



POST & TELESTYRELSEN

General guidelines of the Swedish National Post and Telecom Agency (PTSFS 2005:4) on the Swedish frequency allocation table

This is an unofficial translation; in the event of any discrepancy between this English version and the Swedish original, the latter will take precedence.

The Swedish National Post and Telecom Agency's Statute Book



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General guidelines of the Swedish National Post and Telecom Agency on the Swedish frequency allocation table;

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These general guidelines (Annex A) describe current and future frequency planning in Sweden.¹ The general guidelines also give the National Post and Telecom Agency's position with regard to how various radio applications are to be accommodated in the radio spectrum. The frequency allocation table has been drawn up, *inter alia*, on the basis of Decision 676/2002/EC of the European Parliament and of the Council (Radio Spectrum Decision)². The aim of the Decision is to ensure coordination of policy approaches and, where appropriate, harmonised conditions with regard to the availability and efficient use of radio spectrum necessary for the establishment and functioning of the internal market in Community policy areas such as electronic communications, transport and research and development (R&D). In accordance with the Decision, Member States shall ensure that their national frequency allocation table and information on rights, conditions, procedures, charges and fees concerning the use of the radio spectrum are published if relevant in order to meet the stated aim.

The frequency allocation table specifies the radio interfaces in the various frequency bands in accordance with Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity³.

These general guidelines shall enter into force on 1 September, 2005, when the National Post and Telecom Agency's general guidelines (PTSFS 2005:2) on the Swedish radio frequency allocation table shall cease to be effective.

On behalf of the Swedish National Post and Telecom Agency

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¹ These provisions have been notified in accordance with Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society Services (OJ L 204, 21.7.1998, p.37, Celex 398L0034), amended by European Parliament and Council Directive 98/48/EC (OJ L 217, 5.8.1998, p.18, Celex 398L0048).

² Decision No 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision), OJ L 108, 24/04/2002 p. 0001 – 0006 (Celex 32002D0676)

³ OJ L 91; 7.4.1999, p. 10 (Celex 399L0005).

Annex A

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1. Preface

The Swedish radio frequency allocation table is essentially based on the international cooperation pursued by Sweden within the framework of the International Telecommunication Union (ITU), the European Conference of Postal and Telecommunications Administrations (CEPT) and the European Union.

These general guidelines on the Swedish frequency allocation table contain a comprehensive description of current and planned frequency use in Sweden. The table, which covers the frequency band up to 1 000 GHz, is based on Article 5 for Region 1 (primarily Europe, Africa, Asia Minor and the Arabian Peninsula, as well as parts of Asia) in the International Radio Regulations (RR) issued by the ITU. The table also contains information concerning the main national use of the frequencies and information of a more general nature, such as references to Swedish provisions or international legal acts and agreements relating to radio use and frequency planning.

The table also specifies reference standards which may be applied to the various radio applications. Where there is a harmonised standard when following these guidelines, this is specified.

With regard to channel separation for land mobile radio, a 10 kHz channel separation is applied in the band below 31.7 MHz and 25 kHz in the band above 31.7 MHz up to 470 MHz unless specified otherwise. For mobile radio in the band below 47 MHz the main maximum power for base stations is 3.5 W (ERP). For mobile radio in the band above 47 MHz the main maximum power for base stations is 25 W (ERP). For channel separation within other areas of application, the RR, international conventions, CEPT recommendations, relevant reference standards and the attached channel plans (Annex 3) apply.

The provisions of the Act (2003:389) on electronic communication [Swedish designation: EkomL] serve to promote efficient use of the radio spectrum. The frequency allocation table is merely a compilation of information on the existing and planned use of the radio spectrum. Work relating to frequencies and related issues is necessarily subject to continual change. The National Post and Telecom Agency (PTS) is working continually to update the Swedish frequency allocation table.

In accordance with the EkomL, a licence is generally required for the use of radio transmitters. In separate provisions (PTSFS 2004:8), PTS has provided for certain exemptions from the requirement for a licence. The Annex to the provisions specifies the technical requirements for radio equipment and requirements pertaining to power restriction.

Requirements pertaining to operators' certificates exist for certain uses of aeronautical, maritime and amateur radio.

The PTS provisions PTSFS 2004:7 specify special requirements for radio equipment intended for use in the Global Maritime Distress and Safety System (GMDSS). These provisions also apply to all such equipment for maritime radio traffic which complies with a non-harmonised standard.

