz) Typical capacity ≥ 2 Mbit/s CEPT/ERC/DEC/(96)08, EN 300 197 See Link Guidelines ComReg Doc 98/14R3
39.5 - 40	FIXED FIXED-SATELLITE (s-E) 5.516B MOBILE MOBILE-SATELLITE (s-E) Earth Exploration-Satellite (s-E) 5.547		
40 - 40.5	FIXED FIXED-SATELLITE (s-E) 5.516B MOBILE MOBILE-SATELLITE (s-E) EARTH EXPLORATION-SATELLITE (E-s) SPACE RESEARCH (E-s) Earth Exploration-SATELLITE (s-E)		
40.5 - 41	FIXED FIXED-SATELLITE (s-E) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547		MWS and MVDS under consideration: CEPT/ERC/DEC/(99)15
41 - 42.0	FIXED FIXED-SATELLITE (s-E) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551H 5.551I		MWS and MVDS under consideration: CEPT/ERC/DEC/(99)15

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
42.0 - 42.5	FIXED FIXED-SATELLITE (s-E) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551G 5.551AA		MWS and MVDS under consideration: CEPT/ERC/DEC/(99)15
42.5 - 43.5	FIXED FIXED-SATELLITE (E-s) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149		MWS and MVDS under consideration: CEPT/ERC/DEC/(99)15
43.5 - 47	MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554		
47 - 47.2	AMATEUR AMATEUR-SATELLITE	Amateur Amateur-satellite	
47.2 - 47.5	FIXED FIXED-SATELLITE (E-s) 5.552 MOBILE 5.552A		
47.5 - 47.9	FIXED FIXED-SATELLITE (E-s) 5.552 (s-E) 5.516B MOBILE		
47.9 - 48.2	FIXED FIXED-SATELLITE (E-s) 5.552 MOBILE 5.552A		
48.2 - 50.2	FIXED FIXED-SATELLITE (E-s) 5.552 (s-E) 5.516B 5.554A 5.555A MOBILE	Radio Astronomy (48.94-49.04 GHz)	Emissions from airborne stations prohibited
50.2 - 50.4	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.555A		

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
50.4 - 51.4	FIXED FIXED-SATELLITE (E-s) MOBILE Mobile-SATELLITE (E-s)		
51.4 - 52.6	FIXED MOBILE 5.547 5.556		
52.6 - 54.25	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556	Passive Sensing Band	All emissions prohibited
54.25 - 55.78	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive) EARTH EXPLORATION-SATELLITE (passive)	Fixed	CEPT Rec. T/R 22-03 Links for local infrastructure. Support infrastructure for large-scale public mobile networks. (54.25 - 57.2 GHz)
55.78 - 56.9	FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547	Fixed	CEPT/ERC/REC 12-12 E 58 GHz band (55.78-59 GHz) Typical capacity ≥ 2 Mbit/s See Link Guidelines ComReg Doc 98/14R3 CEPT Rec. T/R 22-03 Links for local infrastructure. Support infrastructure for large-scale public mobile networks. (54.25 - 57.2 GHz)
56.9 - 57	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547	Fixed	CEPT/ERC/REC 12-12 E 58 GHz band (55.78-59 GHz) Typical capacity ≥ 2 Mbit/s See Link Guidelines ComReg Doc 98/14R3 CEPT Rec. T/R 22-03 Links for local infrastructure. Support infrastructure for large-scale public mobile networks. (54.25 - 57.2 GHz)
57 - 58.2	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557	Fixed	CEPT/ERC/REC 12-12 E 58 GHz band (55.78-59 GHz) Typical capacity ≥ 2 Mbit/s See Link Guidelines ComReg Doc 98/14R3 CEPT Rec. T/R 22-03 Links for local infrastructure. Support infrastructure for large-scale public mobile networks. (54.25 - 57.2 GHz)
		Mobile	Unplanned low power fixed and mobile systems. 57.2 - 58.2 GHz), EN 300 408

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
58.2 - 59	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556	Passive Sensing Band	All emissions prohibited
59 - 59.3	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)	Fixed Mobile Radiolocation	
59.3 - 64	FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138	Fixed Mobile Radiolocation Low power devices (61 - 61.5 GHz) Road Traffic Informatics (63-64 GHz) ISM (61 - 61.5 GHz)	 Radiolocation (59 - 64 GHz) Cordless LAN 59-62 GHz) Broadband Mobile Systems (62-63 GHz) RTTT CEPT/DEC/ECC/(02)01
64 - 65	FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556		
65 - 66	EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH 5.547	Fixed Mobile	CEPT Rec. T/R 22-03 Broadband Mobile Systems
66 - 71	INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554		
71 - 74	FIXED FIXED-SATELLITE (s-E) MOBILE MOBILE-SATELLITE (s-E)		

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
74 - 75.5	FIXED FIXED-SATELLITE (s-E) MOBILE BROADCASTING BROADCASTING-SATELLITE Space Research (s-E) 5.561		
75.5 - 76	FIXED FIXED SATELLITE (s-E) MOBILE BROADCASTING BROADCASTING-SATELLITE Space Research (s-E) 5.561 5.559A		
76 - 77.5	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-Satellite Space Research (s-E) 5.149	Road Transport and Traffic Telematics Short Range Radar Amateur (Secondary) Amateur - Satellite (Secondary)	RTTT (76-77 GHz), CEPT/DEC/ECC/(02)01 SRR (77-81 GHz), CEPT/DEC/ECC/(04)03 On Application On Application
77.5 - 78	AMATEUR AMATEUR-SATELLITE Radio Astronomy Space Research (s-E) 5.149	Short Range Radar Amateur Amateur - Satellite	SRR (77-81 GHz), CEPT/DEC/ECC/(04)03
78 - 79	RADIOLOCATION Amateur Amateur-Satellite Radio Astronomy Space Research (s-E) 5.149 5.560	Short Range Radar Amateur (Secondary) Amateur - Satellite (Secondary)	SRR (77-81 GHz), CEPT/DEC/ECC/(04)03 On Application On Application
79 - 81	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-SATELLITE Space Research (s-E) 5.149	Short Range Radar Amateur (Secondary) Amateur - Satellite (Secondary)	SRR (77-81 GHz), CEPT/DEC/ECC/(04)03 On Application On Application

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
81 - 84	FIXED FIXED-SATELLITE (E-s) MOBILE MOBILE-SATELLITE (E-s) RADIO ASTRONOMY Space Research (s-E) 5.149 5.560A		
84 - 86	FIXED MOBILE FIXED-SATELLITE (E-s) RADIO ASTRONOMY 5.149		
86 - 92	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive Sensing Band	All emissions prohibited
92 - 94	FIXED RADIO ASTRONOMY MOBILE RADIOLOCATION 5.149 5.556		
94 - 94.1	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio Astronomy 5.562 5.562A		
94.1 - 95	FIXED RADIO ASTRONOMY MOBILE RADIOLOCATION 5.149		
95 - 100	FIXED MOBILE 5.553 RADIONAVIGATION RADIONAVIGATION -SATELLITE RADIO ASTRONOMY RADIOLOCATION 5.149 5.554		
100 - 102	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341		

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
102 - 105	FIXED RADIO ASTRONOMY MOBILE 5.149 5.341		
105 - 109.5	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	Passive Sensing Band	All emission prohibited
109.5 - 111.8	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341		
111.8 - 114.25	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341		
114.25 - 116	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341		
116 - 119.98	EARTH EXPLORATION -SATELLITE (passive) INTER SATELLITE 5.562C SPACE RESEARCH (passive) 5.341		
119.98 - 120.02	EARTH EXPLORATION -SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341		
120.02 - 122.25	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138		
122.25 - 123	FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138	ISM (122 - 123 GHz)	

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
123 - 126	FIXED-SATELLITE (s-E) MOBILE-SATELLITE (s-E) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio Astronomy 5.554		
126 - 130	FIXED-SATELLITE (s-E) MOBILE-SATELLITE (s-E) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio Astronomy 5.149 5.554		
130 - 134	EARTH EXPLORATION-SATELLITE (active) 5.562E FIXED INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A		
134 - 136	AMATEUR AMATEUR-SATELLITE Radio astronomy	Amateur Amateur - Satellite	
136 - 141	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149	Radio Astronomy (140.69 - 140.98 GHz) Amateur (Secondary) Amateur - Satellite (Secondary)	 On Application On Application
141 - 148.5	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149		
148.5 - 151.5	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340		
151.5 - 155.5	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149		

Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
155.5 - 158.5	EARTH EXPLORATION-SATELLITE (passive) 5.562F FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.562G		
158.5 - 164	FIXED FIXED-SATELLITE (s-E) MOBILE MOBILE-SATELLITE (s-E)		
164 - 167	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340		
167 - 168	FIXED FIXED-SATELLITE (s-E) INTER-SATELLITE MOBILE 5.558		
168 - 170	FIXED FIXED-SATELLITE (s-E) INTER-SATELLITE MOBILE 5.558 5.149		
170 - 174.5	FIXED FIXED-SATELLITE (s-E) INTER-SATELLITE MOBILE 5.558 5.149		
174.5 - 174.8	FIXED INTER-SATELLITE MOBILE 5.558		
174.8 - 182	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)		
182 - 185	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563	Passive Sensing Band	All emission prohibited
185 - 190	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)		

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
190 - 191.8	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340		
191.8 - 200	FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554		
200 - 202	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A		
202 - 209	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A		
209 - 217	FIXED FIXED-SATELLITE (E-s) MOBILE RADIO ASTRONOMY 5.149 5.341		
217 - 226	FIXED FIXED-SATELLITE (Earth-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	Passive Sensing Band	All emission prohibited
226 - 231.5	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340		
231.5 - 232	FIXED MOBILE Radiolocation		
232 - 235	FIXED FIXED-SATELLITE (s-E) MOBILE Radiolocation		

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Frequency Band (GHz)	ITU Allocations (Applicable to Ireland)	National Allocation and Usage	Notes/Future Developments
235 - 238	EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (s-E) SPACE RESEARCH (passive) 5.563A 5.563B		
238 - 240	FIXED FIXED-SATELLITE (s-E) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE		
240 - 241	FIXED MOBILE RADIOLOCATION		
241 - 248	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-Satellite 5.138 5.149	ISM (244-246 GHz) Amateur (Secondary) Amateur - Satellite (Secondary)	 On Application On Application
248 - 250	AMATEUR AMATEUR-SATELLITE Radio Astronomy 5.149	Amateur Amateur - Satellite	
250 - 252	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) RADIO ASTRONOMY 5.340 5.563A		
252 - 265	FIXED MOBILE MOBILE-SATELLITE (E-s) RADIONAVIGATION RADIONAVIGATION-SATELLITE RADIO ASTRONOMY 5.149 5.554		
265 - 275	FIXED FIXED-SATELLITE (E-s) MOBILE RADIO ASTRONOMY 5.149 5.563A		
275 - 1000	(Not Allocated) 5.565		

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RELEVANT FOOTNOTES FROM RADIO REGULATIONS 56 - 81

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RELEVANT FOOTNOTES FROM RADIO REGULATIONS

Reference is made in the Table of Allocations to the following footnotes. These Footnotes are taken from Article 5 of the Radio Regulations, as amended at WRC-03. Additional information can be obtained from the ITU (See Annex 5).