2. Explanatory notes to the frequency table

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (MHz)
xxx– xxx	xxx– xxx	Land mobile	EN zzz zzz-1;-2;-3		xxx– xxx MOBILE FIXED 5.yyy
(1)	(2)	(3)	(4)	(5)	(6)

Column 1 contains details of the frequency band (xxx-xxx), centre frequency (xxx) and equivalent for a specific radio application.

Column 2 contains, where applicable, information on duplex bands (xxx-xxx), the return channel (xxx) and equivalent.

Column 3 contains details of national radio utilisation and other relevant information.

Column 4 contains references to applicable provisions and other legal acts as well as information on reference standards (for example EN zzz zzz-1;-2;-3) which may be applied to the various radio applications. Some of these standards are harmonised standards in accordance with the requirements of Article 3(2) or Article 3(3) of the R&TTE Directive. In the absence of such a standard another available reference standard has been cited. This column also contains details of channel plans, where applicable.

Column 5 may be used for other information.

Column 6 contains applicable references to the allocations of the RR. Primary radio services are written in upper case letters, e.g. FIXED. Secondary radio services are written with an initial upper case letter followed by lower case letters, e.g. Fixed. The division of the frequency bands follows the division for Region 1 in accordance with Article 5 of the RR. The column may also contain references to the RR footnotes (5.yyy) which apply to the frequency band or radio service in question.

3. Abbreviations etc.

AES	Aircraft Earth Station
AIS	Automatic Ship Identification and Surveillance system
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.
CEPT	Conférence des Administrations Européennes des Postes et des Télécommunications (<i>European Conference of Postal and Telecommunications Administrations</i>)
CH97	Chester 1997 (<i>agreement on the coordination of digital terrestrial television</i>)
CT-1	Analogue Cordless Telephone
CT-2	Digital Cordless Telephone
DCT	Digital Cordless Telephone
DECT	Digital European Cordless Telecommunication system
DME	Distance Measuring Equipment
DSC	Digital Selective Calling
E-GSM	Extended-GSM
ECC	Electronic Communications Committee (<i>part of CEPT</i>)
EEC	European Economic Community (<i>now EC</i>)
EC	European Community
EN 55xxxx	European standard
ENG/OB	Electronic News Gathering / Outside Broadcasting
ELT	Emergency Locating Transmitter
EPIRB	Emergency Position Indicating Radio Beacon
ERC	European Radiocommunications Committee (<i>part of CEPT</i>)
ERMES	European Radio Message System (<i>paging system</i>)
ESV	Earth Station on board Vessels (<i>satellite terminal on board vessel</i>)
ETS/i-ETS	Standard/interim standard issued by ETSI
FDD	Frequency Division Duplex (<i>means of communication for, among other things, UMTS applications</i>)
FWA	Fixed Wireless Access
Galileo	European satellite navigation and positioning system
GE75	Geneva Agreement 1975 (<i>LF/MF Broadcasting Agreement</i>)
GE84	Geneva Agreement 1984 (<i>VHF Sound Broadcasting Agreement</i>)
GE85M	Geneva Agreement 1985M (<i>MF maritime radio and aeronautical radionavigation, Region 1</i>)

GE85N	Geneva Agreement 1985N (<i>maritime radio beacons in the LF band, Region 1</i>)
GMDSS	Global Maritime Distress and Safety System (<i>emergency maritime radio system</i>)
GPS	Global Positioning System (<i>satellite navigation and positioning system</i>)
GSM 900	Public pan-European cellular digital land-based mobile communication
GSM 1800	
GSM-R	<i>Mobile communications system in accordance with the GSM 900 standard intended for use by European railways</i>
ICAO	International Civil Aviation Organisation
ILS	Instrument Landing System
IMT-2000	International Mobile Telecommunications (<i>third generation system for mobile telecommunications, developed within the ITU</i>)
ITU	International Telecommunication Union
MA02	Maastricht Arrangement 2002 (<i>European agreement on digital audio broadcasting</i>)
MLS	Microwave Landing System (<i>landing aid for aircraft</i>)
Navtex	<i>International maritime information system</i>
NMT 450	Nordic Mobile Telephone system (<i>cellular analogue terrestrial Nordic mobile telephone system</i>)
NMT 450 Doc	Specification for the NMT 450 (<i>Telia Mobile</i>)
OR	Off-Route (<i>radio communications outside air routes</i>)
PLB	Personal Locating Beacon
PMR	Private Mobile Radio
PTSFS	Swedish National Post and Telecom Agency's Statute Book
R	Route (<i>radio communications within air routes</i>)
RadioLAN	Radio Local Area Network (<i>system for local data transmission using band spreading technologies</i>)
RR	International Radio Regulations (<i>issued by the ITU, decided by WRC</i>)
Rr APxx	Appendix xx to RR
RTTT	Road Transport & Traffic Telematics
SAP/SAB	Services Ancillary Programming/Services Ancillary Broadcasting
SARP	Standards And Recommended Practices (<i>ICAO's standards for civil aviation</i>)
S-DAB	Satellite Digital Audio Broadcasting
SIT	Satellite Interactive Terminal (<i>satellite terminal for broadband access</i>)
SNG	Satellite News Gathering
SRD	Short Range Devices
SRR	Automotive Short Range Radars
SSB	Single Side Band (<i>modulation method</i>)
SSR	Secondary Surveillance Radar (<i>radar for identifying aircraft</i>)

ST61	Stockholm Agreement 1961 (<i>VHF/UHF Broadcasting Agreement</i>)
SUT	Satellite User Terminal (<i>satellite terminal for broadband access</i>)
TBR	Technical Basis for Regulations
T-DAB	Terrestrial Digital Audio Broadcasting
TDD	Time Division Duplex (<i>method of operation, among other things, for certain UMTS applications</i>)
TILS	Tactical Instrument Landing System (<i>military landing aid for aircrafts</i>)
TT&C	Telemetry, Tracking and Command (<i>operation and control of satellites</i>)
UIC	Union Internationale des Chemins de Fer (<i>International Union of Railways</i>)
UMTS	Universal Mobile Telecommunications System (<i>third generation system for mobile telecommunications in Europe, compatible with IMT-2000</i>)
WI95	Wiesbaden Arrangement 1995 (<i>European agreement on digital audio broadcasting</i>)
VOR	Very high frequency Omnidirectional Range (<i>aircraft navigation system</i>)
WRC	World Radiocommunication Conference (<i>under the auspices of the ITU</i>)
VSAT	Very Small Aperture Terminal

4. Frequency allocation table

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
0 - 9		No utilisation (at present)			0 - 9 Not allocated 5.53 5.54
9 - 14		Radionavigation		Both civil and military use	9 - 14 RADIONAVIGATION
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		14 - 19.95 FIXED MARITIME MOBILE 5.57 5.56
14 - 19.95		Fixed		Both civil and military use	
14 - 19.95		Maritime mobile		Both civil and military use	
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		19.95 - 20.05 STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)
19.95 - 20.05		Standard frequency and time signal		Both civil and military use	
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		20.05 - 70 FIXED MARITIME MOBILE 5.57 5.56
20.05 - 70		Fixed		Both civil and military use	
20.05 - 70		Maritime mobile		Both civil and military use	
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		70 - 72 RADIONAVIGATION 5.60
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		72 - 84 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		84 - 86 RADIONAVIGATION 5.60
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		86 - 90 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		90 - 110 RADIONAVIGATION 5.62 Fixed 5.64
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		110 - 112 FIXED MARITIME MOBILE RADIONAVIGATION 5.64
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		112 - 115 RADIONAVIGATION 5.60
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		115 - 117.6 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		117.6 - 126 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64
117.6 - 126		Maritime mobile		Both civil and military use	
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		126 - 129 RADIONAVIGATION 5.60
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		129 - 130 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64
129 - 130		Maritime mobile		Both civil and military use	
9 - 148.5		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		130 - 148.5 MARITIME MOBILE FIXED 5.64
130 - 148.5		Maritime mobile		Both civil and military use	
135.7 - 137.8		Amateur	PTSFS 2004:8		
148.5 - 255		Broadcasting	GE75		148.5 - 255 BROADCASTING
255 - 283.5		Broadcasting	GE75		255 - 283.5 BROADCASTING AERONAUTICAL RADIONAVIGATION