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

5.43A Where it is indicated in these Regulations that a service or stations in a service may operate in a specific frequency band subject to not claiming protection from another service or from another station in the same service, this means also that the service which is subject to not claiming protection shall not cause harmful interference to the other service or other station in the same service.

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, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, the Czech Republic, the Russian Federation, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same condi-tions. (WRC-03)

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.

5.61 In Region 2, the establishment and operation of stations in the maritime radionavigation service in the bands 70-90 kHz and 110-130 kHz shall be subject to agreement obtained under No. **9.21** with administrations whose services, operating in accordance with the Table, may be affected. However, stations of the fixed, maritime mobile and radiolocation services shall not cause harmful interference to stations in the maritime radionavigation service established under such agreements.

5.62 Administrations which operate stations in the radio-navigation 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.

5.72 Norwegian stations of the fixed service situated in northern areas (north of 60° N) subject to auroral disturbances are allowed to continue operation on four frequencies in the bands 283.5-490 kHz and 510-526.5 kHz.

5.73 The band 285-325 kHz (283.5-325 kHz in Region 1) in the maritime radionavigation service may be used to transmit supplementary navigational information using narrow-band techniques, on condition that no harmful interference is caused to radiobeacon stations operating in the radionavigation service. (WRC-97)

5.76 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.

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

5.79A When establishing coast stations in the NAVTEX service on the frequencies 490 kHz, 518 kHz and 4 209.5 kHz, administrations are strongly recommended to coordinate the operating characteristics in accordance with the procedures of the International Maritime Organization (IMO) (see Resolution **339 (Rev.WRC-97)**). (WRC-97)

5.82 In the maritime mobile service, the frequency 490 kHz is, from the date of full implementation of the GMDSS (see Resolution **331 (Rev.WRC-97)**), to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles 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-97)

5.83 The frequency 500 kHz is an international distress and calling frequency for Morse radiotelegraphy. The conditions for its use are prescribed in Articles **31** and **52**, and in Appendix **13**.

5.84 The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles **31** and **52** and in Appendix **13**. (WRC-97)

5.90 In the band 1 605-1 705 kHz, in cases where a broadcasting station of Region 2 is concerned, the service area of the maritime mobile stations in Region 1 shall be limited to that provided by ground-wave propagation.

5.92 Some countries of Region 1 use radiodetermination systems in the bands 1 606.5-1 625 kHz, 1 635-1 800 kHz, 1 850-2 160 kHz, 2 194-2 300 kHz, 2 502-2 850 kHz and 3 500-3 800 kHz, subject to agreement obtained under No. **9.21**. The radiated mean power of these stations shall not exceed 50 W.

5.96 In Germany, Armenia, Austria, Azerbaijan, Belarus, Denmark, Estonia, Finland, Georgia, Hungary, Iceland, Ireland, Israel, Kazakhstan, Latvia, Liechtenstein, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, the United Kingdom, the Russian Federation, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the bands 1 715-1 800 kHz and 1 850-2 000 kHz. However, when allocating the bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W. (WRC-03)

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

5.103 In Region 1, in making assignments to stations in the fixed and mobile services in the bands 1 850-2 045 kHz, 2 194-2 498 kHz, 2 502-2 625 kHz and 2 650-2 850 kHz, administrations should bear in mind the special requirements of the maritime mobile service.

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

5.108 The carrier frequency 2 182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2 173.5-2 190.5 kHz are prescribed in Articles **31** and **52** and in Appendix **13**.

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

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

5.111 The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article **31** and in Appendix **13**.

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

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5.113 For the conditions for the use of the bands 2 300-2 495 kHz (2 498 kHz in Region 1), 3 200-3 400 kHz, 4 750-4 995 kHz and 5 005-5 060 kHz by the broadcasting service, see Nos. **5.16** to **5.20**, **5.21** and **23.3** to **23.10**.

5.115 The carrier (reference) frequencies 3 023 kHz and 5 680 kHz may also be used, in accordance with Article **31** and Appendix **13** 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 3 155-3 195 kHz to provide a common worldwide channel for low power wireless hearing aids. Additional channels for these devices may be assigned by administrations in the bands between 3 155 kHz and 3 400 kHz to suit local needs.

It should be noted that frequencies in the range 3 000 kHz to 4 000 kHz are suitable for hearing aid devices which are designed to operate over short distances within the induction field.

5.127 The use of the band 4 000-4 063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. **52.220** and Appendix **17**).

5.129 On condition that harmful interference is not caused to the maritime mobile service, the frequencies in the bands 4 063-4 123 kHz and 4 130-4 438 kHz may be used exceptionally by stations in the fixed service communicating only within the boundary of the country in which they are located with a mean power not exceeding 50 W.

5.130 The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles **31** and **52** and in Appendix **13**.

5.131 The frequency 4 209.5 kHz is used exclusively for the transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing techniques. (WRC-97)

5.132 The frequencies 4 210 kHz, 6 314 kHz, 8 416.5 kHz, 12 579 kHz, 16 806.5 kHz, 19 680.5 kHz, 22 376 kHz and 26 100.5 kHz are the international frequencies for the transmission of maritime safety information (MSI) (see Appendix **17**).

5.134 The use of the bands 5 900-5 950 kHz, 7 300-7 350 kHz, 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 13 570-13 600 kHz, 13 800-13 870 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz by the broadcasting service 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 5 900-5 950 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis, as well as to the following services: in Region 1 to the land mobile service on a primary basis, in Region 2 to the mobile except aeronautical mobile (R) service on a primary basis, and in Region 3 to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution **21** (**Rev.WRC-95**). After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.137 On condition that harmful interference is not caused to the maritime mobile service, the bands 6 200-6 213.5 kHz and 6 220.5-6 525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above conditions.

5.138 The following bands:

6 765-6 795 kHz	(centre frequency 6 780 kHz),
433.05-434.79 MHz	(centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. **5.280**,
61-61.5 GHz	(centre frequency 61.25 GHz),
122-123 GHz	(centre frequency 122.5 GHz), and
244-246 GHz	(centre frequency 245 GHz)

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

5.138A Until 29 March 2009, the band 6 765-7 000 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 7 100-7 200 kHz is allocated to the broadcasting service until 29 March 2009 on a primary basis. (WRC-03)

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

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

5.143B In Region 1, the band 7 350-7 450 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, on condition that harmful interference is not caused to the broadcasting service, frequencies in the band 7 350-7 450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located, each station using a total radiated power that shall not exceed 24 dBW. (WRC-03)

5.143E Until 29 March 2009, the band 7 450-8 100 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. (WRC-03)

5.145 The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles **31** and **52** and in Appendix **13**.

5.146 The bands 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz are allocated to the fixed service on a primary basis until 1 April 2007, subject to application of the procedure referred to in Resolution **21** (**Rev.WRC-95**). After 1 April 2007, frequencies in these bands may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.147 On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9 775-9 900 kHz, 11 650-11 700 kHz and 11 975-12 050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.

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

13 360-13 410 kHz,
25 550-25 670 kHz,
73-74.6 MHz*
150.05-153 MHz†
322-328.6 MHz,
406.1-410 MHz,
608-614 MHz
1 330-1 400 MHz,
1 610.6-1 613.8 MHz,
1 660-1 670 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*
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

* in Regions 1 and 3,
† in Region 1,
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**)

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5.150 The following bands:

13 553-13 567 kHz	(centre frequency 13 560 kHz),
26 957-27 283 kHz	(centre frequency 27 120 kHz),
40.66-40.70 MHz	(centre frequency 40.68 MHz),
902-928 MHz in Region 2	(centre frequency 915 MHz),
2 400-2 500 MHz	(centre frequency 2 450 MHz),
5 725-5 875 MHz	(centre frequency 5 800 MHz), &
24-24.25 GHz	(centre frequency 24.125 GHz)

are also designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within these bands must accept harmful interference which may be caused by these applications. ISM equipment operating in these bands is subject to the provisions of No. **15.13**.

5.151 The bands 13 570-13 600 kHz and 13 800-13 870 kHz are allocated, until 1 April 2007, to the fixed service on a primary basis and to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution **21** (**Rev.WRC-95**). After 1 April 2007, frequencies in these bands may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.155B The band 21 870-21 924 kHz is used by the fixed service for provision of services related to aircraft flight safety.

5.156A The use of the band 23 200-23 350 kHz by the fixed service is limited to provision of services related to aircraft flight safety.

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

5.162A Additional allocation: in Germany, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Denmark, Spain, Estonia, Finland, France, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Luxembourg, Moldova, Monaco, Norway, the Netherlands, Poland, Portugal, Slovakia, the Czech Republic, the United Kingdom, the Russian Federation, Sweden and Switzerland the band 46-68 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution 217 (**WRC-97**).

5.164 Additional allocation: in Albania, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libyan Arab Jamahiriya, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, the United Kingdom, Senegal, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia, Turkey and Serbia and Montenegro the band 47-68 MHz, in Romania the band 47-58 MHz, in South Africa the band 47 - 50 MHz, and in the Czech Republic the band 66-68 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band. (WRC-03)

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. **9.21**. (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 **13**).

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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 31 and Appendix 13 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. **4.4** 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. 9.11A. (WRC-97)

5.208A In making assignments to space stations in the mobile-satellite service in the bands 137-138 MHz, 387-390 MHz and 400.15-401 MHz, admini-strations 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)

5.209 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)

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

5.218 Additional allocation: the band 148-149.9 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **9.21**. The bandwidth of any individual transmission shall not exceed ± 25 kHz.

5.219 The use of the band 148-149.9 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the band 148-149.9 MHz.

5.220 The use of the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. 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, Korea (Rep. of), Cote d' Ivoire, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Lebanon, Libyan Arab Jamahiriya, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, Syrian Arab Republic, Kyrgyzstan, Slovakia, Romania, the United Kingdom, the Russian Federation, Senegal, Serbia and Montenegro, 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-03)

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

5.223 Recognizing that the use of the band 149.9-150.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation-satellite service, administrations are urged not to authorize such use in application of No. **4.4**.

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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 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency are contained in Article **31** and Appendix **13**.

In the bands 156-156.7625 MHz, 156.8375-157.45 MHz, 160.6-160.975 MHz and 161.475-162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles **31** and **52**, and Appendix **13**).

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

5.227 In the maritime mobile VHF service the frequency 156.525 MHz is to be used exclusively for digital selective calling for distress, safety and calling. The conditions for the use of this frequency are prescribed in Articles 31 and 52, and Appendices **13** and **18**.