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
283.5 - 315		Maritime radionavigation Radiobeacons	GE85N		283.5 - 315 MARITIME RADIONAVIGATION (radiobeacons) 5.73 AERONAUTICAL RADIONAVIGATION 5.74
283.5 - 315		Aeronautical radio navigation Radiobeacons			
315 - 325		Aeronautical radio navigation Radiobeacons			315 - 325 AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons)
325 - 405		Aeronautical radio navigation Radiobeacons			325 - 405 AERONAUTICAL RADIONAVIGATION
405 - 415		Radionavigation Radiobeacons		Both civil and military use	405 - 415 RADIONAVIGATION 5.76
406.5 - 413.5		Maritime radionavigation Direction-finding			
415 - 435		Aeronautical radio navigation Radiobeacons	GE85N	Both civil and military use	415 - 435 AERONAUTICAL RADIONAVIGATION MARITIME MOBILE 5.79
415 - 435		Maritime mobile	GE85N	Radiotelegraphy Both civil and military use	
435 - 495		Maritime mobile	GE85N	Both civil and military use	435 - 495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.82
457		Short Range Devices (SRD) Detection of avalanche victims	EN 300 718-2 EN 300 718-3 PTSFS 2004:8 ECC/DEC/(04)01		

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
495 - 505		Mobile		Both civil and military use	495 - 505 MOBILE (distress and calling) 5.83
505 - 526.5		Maritime mobile		Both civil and military use	505 - 526.5 MARITIME MOBILE
505 - 526.5		Maritime mobile		Radiotelegraphy Both civil and military use	5.79 5.79A
517.75 - 518.25		Maritime mobile NAVTEX	EN 300 065-2;-3 PTSFS 2004:8		5.84 AERONAUTICAL RADIONAVIGATION
526.5 - 1606.5		Broadcasting	GE75		526.5 - 1606.5 BROADCASTING
1606.5 - 1625		Maritime mobile	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard) GE85M	Both civil and military use	1606.5 - 1625 MARITIME MOBILE 5.90 FIXED LAND MOBILE 5.92
1625 - 1635		Radiolocation		Both civil and military use	1625 - 1635 RADIOLOCATION
1635 - 1800		Maritime mobile	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard) GE85M	Radiotelegraphy Both civil and military use	1635 - 1800 MARITIME MOBILE 5.90 FIXED LAND MOBILE 5.92 5.96

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
1800 - 1810		Radiolocation		Both civil and military use	1800 - 1810 RADIOLOCATION
1810 - 1850		Amateur	PTSFS 2004:8		1810 - 1850 AMATEUR 5.100
1850 - 2000		Fixed		Both civil and military use	1850 - 2000 FIXED
1850 - 2000		Maritime mobile	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard)	SSB radiotelephony Both civil and military use	MOBILE except aeronautical mobile
1930 - 2000		Amateur	PTSFS 2004:8		5.92 5.96 5.103
2000 - 2025		Fixed		Both civil and military use	2000 - 2025 FIXED
2000 - 2025		Mobile except aeronautical mobile (R)		Both civil and military use	MOBILE except aeronautical mobile (R)
2000 - 2025		Maritime mobile	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard)	SSB radiotelephony	5.92 5.103
2025 - 2045		Fixed		Both civil and military use	2025 - 2045 FIXED
2025 - 2045		Maritime mobile	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard)	Both civil and military use	MOBILE except aeronautical mobile (R)
2025 - 2045		Maritime mobile	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard)	SSB radiotelephony	Meteorological aids 5.104 5.92 5.103
2045 - 2160		Maritime mobile	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard) GE85M	Both civil and military use	2045 - 2160 MARITIME MOBILE FIXED LAND MOBILE 5.92