5.235 Additional allocation: in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein, Malta, Monaco, Norway, the Netherlands, the United Kingdom, Sweden and Switzerland, the band 174-223 MHz is also allocated to the land mobile service on a primary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.

5.254 The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **9.21**, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations except for the additional allocation made in footnote no. 5.256A. (WRC-03)

5.255 The bands 312-315 MHz (Earth-to-space) and 387-390 MHz (space-to-Earth) in the mobile-satellite service may also be used by non-geostationary-satellite systems. Such use is subject to coordination under No. **9.11A**.

5.256 The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes (see Appendix **13**).

5.256A Additional allocation: in China, the Russian Federation, Kazakhstan and Ukraine, the band 258-261 MHz is also allocated to the space research service (Earth-to-space) and space operation service (Earth-to-space) on a primary basis. Stations in the space research service (Earth-to-space) and space operation service (Earth-to-space) shall not cause harmful interference to, nor claim protection from, nor constrain the use and development of the mobile service systems and mobile-satellite service systems operating in the band. Stations in space research service (Earth-to-space) and space operation service (Earth-to-space) shall not constrain the future development of fixed service systems of other countries. (WRC-03)

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

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

5.260 Recognizing that the use of the band 399.9-400.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation satellite service, administrations are urged not to authorize such use in application of No. **4.4**.

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. **9.11A**. The power flux-density limit indicated in Annex 1 of Appendix **5** shall apply until such time as a competent world radiocommunication conference revises it.

5.266 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** and Appendix **13**).

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

5.268 Use of the band 410-420 MHz by the space research service is limited to communications within 5 km of an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from extra-vehicular activities shall not exceed -153 dB(W/m^2) for $0° \leq \delta \leq 5°$, $-153 + 0.077 (\delta - 5)$ dB(W/m^2) for $5° \leq \delta \leq 70°$ and -148 dB(W/m^2) for $70° \leq \delta \leq 90°$, where d is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. No. **4.10** does not apply to extra-vehicular activities. In this frequency band the space research (space-to-space) service shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. (WRC-97)

5.279A The use of this band by sensors in the Earth exploration-satellite service (EESS) (active) shall be in accordance with Recommendation ITU-R SA.1260-1. Additionally, the EESS (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 EESS (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, 1 260-1 270 MHz, 2 400-2 450 MHz, 3 400-3 410 MHz (in Regions 2 and 3 only) and 5 650-5 670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. **5.43**). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. **25.11**. The use of the bands 1 260-1 270 MHz and 5 650-5 670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.

5.286 The band 449.75-450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), subject to agreement obtained under No. **9.21**.

5.286A The use of the bands 454-456 MHz and 459-460 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-97)

5.286B The use of the band 454-455 MHz in the countries listed in No. **5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **5.286E**, by stations in the mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)

5.286C The use of the band 454-455 MHz in the countries listed in No. **5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **5.286E**, by stations in the mobile-satellite service, shall not constrain the development and use of the fixed and mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)

5.287 In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. Where needed, equipment designed for 12.5 kHz channel spacing using also the additional frequencies 457.5375 MHz, 457.5625 MHz, 467.5375 MHz and 467.5625 MHz may be introduced for on-board communications. The use of these frequencies in territorial waters may be subject to the national regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174 (see Resolution **341 (WRC-97)**). (WRC-97)

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

5.296 Additional allocation: in Germany, Austria, Belgium, Cote d' Ivoire, Cyprus, Denmark, Spain, Finland, France, Ireland, Israel, Italy, Libyan Arab Jamahiriya, Lithuania, Malta, Morocco, Monaco, Norway, the Netherlands, Portugal, Syrian Arab Republic, the United Kingdom, Sweden, Switzerland, Swaziland and Tunisia, the band 470-790 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table of Frequency Allocations in countries other than those listed in this footnote. (WRC-03)

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

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5.306 Additional allocation: in Region 1, except in the African Broadcasting Area (see Nos. **5.10** to **5.13**), and in Region 3, the band 608-614 MHz is also allocated to the radio astronomy service on a secondary basis.

5.311 Within the frequency band 620-790 MHz, assignments may be made to television stations using frequency modulation in the broadcasting-satellite service subject to agreement between the administrations concerned and those having services, operating in accordance with the Table, which may be affected (see Resolutions 33 **(Rev. WRC-03)** and **507 (Rev. WRC-03)**). Such stations shall not produce a power flux-density in excess of the value -129 dB(W/m^2) for angles of arrival less than 20° (see Recommendation **705**) within the territories of other countries without the consent of the administrations of those countries. Resolution **545 (Rev. WRC-03)**

5.317A Administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000) may use those parts of the band 806-960 MHz which are allocated to the mobile service on a primary basis and are used or planned to be used for mobile systems (see Resolution **224 (WRC-2000)**). 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.

5.322 In Region 1, in the band 862-960 MHz, stations of the broadcasting service shall be operated only in the African Broadcasting Area (see Nos. **5.10** to **5.13**) excluding Algeria, Egypt, Spain, Libyan Arab Jamahiriya, Morocco, Namibia, Nigeria, South Africa, Tanzania, Zimbabwe and Zambia, subject to agreement obtained under No. **9.21**.

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.

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 (WRC-03)** 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-03)

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. (WRC-03)

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

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

5.331 Additional allocation: in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Nigeria, Norway, Oman, the Netherlands, Poland, Portugal, Qatar, Syrian Arab Republic, Slovakia, United Kingdom, Serbia and Montenegro, Slovenia, Somalia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the band 1 215-1 300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the band 1 240-1 300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service. (WRC-03)

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.

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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.

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

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

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

5.339A Additional allocation: the band 1 390-1 392 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a secondary basis and the band 1 430-1 432 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis. These allocations are limited to use for feeder links for non-geostationary-satellite networks in the mobile-satellite service with service links below 1 GHz, and Resolution **745** (WRC-03) applies. (WRC-03)

5.340 All emissions are prohibited in the following bands:
1 400-1 427 MHz,
2 690-2 700 MHz, except those provided for by No 5.422,
10.68-10.7 GHz, except those provided for by No. 5.483,
15.35-15.4 GHz, except those provided for by No. 5.511,
23.6-24 GHz,
31.3-31.5 GHz,
31.5-31.8 GHz, in Region 2,
48.94-49.04 GHz, from airborne stations,
50.2-50.4 GHz [1],
52.6-54.25 GHz,
86-92 GHz,
100-102 GHz,
109.5-111.8 GHz,
114.25-116 GHz
148.5-151.5 GHz,
164-167 GHz,
182-185 GHz,
190-191.8 GHz,
200-209 GHz,
226-231.5 GHz,
250-252 GHz. (WRC-03)

[1] **5.340.1** The allocation to the earth exploration-satellite service(passive) and the space research service (passive) in the band 50.2-50.4 GHz should not impose undue constraints on the use of the adjacent bands by the primary allocated services in those bands. (WRC-03)

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

5.345 Use of the band 1 452-1 492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (WARC-92)**.

5.347 Different category of service: in Bangladesh, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cuba, Denmark, Egypt, Greece, Ireland, Italy, Mozambique, Portugal, Sri Lanka, Swaziland, Yemen, Serbia and Montenegro and Zimbabwe, the allocation of the band 1 452-1 492 MHz to the broadcasting-satellite service and the broadcasting service is on a secondary basis until 1 April 2007. (WRC-03)

5.347A In the bands:
1 452-1 492 MHz,
1 525-1 559 MHz,
1 613.8-1 626.5 MHz,
2 655-2 670 MHz,
2 670-2 690 MHz,
21.4-22.0 GHz
Resolution **739 (WRC-03)** applies. (WRC-03)

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 1492-1525 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)

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5.348A In the band 1 518 -1 525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. **9.11A** for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be -150 dB(W/m2) in any 4 kHz band for all angles of arrival, instead of those given in Table 5-2 of Appendix **5**. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. **5.43A** does not apply. (WRC-03)

5.348C For the use of the bands 1 518-1 525 MHz and 1 668-1 675 MHz by the mobile-satellite service, see Resolution **225 (Rev. WRC-03)**. (WRC-03)

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

5.351A For the use of the bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz, 1 980-2 010 MHz, 2 170-2 200 MHz, 2 483.5-2 500 MHz, 2 500-2 520 MHz and 2 670-2 690 MHz by the mobile-satellite service, see Resolutions **212 (Rev.WRC-97)** and **225 (WRC-2000)**.

5.352A In the band 1 525-1 530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in France and French overseas territories in Region 3, Algeria, Saudi Arabia, Egypt, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Malta, Morocco, Mauritania, Nigeria, Oman, Pakistan, Philippines, Qatar, Syrian Arab Republic, Tanzania, Viet Nam and Yemen notified prior to 1 April 1998. (WRC-97)

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

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

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

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

5.357A In applying the procedures of Section II of Article **9** to the mobile-satellite service in the 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.)

5.364 The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. **9.11A**. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of -15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. **5.366** (to which No. **4.10** applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed -3 dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. **5.366** and stations in the fixed service operating in accordance with the provisions of No. **5.359**. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. **5.366**.

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

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

5.367 Additional allocation: The bands 1 610-1 626.5 MHz and 5 000-5 150 MHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. **9.21**.

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

5.371 Additional allocation: in Region 1, the bands 1 610-1 626.5 MHz (Earth-to-space) and 2 483.5-2 500 MHz (space-to-Earth) are also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. **9.21**.

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

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

5.375 The use of the band 1 645.5-1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article **31**).

5.376 Transmissions in the band 1 646.5-1 656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.

5.376A Mobile earth stations operating in the band 1 660-1 660.5 MHz shall not cause harmful interference to stations in the radio astronomy service. (WRC-97)

5.379A Administrations are urged to give all practicable protection in the band 1 660.5-1 668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1 664.4-1 668.4 MHz as soon as practicable.

5.379B The use of the band 1 668-1 675 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-03)

5.379C In order to protect the radio astronomy service in the band 1 668-1 670 MHz, the aggregate power flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed -181 dB(W/m^2) in 10 MHz and -194 dB(W/m^2) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2 000 s. (WRC-03)

5.379D For sharing of the band 1 668-1 675 MHz between the mobile-satellite service and the fixed, mobile and space research (passive) services, Resolution **744 (WRC-03)** shall apply. (WRC-03)

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

5.380A In the band 1 670-1 675 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, existing earth stations in the meteorological-satellite service notified in accordance with Resolution **670 (WRC-03)**. (WRC-03)

5.384A The bands, or portions of the bands, 1 710-1 885 MHz and 2 500-2 690 MHz, are identified for use by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000) in accordance with Resolution **223 (WRC-2000)**. 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.

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.

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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)**.)

5.888A In Regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz and, in Region 2, the bands 1 885-1 980 and 2 110-2 160 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)**. The 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 (WRC-95)**. The use of these bands shall not commence before 1 January 2000; however the use of the band 1 980-1 990 MHz in Region 2 shall not commence before 1 January 2005.

5.389C The use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz in Region 2 by the mobile-satellite service shall not commence before 1 January 2002 and is subject to coordination under No. **9.11A** and to the provisions of Resolution **716 (WRC-95)**. (WRC-97)

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

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

5.392 Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2025-2 110 MHz and 2 200-2 290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.

5.396 Space stations of the broadcasting-satellite service in the band 2 310-2 360 MHz operating in accordance with No. **5.393** that may affect the services to which this band is allocated in other countries shall be coordinated and notified in accordance with Resolution **33 (Rev.WRC-97)**. Complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use.

5.398 In respect of the radiodetermination-satellite service in the band 2 483.5-2 500 MHz, the provisions of No. **4.10** do not apply.

5.399 In Region 1, in countries other than those listed in No. **5.400**, harmful interference shall not be caused to, or protection shall not be claimed from, stations of the radiolocation service by stations of the radiodetermination satellite service.

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

5.403 Subject to agreement obtained under No. **9.21**, the band 2 520-2 535 MHz (until 1 January 2005 the band 2 500-2 535 MHz) may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The provisions of No. **9.11A** apply.

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

5.410 The band 2 500-2 690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. **9.21**.

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

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

5.414 The allocation of the frequency band 2 500-2 520 MHz to the mobile-satellite service (space-to-Earth) shall be effective on 1 January 2005 and is subject to coordination under No. **9.11A**.

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. In the direction space-to-Earth, the power flux-density at the Earth's surface shall not exceed the values given in Article **21**, Table **21-4**.

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**. (WRC-03)

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

5.417D Use of the band 2 605-2 630 MHz by geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003 is subject to the application of the provisions of No. **9.13** 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)

5.418B Use of the band 2 630-2 655 MHz by non-geostationary-satellite systems in the Broadcast-satellite service (sound), pursuant to No. **5.418** for which Appendix **4** coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. **9.12**. (WRC-03)

5.418C Use of the band 2 630-2 655 MHz by geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, has been received after 2 June 2000 is subject to the application of the provisions of No. **9.13** with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. **5.418A**, and No. **22.2** does not apply. (WRC-03)

5.419 The allocation of the frequency band 2 670-2 690 MHz to the mobile-satellite service shall be effective from 1 January 2005. When introducing systems of the mobile-satellite service in this band, administrations shall take all necessary steps to protect the satellite systems operating in this band prior to 3 March 1992. The coordination of mobile-satellite systems in the band shall be in accordance with No. **9.11A**.

5.420 The band 2 655-2 670 MHz (until 1 January 2005 the band 2 655-2 690 MHz) may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite, service for operation limited to within national boundaries, subject to agreement obtained under No. **9.21**. The coordination under No. **9.11A** applies.

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

5.424A In the band 2 900-3 100 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the radionavigation service. (WRC-03)

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

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

5.427 In the bands 2 900-3 100 MHz and 9 300-9 500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. **4.9**.

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

5.440 The standard frequency and time signal-satellite service may be authorized to use the frequency 4 202 MHz for space-to-Earth transmissions and the frequency 6 427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of ± 2 MHz of these frequencies, subject to agreement obtained under No. **9.21**.

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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 system 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-GSO FSS systems and of the complete coordination or notification information, as appropriate, for the GSO 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.

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.

5.443B In order not to cause harmful interference to the microwave landing system operating above 5 030 MHz, the aggregate power flux-density produced at the Earth's surface in the band 5 030-5 150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5 010-5 030 MHz shall not exceed -124.5 dB(W/m^2) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4 990-5 000 MHz, radionavigation-satellite service systems operating in the band 5 010-5 030 MHz shall comply with the limits in the band 4 990-5 000 MHz defined in Resolution **741 (WRC-03)**. (WRC-03)

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. The requirements of this system shall take precedence over other uses of this band. For the use of this band, **No. 5.444A** and Resolution **114 (Rev. WRC-03)** apply.

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 mobile-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)**;
- -prior to 1 January 2018, the requirements of existing and planned international standard systems for the aeronautical radionavigation service which cannot be met in the 5 000-5 091 MHz band, shall take precedence over other uses of this band;
- -after 1 January 2012, 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-03)

5.446 Additional allocation: in the countries listed in Nos. **5.369** and **5.400**, the band 5 150-5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **9.21**. 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 1 610-1 626.5 MHz and/or 2 483.5-2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed -159 dBW/m^2 in any 4 kHz band for all angles of arrival.

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

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

5.447A 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. **9.11A**.

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

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

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

5.447E Additional allocation: The band 5 250-5 350 MHz is also allocated to the fixed service on a primary basis in the following countries in Region 3: Australia, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Papua New Guinea, Philippines, Sri Lanka, Thailand and Viet Nam. The use of this band by the fixed service is intended for the implementation of fixed wireless access (FWA) systems and shall comply with Recommendation ITU-R F.1613. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. **5.43A** do not apply to the fixed service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of FWA systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the FWA systems by future radiodetermination implementations. (WRC-03)

5.447F In the band 5 250-5 350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU-R M.1638 and ITU-R SA.1632. (WRC-03)

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

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

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

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

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

5.450A In the band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU-R M.1638. (WRC-03)

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

5.451 Additional allocation: in the United Kingdom, the band 5 470-5 850 MHz is also allocated to the land mobile service on a secondary basis. The power limits specified in Nos. **21.2**, **21.3**, **21.4** and **21.5** shall apply in the band 5 725-5 850 MHz.

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

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5.457A In the bands 5 925-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution **902 (WRC-03)**. (WRC-03)

5.457B In the bands 5 925-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution 902 (WRC-03) in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Jordan, Kuwait, Libyan Arab Jamahiriya, Morocco, Mauritania, Oman, Qatar, 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 6 425-7 075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7 075-7 250 MHz, passive microwave sensor measurements are carried out. Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6 425-7 025 MHz and 7 075-7 250 MHz.

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

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

5.458C Administrations making submissions in the band 7 025-7 075 MHz (Earth-to-space) for geostationary-satellite systems in the fixed-satellite service after 17 November 1995 shall consult on the basis of relevant ITU-R Recommendations with the administrations that have notified and brought into use non-geostationary-satellite systems in this frequency band before 18 November 1995 upon request of the latter administrations. This consultation shall be with a view to facilitating shared operation of both geostationary-satellite systems in the fixed-satellite service and non-geostationary-satellite systems in this band.

5.460 The use of the band 7 145-7 190 MHz by the space research service (Earth-to-space) is restricted to deep space; no emissions to deep space shall be effected in the band 7 190-7 235 MHz. Geostationary satellites in the space research service operating in the band 7 190-7 235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. **5.43A** does not apply. (WRC-03)

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

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

5.461B The use of the band 7 750-7 850 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 8 025-8 400 MHz, the earth exploration-satellite service using geostationary satellites shall not produce a power flux-density in excess of the following provisional values for angles of arrival (q), 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°

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

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

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

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

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

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

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

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5.474 In the band 9 200-9 500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article **31**).

5.475 The use of the band 9 300-9 500 MHz by the aeronautical radionavigation service is limited to airborne weather radars and ground-based radars. In addition, ground-based radar beacons in the aeronautical radionavigation service are permitted in the band 9 300-9 320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. In the band 9 300-9 500 MHz, ground-based radars used for meteorological purposes have priority over other radiolocation devices.

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

5.476A In the band 9 500-9 800 MHz, stations in the earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radionavigation and radiolocation services. (WRC-97)

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

5.482 In the band 10.6-10.68 GHz, stations of the fixed and mobile, except aeronautical mobile, services shall be limited to a maximum equivalent isotropically radiated power of 40 dBW and the power delivered to the antenna shall not exceed -3 dBW. These limits may be exceeded subject to agreement obtained under No. **9.21**. However, in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, China, the United Arab Emirates, Georgia, India, Indonesia, the Islamic Republic of Iran, Iraq, Japan, Kazakhstan, Kuwait, Latvia, Lebanon, Moldova, Nigeria, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Tajikistan and Turkmenistan, the restrictions on the fixed and mobile, except aeronautical mobile, services are not applicable.

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

5.484A The use of the bands 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 13.75-14.5 GHz (Earth-to-space), 17.8-18.6 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), 29.5-30 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **S9.12** 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-GSO FSS systems and of the complete coordination or notification information, as appropriate, for the GSO 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.

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

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

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5.492 Assignments to stations of the broadcasting-satellite service which are in conformity with the appropriate regional Plan or included in the Regions 1 and 3 List in Appendix **30** may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference, or require more protection from interference, than the broadcasting-satellite service transmissions operating in conformity with the Plan or the List, as appropriate.

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)

5.501 Additional allocation: in Azerbaijan, Hungary, Japan, Mongolia, Kyrgyzstan, Romania, the United Kingdom and Turkmenistan, the band 13.4-14 GHz is also allocated to the radionavigation service on a primary basis.

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

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

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

- 115 dB(W/(m^2 · 10 MHz)) for more than 1% of the time produced at 36 m above sea level at the low water mark, as officially recognized by the coastal state;
- 115 dB(W/(m^2 · 10 MHz)) for more than 1% of the time produced 3 m above ground at the border of the territory of an administration deploying or planning to deploy land mobile radars in this band, unless prior agreement has been obtained.

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

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

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

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

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

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

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

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

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

5.504 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.

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5.504A In the band 14-14.5 GHz, aircraft earth stations in the secondary aeronautical mobile-satellite service may also communicate with space stations in the fixed-satellite service. The provisions of Nos. **5.29**, **5.30** and **5.31** apply. (WRC-03)

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

5.504C In the band 14-14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Côte d'Ivoire, Egypt, Guinea, India, Iran, Kuwait, Lesotho, Nigeria, Oman, Syrian Arab Republic and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (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 Radiocommunication Bureau prior to 5 July 2003. (WRC-03)

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

5.508 Additional allocation: in Germany, Bosnia and Herzegovina, France, Italy, The Former Yugoslav Republic of Macedonia, Libyan Arab Jamahiriya, the United Kingdom, Slovenia and Serbia and Montenegro, the band 14.25-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-03)

5.508A In the band 14.25-14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran, Italy, Kuwait, Lesotho, Nigeria, Oman, Syrian Arab Republic, the United Kingdom and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-03)

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

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5.511C Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R S.1340. The minimum coordination distance required to protect the aeronautical radionavigation stations (No. **4.10** applies) 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. **9.11A** 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. **4.10** applies). (WRC-97)

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)

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

5.516 The use of the band 17.3-18.1 GHz by geostationary-satellite systems in the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. The use of the band 17.3-17.8 GHz in Region 2 by systems in the fixed-satellite service (Earth-to-space) is limited to geostationary satellites. For the use of the band 17.3-17.8 GHz in Region 2 by feeder links for the broadcasting-satellite service in the band 12.2-12.7 GHz, see Article **11**. The use of the bands 17.3-18.1 GHz (Earth-to-space) in Regions 1 and 3 and 17.8-18.1 GHz (Earth-to-space) in Region 2 by non-geostationary-satellite systems in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-GSO FSS systems and of the complete coordination or notification information, as appropriate, for the GSO 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.