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
2160 - 2170		Radiolocation		Both civil and military use	2160 - 2170 RADIOLOCATION
2170 - 2173.5		Maritime mobile		Both civil and military use	2170 - 2173.5 MARITIME MOBILE
2173.5 - 2190.5		Maritime mobile Distress and calling		Both civil and military use	2173.5 - 2190.5 MOBILE (distress and calling)
2182		Maritime mobile Distress and calling	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard)	International distress and calling frequency	5.108 5.109
2187.5		Maritime mobile Distress and calling	EN 300 338	International distress and safety frequency (DSC calling)	5.110 5.111
2190.5 - 2194		Maritime mobile	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard)	Both civil and military use	2190.5 - 2194 MARITIME MOBILE
2194 - 2300		Mobile except aeronautical mobile (R)		Both civil and military use	2194 - 2300 MOBILE except aeronautical mobile (R)
2194 - 2300		Fixed		Both civil and military use	FIXED 5.92 5.103
2300 - 2498		Fixed		Both civil and military use	2300 - 2498 FIXED
2300 - 2498		Mobile except aeronautical mobile (R)		Both civil and military use	MOBILE except aeronautical mobile (R) 5.103
2498 - 2501		No utilisation (at present)			2498 - 2501 STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
2501 - 2502		No utilisation (at present)			2501 - 2502 STANDARD FREQUENCY AND TIME SIGNAL Space research
2502 - 2625		Mobile except aeronautical mobile (R)		Both civil and military use	2502 - 2625 FIXED
2502 - 2625		Fixed		Both civil and military use	MOBILE except aeronautical mobile (R) 5.92 5.103
2625 - 2650		Maritime mobile	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard)	Both civil and military use	2625 - 2650 MARITIME MOBILE
2625 - 2650		Maritime radionavigation		Both civil and military use	MARITIME RADIONAVIGATION 5.92
2650 - 2850		Mobile except aeronautical mobile (R)		Both civil and military use	2650 - 2850 FIXED
2650 - 2850		Fixed		Both civil and military use	MOBILE except aeronautical mobile (R) 5.92 5.103
2850 - 3025		Aeronautical mobile (R)	RR AP27	Both civil and military use	2850 - 3025 AERONAUTICAL MOBILE (R) 5.111 5.115
3025 - 3155		Aeronautical-mobile (OR)	RR AP26	Both civil and military use	3025 - 3155 AERONAUTICAL MOBILE (OR)

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
3155 - 3200		Fixed		Both civil and military use	3155 - 3200 FIXED MOBILE except aeronautical mobile (R)
3155 - 3200		Mobile except aeronautical mobile (R)		Both civil and military use	
3155 - 3400		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		
					5.116
3155 - 3400		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		3200 - 3230 FIXED MOBILE except aeronautical mobile (R)
3200 - 3230		Fixed		Both civil and military use	
3200 - 3230		Mobile except aeronautical mobile (R)		Both civil and military use	
					5.116
3155 - 3400		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		3230 - 3400 FIXED MOBILE except aeronautical mobile
3230 - 3400		Fixed		Both civil and military use	
3230 - 3400		Mobile except aeronautical mobile		Both civil and military use	
					5.116
3400 - 3500		Aeronautical mobile (R)	RR AP27		3400 - 3500 AERONAUTICAL MOBILE (R)
3500 - 3800		Amateur	PTSFS 2004:8		3500 - 3800 AMATEUR FIXED MOBILE except aeronautical mobile
3500 - 3800		Fixed		Both civil and military use	
3500 - 3800		Mobile except aeronautical mobile		Both civil and military use	
					5.92
3800 - 3900		Fixed		Both civil and military use	3800 - 3900 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE
3800 - 3900		Aeronautical-mobile (OR)		Both civil and military use	
3800 - 3900		Land mobile		Both civil and military use	

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
3900 - 3950		Aeronautical-mobile (OR)	RR AP26	Both civil and military use	3900 - 3950 AERONAUTICAL MOBILE (OR)
3950 - 4000		Fixed		Both civil and military use	3950 - 4000 FIXED BROADCASTING
4000 - 4063		Fixed		Both civil and military use	4000 - 4063 FIXED
4000 - 4063		Maritime mobile Ship station transmitters	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard)	Radiotelephony Both civil and military use	4000 - 4063 MARITIME MOBILE 5.127
4063 - 4438		Maritime mobile	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard) RR AP25 applies in part of the band	Both civil and military use	4063 - 4438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.129
4438 - 4650		Fixed		Both civil and military use	4438 - 4650 FIXED
4438 - 4650		Mobile except aeronautical mobile (R)		Both civil and military use	4438 - 4650 MOBILE except aeronautical mobile (R)
4650 - 4700		No utilisation (at present)	RR AP27		4650 - 4700 AERONAUTICAL MOBILE (R)

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
4700 - 4750		Aeronautical-mobile (OR)	RR AP26	Both civil and military use	4700 - 4750 AERONAUTICAL MOBILE (OR)
4750 - 4850		Fixed		Both civil and military use	4750 - 4850 FIXED
4750 - 4850		Aeronautical-mobile (OR)		Both civil and military use	LAND MOBILE
4750 - 4850		Land mobile		Both civil and military use	AERONAUTICAL MOBILE (OR)
4850 - 4995		Fixed		Both civil and military use	4850 - 4995 FIXED
4850 - 4995		Land mobile		Both civil and military use	LAND MOBILE
4995 - 5003		No utilisation (at present)			4995 - 5003 STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)
5003 - 5005		No utilisation (at present)			5003 - 5005 STANDARD FREQUENCY AND TIME SIGNAL Space research
5005 - 5060		Fixed		Both civil and military use	5005 - 5060 FIXED