5.519 Additional allocation: the band 18.1-18.3 GHz is also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Its use is limited to geostationary satellites and shall be in accordance with the provisions of Article **21**, Table **21-4**.

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

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

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 among users of the bands. Administrations should take this into account when considering regulatory provisions in relation to these bands. See Resolution **143 (WRC-03)**. (WRC-03)

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

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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.

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.

5.523A The use of the bands 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) by geostationary and non-geostationary fixed-satellite service networks is subject to the application of the provisions of No. **9.11A** and No. **22.2** does not apply. Administrations having geostationary-satellite networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. **9.11A** with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-geostationary-satellite networks shall not cause unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix **4** notification information is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

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

5.523C No. **22.2** 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 **4** coordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)

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

5.523E No. **22.2** 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 **4** 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. **4.10** do not apply with respect to the mobile-satellite service.

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

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

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.

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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)

5.536B In Germany, Saudi Arabia, Austria, Belgium, Brazil, Bulgaria, China, the Republic of Korea, Denmark, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Hungary, India, Islamic Republic of Iran, Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libyan Arab Jamahiriya, Liechtenstein, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, Syrian Arab Republic, Slovakia, Czech Republic, Romania, the United Kingdom, Singapore, Sweden, Switzerland, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-97)

5.537 Space services using non-geostationary satellites operating in the inter-satellite service in the band 27-27.5 GHz are exempt from the provisions of No. **22.2**.

5.538 Additional allocation: the bands 27.500-27.501 GHz and 29.999-30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of ±10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. In the band 27.500-27.501 GHz, such space-to-Earth transmissions shall not produce a power flux-density in excess of the values specified in Article **21**, Table **21-4** on the Earth's surface.

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.

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 **21**, Table **21-4** shall apply to the space research service.

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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 Resolutions **75 (WRC-2000)** and **79 (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-03).

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.

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

5.551H 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 (space-to-Earth) 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 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 _min of the radiotelescope (for which a default value of 5° should be adopted in the absence of notified information).

These values shall apply at any radio astronomy station that either:
- was in operation prior to 5 July 2003 and has been notified to the Radiocommunication 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)

5.551I 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 (space-to-Earth) 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 Radiocommunication 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)

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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 (WRC-97)**. (WRC-97)

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**).

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 authorised when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.

5.554A The use of the bands 47.5-47.9 GHz, 48.2-48.54 GHz and 49.44-50.2 GHz by the fixed-satellite service (space-to-Earth) is limited to geostationary satellites. (WRC-03)

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

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

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

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

5.557A 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).

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**).

5.558A Use of the band 56.9-57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed -147 dB(W/m^2/100 MHz) for all angles of arrival. (WRC-97)

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

5.559A The band 75.5-76 GHz is also allocated to the amateur and amateur-satellite services on a primary basis until the year 2006.

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.

5.560A The 81-81.5 GHz band is also allocated to the amateur and amateur-satellite services on a secondary basis.

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.

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)

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5.562A Transmissions from space stations of the Earth exploration-satellite service (active) that are directed into the main beam of a radio astronomy antenna have the potential to damage some radio astronomy receivers. Space agencies operating the transmitters and the radio astronomy stations concerned should mutually plan their operations so as to avoid such occurrences to the maximum extent possible.

5.562B Use of this allocation is limited to space-based radio astronomy only.

5.562C Use of the band 116-122.25 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 km to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed -148 dB(W/(m^2 MHz)) for all angles of arrival.

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

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.

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.

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 km to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed -144 dB(W/(m^2 MHz)) for all angles of arrival.

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.

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.

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.

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ANNEX 2 - GLOSSARY OF TERMS AND DEFINITIONS

KEY TO ABBREVIATIONS

AGA	Air - Ground - Air
AIS	Universal Shipborne Automatic Identification System
AM	Amplitude Modulation
Appendix 25	Appendix 25 of the ITU Radio Regulations: Provisions and associated frequency allotment plan for coast radiotelephone stations operating in the exclusive maritime mobile bands between 4000 kHz and 27 500 kHz
Appendix 17	Appendix 17 of the ITU Radio Regulations: Frequencies and channelling arrangements in the high frequency bands for the maritime mobile service
Appendix 18	Appendix 18 of the Radio Regulations: Table of Transmitting frequencies in the band 156-174 MHz for stations in the maritime mobile service
Appendix 26	Appendix 26 of the ITU Radio Regulations: Provisions and associated frequency allotment plan for Aeronautical Mobile (OR) service in the band allocated exclusively to that service between 3 025 kHz and 18 030 kHz
Appendix 27	Appendix 27 of the ITU Radio Regulations: Frequency allotment plan for the aeronautical mobile (R) service and related information
Appendix 30	Appendix 30 of the Radio Regulations: Provisions for all services and associated plans for the broadcast-satellite service in frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1), and 12.2-12.7 GHz (in Region 2)
Appendix 30A	Appendix 30A of the Radio Regulations: Provisions and associated plans for feeder links for the broadcasting-satellite services
Article 12	Article 12 of the ITU Radio Regulations: Seasonal planning of the HF bands allocated to the broadcast service between 5 900 kHz and 26 100 kHz
APT	Automatic Picture Transmission
AVI	Automatic Vehicle Identification
CEPT	European Conference of Postal and Telecommunications Administrations
CT2	European Analogue cordless telephone system (second generation) (I-ETS 300 131)
DAB	Digital Audio Broadcasting
DCS1800	Digital Communications System, 1800 MHz band (Also see GSM)
DECT	Digital Enhanced Cordless Telecommunications: a pan-European standard for short-range cordless telephones
DGPS	Differential Global Positioning System
DMO	Direct Mode Operation
DSC	Digital Selective Calling
DSI	Detailed Spectrum Investigation (as conducted by CEPT/ERO)
DTT	Digital Terrestrial Television
E-s	Earth to space direction of transmission
Earth - space	Earth to space direction of transmission
EESS	Earth Exploration-Satellite Service
EGSM	Extended Global System for Mobile Communications (see GSM)
ENG/OB	Electronic News Gathering/Outside Broadcast - a temporary link
EPIRB	Emergency Position-Indicating Radio Beacon
ECC	Electronic Communications Committee - A committee of CEPT responsible for radio and telecommunication matters
EN	Euronorm: A harmonised ETSI Standard
ERC	European Radiocommunications Committee - A committee of CEPT responsible for radio matters. Merged into the ECC and no longer in existence.
ERC/DEC/	ERC Decision
ERC/REC/	ERC Recommendation
ECC/DEC/	ECC Decision

ANNEX 2 - GLOSSARY OF TERMS AND DEFINITIONS

ECC/REC/	ECC Recommendation
ERO	European Radiocommunications Office - A permanent office within CEPT dealing with radio and telecommunication matters
ERMES	European Radio Message System
e.r.p.	Equivalent radiated power
e.i.r.p.	Equivalent isotropically radiated power
ETS	European Telecommunication Standard
ETSI	European Telecommunication Standards Institute
EUTELSAT	European Telecommunications Satellite Organisation
FDDA	Field Disturbance and Doppler Apparatus (Motion Detectors)
FM	Frequency Modulation
FSS	Fixed Satellite Service
FSTV	Fast Scan Television
FWA	Fixed Wireless Access
FWALA	Fixed Wireless Access Local Area
FWPMA	Fixed Wireless Point to Multipoint Access
GHz	Gigahertz - 1 000 000 000 Hertz
GLONASS	Global Satellite Navigation System (Russian Federation)
GMDSS	Global Maritime Distress and Safety System
GPS	Global Positioning System GSM Global System for Mobile Communications (Public mobile cellular system in the 900 and 1800 MHz band)
GSO	Geostationary Orbit
Gen 85 - EMA	ITU Geneva 1985 Regional Agreement concerning the planning of the Maritime Radionavigation Service (Radiobeacons) in the European Maritime Area
Gen 85 - MM	ITU Geneva 1985 Regional Agreement concerning the MF Maritime Mobile and Aeronautical Radionavigation Services (Region 1)
HDTV	High Definition Television
Hz	Hertz, The unit of frequency measurement, (1 kHz = 1 000 Hz, 1 MHz = 1000 000 Hz, 1GHz = 1000 000 000 Hertz)
HIPERLAN	HIgh PErformance Radio Local Area Network
HRPT	High Resolution Picture Transmission
IF	Intermediate Frequency
IMT-2000	International Mobile Telecommunications - 3rd generation Mobile Systems
INTELSAT	International Telecommunications Satellite Organisation
INMARSAT	International Maritime Satellite Organisation
ISM	Industrial, Scientific and Medical applications
ITU	International Telecommunications Union
ITU-R	Radiocommunication Sector of the ITU
ITU Geneva 75 Plan	Plan for the assignment of frequencies to broadcasting stations in the medium frequency bands in Regions 1 and 3 and in the low frequency bands in Region 1
ITU Geneva 1984 Plan	Frequency assignment plan for FM sound broadcasting stations in Region 1 and part of Region 3 in the band 87.5-108 MHz
ITU Stockholm 1961 Plan	Plans annexed to the Regional agreement for the European Broadcasting Area concerning the use of frequencies by the broadcasting services in the VHF and UHF bands
kHz	Kilohertz - 1000 Hertz
LAN	Local Area Network
LEO	Low Earth Orbit
LORAN C	Radionavigation System
LPD	Low Power Device (Low power radio transmitters used for general data, telemetry, telecommand and other short range communications)

ANNEX 2 - GLOSSARY OF TERMS AND DEFINITIONS

MEO	Medium Earth Orbit
MHz	Megahertz - 1 000 000 Hertz
MLS	Microwave Landing System
MSS	Mobile Satellite Service
MVDS	Microwave (or Multi-point) Video Distribution System
MWS	Multimedia Wireless System
N-GSO	Non-Geostationary Orbit
Navtex	Navigation Text Messaging System
PAMR	Public Access Mobile Radio
PMR Band	Private Mobile Radio Band (Frequency band mainly used for business radio purposes)
RACON	Radar Beacon
RLAN	Radio Local Area Network
RTTT	Road Transport & Traffic Telematics
SAR	Search and Rescue
SARSAT	Search and Rescue Satellite
S-DAB	Satellite Digital Audio Broadcasting
SNG	Satellite News Gathering
S-PCS	Satellite Personal Communications System
s-E	space to Earth direction of transmission
space - Earth	space to Earth direction of transmission
S.I.	Statutory Instrument (National Legislation)
SRD	Short Range Devices
SRR	Short Range Radar
STL	Studio to Transmitter Link
T-DAB	Terrestrial Digital Audio Broadcasting
TETRA	Terrestrial Trunked Radio (Digital)
TFTS	Terrestrial Flight Telephone System
UIC	Union International Chemin de Fer (International railways Organisation)
UMTS	Universal Mobile Telecommunications Systems
VSAT	Very Small Aperture Terminal
WAN	Wide Area Network
WARC	World Administrative Radio Conference
WRC	World Radiocommunication Conference

ANNEX 2 - GLOSSARY OF TERMS AND DEFINITIONS

TERMS AND DEFINITIONS

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

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

Aeronautical Fixed Service:
A radiocommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular efficient and economical operation of air transport.