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
5060 - 5250		Fixed		Both civil and military use	5060 - 5250 FIXED
5060 - 5250		Mobile except aeronautical mobile		Both civil and military use	
					Mobile except aeronautical mobile
5250 - 5450		Fixed		Both civil and military use	5250 - 5450 FIXED
5250 - 5450		Mobile except aeronautical mobile		Both civil and military use	
					MOBILE except aeronautical mobile
5450 - 5480		Fixed		Both civil and military use	5450 - 5480 FIXED LAND MOBILE AERONAUTICAL MOBILE (OR)
5450 - 5480		Aeronautical-mobile (OR)		Both civil and military use	
5450 - 5480		Land mobile		Both civil and military use	
5480 - 5680		Aeronautical mobile (R)	RR AP27	Both civil and military use	5480 - 5680 AERONAUTICAL MOBILE (R) 5.111 5.115
5680 - 5730		Aeronautical-mobile (OR)	RR AP26	Both civil and military use	5680 - 5730 AERONAUTICAL MOBILE (OR) 5.111 5.115
5730 - 5900		Fixed		Both civil and military use	5730 - 5900 FIXED LAND MOBILE
5730 - 5900		Land mobile		Both civil and military use	

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
5900 - 5950		Fixed		Valid until April 1, 2007	5900 - 5950 BROADCASTING 5.134 FIXED 5.136 LAND MOBILE 5.136
5950 - 6200		Broadcasting			5950 - 6200 BROADCASTING
6200 - 6525		Maritime mobile	EN 300 373-2, EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard) RR AP25 applies in part of the band	Both civil and military use	6200 - 6525 MARITIME MOBILE 5.137
6525 - 6685		No utilisation (at present)	RR AP27		6525 - 6685 AERONAUTICAL MOBILE (R)
6685 - 6765		Aeronautical-mobile (OR)	RR AP26	Both civil and military use	6685 - 6765 AERONAUTICAL MOBILE (OR)
6765 - 6795		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		6765 - 7000 FIXED
6765 - 7000		Fixed		Both civil and military use	Land mobile 5.138A
6765 - 7000		Land mobile		Both civil and military use	MOBILE except aeronautical mobile (R) 5.138
7000 - 7100		Amateur	PTSFS 2004:8		7000 - 7100 AMATEUR AMATEUR-SATELLITE

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
7100 - 7200		Broadcasting			7100 - 7200 AMATEUR BROADCASTING 5.141C
7200 - 7300		Broadcasting			7200 - 7300 BROADCASTING
7300 - 7400		Fixed		Valid until April 1, 2007	7300 - 7400 BROADCASTING 5.134 FIXED 5.143 5.143B Land mobile 5.143 5.143B
7400 - 7450		Land mobile		Valid until March 29, 2009 Both civil and military use	7400 - 7450 BROADCASTING
7400 - 7450		Fixed		Valid until March 29, 2009 Both civil and military use	FIXED 5.143B
7400 - 8800		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		Land mobile 5.143B
7400 - 8800		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		7450 - 8100 FIXED 5.143E
7450 - 8100		Fixed		Both civil and military use	Land mobile 5.143E
7450 - 8100		Land mobile		Both civil and military use	MOBILE except aeronautical mobile (R)

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
7400 - 8800		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		8100 - 8195 FIXED
8100 - 8195		Maritime mobile	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard)	Both civil and military use	MARITIME MOBILE
8100 - 8195		Fixed		Both civil and military use	
7400 - 8800		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		8195 - 8815 MARITIME MOBILE
8195 - 8815		Maritime mobile	EN 300 373-2 EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard)	Both civil and military use	5.109 5.110 5.132 5.145 5.111
8815 - 8965		Aeronautical mobile (R)	RR AP27		8815 - 8965 AERONAUTICAL MOBILE (R)
8965 - 9040		Aeronautical-mobile (OR)	RR AP26	Both civil and military use	8965 - 9040 AERONAUTICAL MOBILE (OR)
9040 - 9400		Fixed		Both civil and military use	9040 - 9400 FIXED
9400 - 9500		Fixed		Valid until April 1, 2007	9400 - 9500 FIXED 5.146 BROADCASTING 5.134
9500 - 9900		Broadcasting			9500 - 9900 BROADCASTING 5.147
9900 - 9995		Fixed		Both civil and military use	9900 - 9995 FIXED