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

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

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

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

Broadcasting-Satellite Service:
A radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public. In the broadcasting satellite service the term "direct reception" shall encompass both individual reception and community reception.

Citizen Band:
Short range radio service for both hobby and business use. It is designed to be used without eh need to have any technical qualifications and not to cause interference to other radio users.

Deep Space:
Space at a distance from the Earth approximately equal to, or greater than, the distance between the earth and the moon.

Earth Exploration-Satellite Service:
A radiocommunication service between earth stations and one or more space stations which may include links between space stations, in which:

- information relating to the characteristics of the earth and its natural phenomena is obtained from active sensors or passive sensors on earth satellites;
- similar information is collected from airborne or earth based platforms;
- such information may be distributed to earth stations within the system concerned;
- platform interrogation may be included.

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

Emergency Position Indicating Radiobeacon Station:
A station in the mobile service the emissions of which are intended to facilitate search and rescue operations.

Fixed Service:
A radiocommunication service between specified fixed points.

Fixed-Satellite Service:
A radiocommunication service between earth stations at specified fixed points when one or more satellites are used; in some cases this service includes satellite-to-satellite links, which may also be effected in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radiocommunication services.

Galileo:
The European global satellite navigation system.

Inductive Loop Systems:
Systems which operate by producing a controlled magnetic field within which a predetermined recognisable signal is formed.

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

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

Inter-Satellite Service:
A radiocommunication service providing links between artificial earth satellites.

ANNEX 2 - GLOSSARY OF TERMS AND DEFINITIONS

Meteorological Aids Service:
A radiocommunication service used for meteorological, including hydrological, observations and exploration.

Meteorological-Satellite Service:
An earth exploration satellite service for meteorological purposes.

Land Mobile Service:
A mobile radiocommunications service between base stations and land mobile stations or between land mobile stations.

Mobile-Satellite Service:
A radiocommunication service between mobile earth stations and one or more space stations, or between space stations used by this service or between mobile earth stations by means of one or more space stations. This service may also include feeder links necessary for its operation.

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

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

Primary
Where a band is indicated as allocated to one or more services and the name of the service is printed in "Capitals" (e.g. MOBILE) these are called "primary" services (also see Secondary Services).

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

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

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

Radio Astronomy Service:
A service involving the use of radio astronomy.

Radiocommunications Service:
A service involving the transmission, emission and/or reception of radio waves for specific telecommunications purposes.

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

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

Radiolocation:
Radiodetermination used for purposes other than radionavigation.

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

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

Secondary
Where a band is indicated as allocated to one or more service and the name of the service is printed in normal characters (e.g. Mobile) these are called secondary services.
Stations of a secondary service:

- shall not cause harmful interference to stations of primary services to which the frequencies are already assigned or to which stations may be assigned at a later date
- 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;
- 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.

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

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

Standard Frequency and Time Signal - Satellite Service:
A radiocommunication service using space stations on earth satellites for the same purpose as those of the standard frequency and time signal service.

7: ANNEX 03

LIST OF OTHER RELEVANT DOCUMENTATION

ANNEX 3 - OTHER RELEVANT DOCUMENTATION

The documents listed below can be sourced from the relevant organisations, see Annex 5 for the addresses.

EC DIRECTIVES & NATIONAL TRANSPOSITIONS THEREOF

87/372/EEC
On the frequency bands to be reserved for the co-ordinated introduction of public Pan-European Cellular digital land-based mobile communications in the community. Transposed into national law by S.I. 416 of 1994 European Communities (Co-ordinated Introduction of Public Pan-European Cellular Digital Land-based Mobile Communications — GSM) Regulations, 1994.

90/543/EEC
On the co-ordinated introduction of public Pan-European land-based public radio paging in the community. Transposed into national law by S.I. 28 of 1995 European Communities (Pan-European Land-based Public Radio Paging Service — ERMES) Regulations, 1995.

91/287/EEC
On the frequency bands to be designated for the co-ordinated introduction of digital European cordless telecommunication (DECT) into the community. Transposed into national law by S.I. 168 of 1994 European Communities (Digital European Cordless Telecommunications — DECT) Regulations, 1994.

2002/21/EC
On a common regulatory framework for electronic communications networks and services (Framework Directive). Transposed into Irish legislation by S.I. 307 of 2003 European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2003

2002/20/EC
On the authorisation of electronic communications networks and services (Authorisation Directive). Transposed into Irish legislation by S. I. No. 306 of 2003 European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations 2003

2002/22/EC
On universal service and users' rights relating to electronic communications networks and services (Universal Service Directive). Transposed into Irish legislation by S.I 308 of 2003 European Communities (Electronic Communications Networks and Services) (Universal Service and Users Rights) Regulations 2003

2002/19/EC
On access to, and interconnection of, electronic communications networks and associated facilities (Access Directive). Transposed into Irish legislation by S.I 305 of 2003 European Communities (Electronic Communications Networks and Services) (Access) Regulations 2003

DEC/2001/EC
On a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision)

SI No. 170 of 1979
European Communities (Radio Interference from Electric Household Appliances, Portable Tools and Similar Equipment) Regulations, 1979

SI No. 171 of 1979
European Communities (Radio Interference from Fluorescent Lighting Luminaries) Regulations, 1979

SI No. 339 of 1983
European Communities (Radio Interference from Electrical Household Appliances, Portable Tools and Similar Equipment) (Amendment) Regulations, 1983

SI No. 340 of 1983
European Communities (Radio Interference from Fluorescent Lighting Luminaries) (Amendment) Regulations, 1983

SI No. 290 of 1990
European Communities (Radio Interference from Electrical Household Appliances, Portable Tools and Similar Equipment) (Amendment) Regulations, 1990

SI No. 291 of 1990
European Communities (Radio Interference from Fluorescent Lighting Luminaries) (Amendment) Regulations, 1990

SI No. 168 of 1994
European Communities (Digital European Cordless Telecommunications DECT) Regulations, 1994

SI No. 416 of 1994
European Communities (Co-ordinated Introduction of Public Pan-European Cellular Digital Land-Based Mobile Communications - GSM)

SI No. 28 of 1995
European Communities (Pan-European Land Based Public Radio Paging Service - ERMES) Regulations, 1995

SI No. 123 of 1996
European Communities (Mobile and Personal Communications) Regulations, 1996

ANNEX 3 - OTHER RELEVANT DOCUMENTATION

SI No. 372 of 1997
European Communities (Satellite Telecommunications Services) Regulations, 1997

SI No. 179 of 1998
European Communities (Satellite Earth Station Equipment) Regulations, 1998

SI No. 262 of 1998
European Communities (Use of Standards for the Transmission of TV Signals) Regulations, 1998

CEPT DECISIONS

CEPT/ERC/DEC(94)02
ERC Decision of 24 October 1994 on the frequency band to be designated for the co-ordinated introduction of the European Radio Messaging System (ERMES)
1994 Edition
Remark: Intent of this Decision is met through the implementation of Directive 90/544/EEC

CEPT/ERC/DEC(95)03
ERC Decision of 1 December 1995 on the frequency bands to be designated for the introduction of DCS 1800

CEPT/ERC/DEC(96)01
ERC Decision of 7 March 1996 on the harmonised frequency band to be designated for the introduction of the Digital Land Mobile System for the Emergency Services
Turku 1996.

CEPT/ERC/DEC(96)02
ERC Decision of 7 March 1996 on the harmonised frequency band to be designated for CEPT PR 27 radio equipment and on the implementation of the technical standard for this equipment
Turku 1996
Remark: SI 436 of 1998 Applies

CEPT/ERC/DEC(96)04
ERC Decision of 7 March 1996 on the frequency bands for the introduction of the Trans European Trunked Radio System (TETRA)
Turku 1996.

CEPT/ERC/DEC(97)02
ERC Decision of 21 March 1997 on the extended frequency bands to be used for the GSM Digital Pan-European Communication System
Luxembourg 1997

CEPT/ERC/DEC(97)03
ERC Decision of 30 June 1997 on the Harmonised Use of Spectrum for Satellite Personal Communication Services (S-PCS) operating within the bands 1610-1626.5 MHz, 2483.5-2500 MHz,1980-2010 MHz and 2170-2200 MHz
The Hague 1997
Remark: S.I. No. 214 of 1998 applies

CEPT/ERC/DEC(97)04
ERC Decision of 30 June 1997 on transitional arrangements for the Fixed Service and the Mobile-Satellite Service in the bands 1980-2010 MHz and 2170-2200 MHz in order to facilitate the harmonised introduction and development of Satellite Personal Communications Services
The Hague 1997
Remark: Fixed service to be phased out by 2000.

CEPT/ERC/DEC(97)05
ERC Decision of 30 June 1997 on free circulation, use and licensing of Mobile Earth Stations of Satellite Personal Communications Services (S-PCS) operating within the bands 1610-1626.5 MHz, 2483.5-2500 MHz, 1980-2010 MHz and 2170-2200 MHz within the CEPT
The Hague 1997
Remark: S.I. No. 214 of 1998 applies

CEPT/ERC/DEC(97)06
ERC Decision of 30 June 1997 on the harmonised frequency band to be designated for Social Alarm Systems
The Hague 1997

CEPT/ERC/DEC(97)07
ERC Decision of 30 June 1997 on the frequency bands for the introduction of the Universal Mobile Telecommunications System (UMTS)
The Hague 1997

ANNEX 3 - OTHER RELEVANT DOCUMENTATION

CEPT/ERC/DEC(98)11
ERC Decision of 23 November 1998 on the harmonised frequency band to be designated for CEPT PR 27 radio equipment and on the implementation of the technical standard for this equipment
Krakow 1998
Remark: Statutory Instrument SI No 436 of 1998 refers. Note that this also permits the use of AM equipment conforming to the relevant ETSI standard. It uses the title CB rather than PR-27

CEPT/ERC/DEC(98)12
ERC Decision of 23 November 1998 on Exemption from Individual Licensing of Inmarsat-D terminals for land mobile applications
Remark: Statutory Instrument SI No 398 of 2001 refers.

CEPT/ERC/DEC(98)13
ERC Decision of 23 November 1998 on Exemption from Individual Licensing of Inmarsat-C terminals for land mobile applications
Remark: Statutory Instrument SI No 398 of 2001 refers.

CEPT/ERC/DEC(98)14
ERC Decision of 23 November 1998 on Exemption from Individual Licensing of Inmarsat-M terminals for land mobile applications
Remark: Statutory Instrument SI No 398 of 2001 refers.

CEPT/ERC/DEC(98)15
ERC Decision of 23 November 1998 on Exemption from Individual Licensing of Omnitracs terminals for the Euteltracs system
Krakow 1998
Remark: Statutory Instruments SI No 398 of 2001 refers

CEPT/ERC/DEC(98)17
ERC Decision of 23 November 1998 on Exemption from Individual Licensing of ARCANET Suitcase terminals
Krakow 1998
Remark: Statutory Instruments SI No 398 of 2001 refers

CEPT/ERC/DEC(98)18
ERC Decision of 23 November 1998 on Exemption from Individual Licensing of EMS-PRODAT terminals for land mobile applications
Remark: Statutory Instrument SI No 398 of 2001 refers.

CEPT/ERC/DEC(98)19
ERC Decision of 23 November 1998 on Exemption from Individual Licensing of EMS-MSSAT terminals for land mobile applications
Remark: Statutory Instrument SI No 398 of 2001 refers.

CEPT/ERC/DEC(98)25
ERC Decision of 23 November 1998 on the harmonised frequency band to be designated for PMR 446
Krakow 1998
Remark: Statutory Instruments SI No 93 of 1998 refers.

CEPT/ERC/DEC(98)29
ERC Decision of 23 November 1998 on Exemption from Individual Licensing of Inmarsat-phone terminals (also known as Inmarsat mini-M) for land mobile applications.
Remark: Statutory Instrument SI No 398 of 2001 refers.

CEPT/ERC/DEC(99)06
ERC Decision of 10 March 1999 on the harmonised introduction of satellite personal communication systems operating in the bands below 1 GHz (S-PCS←1GHz)
Helsinki 1999 Revision: 2000
Remark: SI 173 of 2000 Applies

CEPT/ERC/DEC(99)15
ERC Decision of 1 June 1999 on the designation of the harmonised frequency band 40.5 to 43.5 GHz for the introduction of Multimedia Wireless Systems (MWS) including Multipoint Video Distribution Systems (MVDS)
Dublin 1999

CEPT/ERC/DEC(99)17
ERC Decision of 1 June 1999 on the Automatic Identification and Surveillance system (AIS) channels in the maritime VHF band
Dublin 1999

CEPT/ERC/DEC(99)23
ERC Decision of 29 November 1999 on the harmonised frequency bands to be designated for the introduction of High Performance Radio Local Area Networks (HIPERLANs)
Oslo 1999

CEPT/ERC/DEC(99)25
ERC Decision of 29 November 1999 on the harmonised utilisation of spectrum for terrestrial Universal Mobile Telecommunications System (UMTS) operating within the bands 1900 - 1980 MHz, 2010 - 2025 MHz and 2110 - 2170 MHz
Oslo 1999

CEPT/ERC/DEC(00)01
ERC Decision of 28 March 2000 extending ERC/DEC/(97)07 on the frequency bands for the introduction of terrestrial Universal Mobile Telecommunications System (UMTS)
Nicosia 2000

CEPT/ERC/DEC(00)03
ERC Decision of 27 March 2000 on Exemption from Individual Licensing of Satellite Interactive Terminals (SITs) operating within the Frequency Bands 10.70 - 12.75 GHz space-to-Earth and 29.50 - 30.00 GHz Earth-to-Space

CEPT/ERC/DEC(00)04
ERC Decision of 27 March 2000 on Exemption from Individual Licensing of Satellite User Terminals (SUTs) operating within the Frequency Bands 19.70 - 20.20 GHz space-to-Earth and 29.50 - 30.00 GHz Earth-to-space

ANNEX 3 - OTHER RELEVANT DOCUMENTATION

CEPT/ERC/DEC(00)05
ERC Decision of 27 March 2000 on Exemption from Individual Licensing of Very Small Aperture Terminals (VSAT) operating in the frequency bands 14.0 - 14.25 GHz Earth-to-space and 12.5 - 12.75 GHz space-to-Earth

CEPT/ECC/DEC(01)03
ECC Decision of 15 November 2001 on ERO Frequency Information System (EFIS)

CEPT/ERC/DEC(01)01
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-specific Short Range Devices operating in the frequency bands 6765 - 6795 kHz and 13.553 - 13.567 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)02
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-specific Short Range Devices operating in the frequency band 26.957 - 27.283 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)03
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-specific Short Range Devices operating in the frequency band 40.660 - 40.700 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)04
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-specific Short Range Devices operating in the frequency bands 868.0 - 868.6 MHz, 868.7 - 869.2 MHz, 869.4 - 869.65 MHz, 869.7 - 870.0 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)05
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-specific Short Range Devices operating in the frequency band 2400 - 2483.5 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)06
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-specific Short Range Devices operating in the frequency band 5725 - 5875 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)07
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Radio Local Area Networks (RLANs) operating in the frequency band 2400 - 2483.5 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)08
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Movement Detection and Alert operating in the frequency band 2400 - 2483.5 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)09
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Alarms operating in the frequency bands 868.60 - 868.7 MHz, 869.25 - 869.3 MHz, 869.65 - 869.7 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)10
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Model control operating in the frequencies 26.995, 27.045, 27.095, 27.145 and 27.195 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)11
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Flying Model control operating in the frequency band 34.995 - 35.225 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)12
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Model control operating in the frequencies 40.665, 40.675, 40.685 and 40.695 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)13
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for inductive applications operating in the frequency bands 9 - 59.750 kHz, 59.750 - 60.250 kHz, 60.250 - 70 kHz, 70 - 119 kHz, 119 - 135 kHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)14
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for inductive applications operating in the frequency bands 6765 - 6795 kHz, 13.553 - 13.567 MHz

ANNEX 3 - OTHER RELEVANT DOCUMENTATION

CEPT/ERC/DEC(01)15
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for inductive applications operating in the frequency band 7400 - 8800 kHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)16
ERC Decision on 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for inductive applications operating in the frequency band 26.957 - 27.283 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)17
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Ultra Low Power Active Medical Implants operating in the frequency band 402 - 405 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)18
ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Wireless Audio Applications operating in the frequency band 863 - 865 MHz
Remark: Statutory Instrument SI No 405 of 2002 refers

CEPT/ERC/DEC(01)19
ERC Decision of 12 March 2001 on harmonised frequency bands to be designated for the Direct Mode Operation (DMO) of the Digital Land Mobile Systems for the Emergency Services

CEPT/ERC/DEC(01)20
ERC Decision of 12 March 2001 on harmonised frequency bands to be designated for Air-Ground-Air operation (AGA) of the Digital Land Mobile Systems for the Emergency Services.

CEPT/ERC/DEC(01)21
ERC Decision of 12 March 2001 on harmonised frequency band to be designated for the Direct Mode Operation (DMO) of the Digital Land Mobile Systems

CEPT/ECC/DEC(02)01
ECC Decision of 15 March 2002 on the frequency bands to be designated for the coordinated introduction of Road Transport and Traffic Telematic Systems

CEPT/ECC/DEC(02)07
ECC Decision of 15 November 2002 on the harmonised European use of the bands 1670-1675 MHz and 1800-1805 MHz and on the withdrawal of the ERC Decision (92)01 "Decision on the frequency bands to be designated for the coordinated introduction of the Terrestrial Flight Telecommunications System"

CEPT/ECC/DEC/(03)02
ECC Decision of 17 October 2003 on the designation of the frequency band 1479.5-1492 MHz for use by Satellite Digital Audio Broadcasting systems

CEPT/ECC/DEC/(04)01
ECC Decision of 19 March 2004 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for detecting Avalanche Victims on the frequency 457 kHz

CEPT/ECC/DEC/(04)02
ECC Decision of 19 March 2004 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-Specific Short Range Devices operating in the frequency band 433.050-434.790 MHz excluding audio and voice applications

CEPT/ECC/DEC/(04)03
ECC Decision of 19 March 2004 on the frequency band 77-81 GHz to be designated for the use of Automotive Short Range Radars

CEPT/ECC/DEC/(04)06
ECC Decision of 19 March 2004 on the availability of frequency bands for the introduction of Wide Band Digital Land Mobile PMR/PAMR in the 400 MHz and 800/900 MHz bands

ANNEX 3 - OTHER RELEVANT DOCUMENTATION

CEPT RECOMMENDATIONS

CEPT/ERC/REC 12-02
Harmonised radio frequency channel arrangements for analogue and digital terrestrial fixed systems operating in the band 12.75 GHz to 13.25 GHz
Bonn 1994.

CEPT/ERC/REC 12-03 E
Harmonised radio frequency channel arrangements for digital terrestrial fixed systems operating in the band 17.7 GHz to 19.7 GHz
Bonn 1994.

CEPT/ERC/REC 14-01 E
Radio-frequency channel arrangements for high capacity analogue and digital radio-relay systems operating in the band 5925 MHz - 6425 MHz
Bonn 1995.

CEPT/ERC/REC 14-02 E
Radio-frequency channel arrangements for medium and high capacity analogue or high capacity digital radio-relay systems operating in the band 6425 MHz - 7125 MHz
Bonn 1995.

CEPT/ERC/REC 70-03
Relating to the use of Short Range Devices (SRD)
Date: Tromso 1997 and subsequent amendments Revision: Sept 2000

T/R 10-01 E
Wide band data transmission systems using spread-spectrum technology in the 2.5 GHz band
Oslo 1991 Revision: Madrid 1992.

T/R 12-01 E
Harmonised radio frequency channel arrangements for analogue and digital terrestrial fixed systems operating in the band 37-39.5 GHz.
Helsinki 1991.

T/R 13-01 E
Preferred channel arrangements for fixed services in the range 1-3 GHz.
Montreux 1993.
Remark: Annex A,B,C will be implemented; Annex D will not be implemented as band is used by MMDS

T/R 13-02 E
Preferred channel arrangements for fixed services in the range 22.0-29.5 GHz.
Montreux 1993.

T/R 22-03 E
Provisional recommended use of the frequency range 54.25-66 GHz by terrestrial fixed and mobile systems.
Athens 1990.

T/R 32-02 - E
Frequencies to be used by on-board communication stations

T/R 75-02
Use of frequencies in the band 862-960 MHz by the mobile except aeronautical mobile service
Remark: CEPT CT 1 not implemented in bands 914-915 MHz and 959-960 MHz

CEPT ARRANGEMENTS/AGREEMENTS

Reference is made in the Tables to the following CEPT Arrangements/Agreements:

Final Acts of the CEPT T-DAB Planning Meeting, Maastricht, 2002

The Chester 1997 Multilateral Coordination Agreement, relating to the Introduction of Terrestrial Digital, Chester, 25 July 1997 Video Broadcasting (DVB-T)

Copies of these agreements can be found at the ERO website: www.ero.dk

ITU-R RECOMMENDATIONS

Rec. ITU-R F. 386, Annex 1,3
Radio-frequency channel arrangements for radio-relay systems operating in the 8 GHz band.(Annex 1: 7725-8275 MHz (L 8 GHz Band), Annex 3: 8275-8500 MHz (U8 GHz Band))

Rec. ITU-R F. 387, Annex 2
Radio-frequency channel arrangements for radio-relay systems operating in the 11 GHz band.

Rec. ITU-R F. 385, Annex 1
Radio-frequency channel arrangements for radio-relay systems operating in the 7 GHz band.

Rec. ITU-R F. 595
Radio-frequency channel arrangements for radio-relay systems operating in the 18 GHz band.

Rec. ITU-R F. 637
Radio-frequency channel arrangements for radio-relay systems operating in the 23 GHz band.

ANNEX 3 - OTHER RELEVANT DOCUMENTATION

Rec. ITU-R F. 636
Radio-frequency channel arrangements for radio-relay systems operating in the 15 GHz band.

Rec. ITU-R F. 746 Annex 2
Radio-frequency channel arrangements for small and medium capacity analogue radio-relay systems or small and medium capacity digital radio-relay systems operating in the 2.3-2.5 GHz band.

EQUIPMENT SPECIFICATIONS

The following specifications are referred to, either directly or within ERC Decisions, in the Table of Frequency Allocations.

EN 300 086
Land Mobile Service - Radio equipment with an internal or external RF connector intended primarily for analogue speech.

EN 300 113
Land Mobile Service - Radio equipment intended for the transmission of data (and speech) and having an antenna connector.

I-ETS 300 131
Radio Equipment and Systems (RES); Common air interface specification to be used for the interworking between cordless telephone apparatus in the frequency band 864.1-868.1 MHz, including public access services.

EN 300 135
Angle-modulated citizens band radio equipment (CEPT PR 27 radio equipment).

EN 300 162
Radiotelephone transmitters and receivers for the maritime mobile service operating in the VHF bands.

EN 300 197
Transmission and Multiplexing (TM); Parameters for digital radio relay (DRRS) systems for the Transmission of Digital Signals and Analogue Video Signals Operating at 38 GHz.

EN 300 198
Transmission and Multiplexing (TM); Parameters for digital radio relay systems (DRRS) for the Transmission of Digital Signals and Analogue Video Signals Operating at 23 GHz.

EN 300 219
Land Mobile Service - Technical Characteristics and Test Conditions for Radio Equipment Transmitting Signals to Initiate a Specific Response in the Receiver.

EN 300 220
Short Range Devices (SRDs)- Technical Characteristics and Test Methods for Radio Equipment to be used in the 25 MHz to 1000 MHz Range with Power Levels Ranging up to 500 mW.

EN 300 224
On-Site Paging Service - Technical and Functional Characteristics for On-Site Paging Systems, including Test Methods.

EN 300 296
Technical Characteristics and Test Conditions for Radio Equipment using Integral Antennas intended Primarily for Analogue Speech.

EN 300 328
Wideband Transmission Systems; Technical Characteristics and Test Conditions for Data Transmission Equipment operating in the 2.4 GHz ISM band and using Spread Spectrum Modulation Techniques.

EN 300 392
Terrestrial Trunked Radio (TETRA); Voice + Data (V+D).

ETS 300 393
Terrestrial Trunked Radio (TETRA); Packet Data Optimised (PDO).

EN 300 408
Parameters for Radio-Relay Systems for the Transmission of Digital Signals and Analogue Video Signals operating at around 58 GHz, which do not require Co-ordinated Frequency Planning.

EN 300 652
Broadband Radio Access Networks (BRAN); HIgh PErformance Radio Local Area Network (HIPERLAN) Type 1; Functional Specification

ETS 300 836-1/-2/-3/-4
Broadband Radio Access Networks (BRAN); HIgh PErformance Radio Local Area Network (HIPERLAN) - Various

EN 300 433-1/-2
Double side band (DSB) and/or single side band (SSB) amplitude modulated citizen band radio equipment.

EN 301 489
Specific conditions for first (CT1 & CT1+) and second generation (CT2) equipment.

ANNEX 3 - OTHER RELEVANT DOCUMENTATION

STATUTORY INSTRUMENTS

The following S.I.s relate to wireless telegraphy. A number are referred to in the Table of Frequency Allocations.

EXEMPTION ORDERS

SI No. 200 of 1976
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Certain Wired Broadcast Relay Stations) Order, 1976

SI No. 93 of 1998
Wireless Telegraphy Act, 1926 (Section 3)(Exemption of Short Range Business Radios) Order, 1998

SI No. 436 of 1998
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Citizen's Band - CB Radios) Order, 1998

SI No. 409 of 1997
Wireless Telegraphy (Exemption of Mobile Telephones) Exemption Order, 1997

SI No. 410 of 1997
Wireless Telegraphy (Exemption of Cordless Telephones) Exemption Order, 1997

SI No. 214 of 1998
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Satellite Earth Stations for Satellite Personal Communications Services (S-PCS)) Order, 1998

SI No. 107 of 1999
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of DCS 1800 Mobile Terminals) Order, 1999

SI No. 108 of 1999
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of ERMES Paging Receivers) Order, 1999

SI No. 173 of 2000
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Mobile Satellite Earth Stations for Satellite Personal Communication Systems operating in bands below 1GHz (S-PCS<1 GHz)) Order, 2000

SI No. 273 of 2000
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Certain Fixed Satellite Receiving Earth Stations) Order, 2000

SI No. 398 of 2001
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Certain Classes of Land Mobile Earth Stations) Order, 2001

SI No. 158 of 2002
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Mobile Telephones) Order, 2002

SI No. 405 of 2002
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Short Range Devices) Order, 2002

SI No. 158 of 200.
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Mobile Telephones) (Amendments) Order, 2002

SI No. 505 of 2003
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Certain Classes of Fixed Satellite Earth Station) Order, 2003.

SI No. 007 of 2004
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Low Power Aircraft Earth Stations) Order, 2004.

MISCELLANEOUS

SI No. 400 of 1981
Wireless Telegraphy (Control of Sale, Letting on Hire or Manufacture, and Importation of Radio Transceivers) Order, 1981

SI No. 108 of 1963
Wireless Telegraphy (Control of Interference from Electric Motors) Regulations, 1963

SI No. 223 of 1963
Wireless Telegraphy (Control of Interference from Ignition Apparatus) Regulations, 1963

SI No. 331 of 1973
Wireless Telegraphy (Radio Interference from Vehicle Ignition Systems) Regulations, 1973

SI No. 221 of 1972
Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Sound Broadcasting Receivers) Order, 1972

8: ANNEX 04

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Note: The information in this section has been superceded by ComReg document 02/71R.

To download 02/71R please go to http://www.comreg.ie/_fileupload/publications/odtr0271R.pdf

This page replaces pages 99 to 103.

9: ANNEX 05

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ANNEX 5

SOURCES OF FURTHER INFORMATION

The International Telecommunication Union

This organisation is responsible for the publication of the Radio Regulations which includes the International Table of Frequency Allocations. The Radio Regulations also detail the footnotes, appendices and describe the different categories of service referred to in this Radio Frequency Plan.

Publications of the International Telecommunication Union (ITU) can be obtained from:

Sales Service,
International Telecommunication Union,
Place Des Nations,
Ch-1211 Geneva 20,
Switzerland.
Tel.: +41 22 730 61 41
Fax: +41 22 730 51 94
Email: sales@itu.ch
Web Site: http://www.itu.int/publications

CEPT Documentation, including ERC and ECC Decisions, Recommendations, Reports and Publications of the European Radiocommunications Office (ERO) can be obtained from:

The European Radiocommunications Office,
Peblingehus
Nansensgade 19
DK 1366 Copenhagen,
Denmark.
Tel.: +45 33 89 63 00
Fax: +45 33 89 63 30
E-mail: ero@ero.dk
Web Site: http://www.ero.dk

Publications of the European Telecommunications Standards Institute (ETSI) can be obtained from:

ETSI Secretariat
650, route des Lucioles
06921 Sophia-Antipolis
Cedex
FRANCE
Tel.: +33 (0)4 92 94 42 00
Fax: +33 (0)4 93 65 47 16
Email: helpdesk@etsi.org
Web Site: http://www.etsi.org

Irish Equipment Standards (Including ETSI transposed standards) can be obtained from the National Standards Authority of Ireland at the address below:

NSAI, Dublin
Glasnevin,
Dublin 9,
Ireland
Tel.: +353 1 807 3800
Fax: +353 1 807 3838
Email: nsai@nsai.ie
Website: http://www.nsai.ie

Irish Government Publications, including Statutory Instruments, can be obtained from:

Government Publications Sales Office,
Sun Alliance House,
Molesworth Street,
Dublin 2.
Tel: (01) 647 6879

EC directives can be obtained from:

The European Commission Representation in Ireland,
European House,
Dawson Street,
Dublin 2.
Tel.: 01 662 5113
Fax: 01 662 5118
Website: http://www.euireland.ie/office/library.htm

General queries regarding radio or licensing matters can be directed to:

The Commission for Communications Regulation,
Abbey Court,
Irish Life Centre,
Lower Abbey Street,
Dublin 1.
Tel.: 01 804 9600
Fax: 01 804 9680
Email: info@comeg.ie
Web Site: http://www.comreg.ie

10: COMMENTS FORM

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COMMENTS FORM FOR CHANGES TO THE RADIO FREQUENCY PLAN

Comments and proposed corrections will assist ComReg in preparing the next edition. Thank you for your input.

Submitted by:

Organisation:

Phone number:

Date:

Please detail below any changes you wish to have considered when the next edition is being prepared and forward to ComReg, Abbey Court, Irish Life Centre, Lower Abbey Street, Dublin 1 or to info@comreg.ie or fax to +353 1 804 9680.

Reason for proposed change or group of related change:

Page:

Frequency:

Comments on Specific Entries:

Page:

Frequency:

Comments on Specific Entries:

Page:

Frequency:

Comments on Specific Entries:

COMMENTS FORM FOR CHANGES TO THE RADIO FREQUENCY PLAN

Other Comments Contd.:

AN COIMISIÚN UM RIALÁIL CUMARSÁIDE
COMMISSION FOR COMMUNICATIONS REGULATION

ABBEY COURT, IRISH LIFE CENTRE
LOWER ABBEY STREET, DUBLIN 1, IRELAND

TEL: +353 1 804 9600
FAX: +353 1 804 9680
EMAIL: info@comreg.ie
www.comreg.ie