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
9995 - 10003		No utilisation (at present)			9995 - 10003 STANDARD FREQUENCY AND TIME SIGNAL (10000 kHz) 5.111
10003 - 10005		No utilisation (at present)			10003 - 10005 STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111
10005 - 10100		No utilisation (at present)	RR AP27		10005 - 10100 AERONAUTICAL MOBILE (R) 5.111
10100 - 10150		Fixed		Both civil and military use	10100 - 10150 FIXED Amateur
10100 - 10150		Amateur	PTSFS 2004:8		
10150 - 11175		Fixed		Both civil and military use	10150 - 11175 FIXED Mobile except aeronautical mobile (R)
10150 - 11175		Mobile except aeronautical mobile (R)		Both civil and military use	
11175 - 11275		Aeronautical-mobile (OR)	RR AP26	Both civil and military use	11175 - 11275 AERONAUTICAL MOBILE (OR)
11275 - 11400		Aeronautical mobile (R)	RR AP27		11275 - 11400 AERONAUTICAL MOBILE (R)

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
11400 - 11600		Fixed		Both civil and military use	11400 - 11600 FIXED
11600 - 11650		Fixed		Valid until April 1, 2007	11600 - 11650 FIXED 5.146 BROADCASTING 5.134
11650 - 12050		Broadcasting			11650 - 12050 BROADCASTING 5.147
12050 - 12100		Fixed		Valid until April 1, 2007	12050 - 12100 FIXED 5.146 BROADCASTING 5.134
12100 - 12230		Fixed		Both civil and military use	12100 - 12230 FIXED
12230 - 13200		Maritime mobile	EN 300 373-2, EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard) RR AP25 applies in part of the band	Both civil and military use	12230 - 13200 MARITIME MOBILE 5.109 5.110 5.132 5.145
13200 - 13260		Aeronautical-mobile (OR)	RR AP26	Both civil and military use	13200 - 13260 AERONAUTICAL MOBILE (OR)
13260 - 13360		Aeronautical mobile (R)	RR AP27		13260 - 13360 AERONAUTICAL MOBILE (R)

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
13360 - 13410		Fixed		Both civil and military use	13360 - 13410 FIXED RADIO ASTRONOMY 5.149
13410 - 13570		Fixed		Both civil and military use	13410 - 13570 FIXED
13410 - 13570		Mobile except aeronautical mobile (R)		Both civil and military use	Mobile except aeronautical mobile (R)
13553 - 13567		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		5.150
13570 - 13600		Fixed		Valid until April 1, 2007	13570 - 13600 FIXED 5.151 BROADCASTING 5.134 MOBILE except aeronautical mobile (R) 5.151
13600 - 13800		Broadcasting			13600 - 13800 BROADCASTING
13800 - 13870		Fixed		Valid until April 1, 2007	13800 - 13870 FIXED 5.151 Mobile except aeronautical mobile (R) 5.151 BROADCASTING 5.134
13870 - 14000		Fixed		Both civil and military use	13870 - 14000 FIXED
13870 - 14000		Mobile except aeronautical mobile (R)		Both civil and military use	Mobile except aeronautical mobile (R)

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (kHz)
14000 - 14250		Amateur	PTSFS 2004:8		14000 - 14250 AMATEUR AMATEUR-SATELLITE
14250 - 14350		Amateur	PTSFS 2004:8		14250 - 14350 AMATEUR
14350 - 14990		Fixed		Both civil and military use	14350 - 14990 FIXED
14350 - 14990		Mobile except aeronautical mobile (R)		Both civil and military use	Mobile except aeronautical mobile (R)
14990 - 15005		No utilisation (at present)			14990 - 15005 STANDARD FREQUENCY AND TIME SIGNAL (15000 kHz) 5.111
15005 - 15010		No utilisation (at present)			15005 - 15010 STANDARD FREQUENCY AND TIME SIGNAL Space research
15010 - 15100		Aeronautical-mobile (OR)	RR AP26	Both civil and military use	15010 - 15100 AERONAUTICAL MOBILE (OR)
15100 - 15600		Broadcasting			15100 - 15600 BROADCASTING

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
15600 - 15800		Fixed		Valid until April 1, 2007	15600 - 15800 FIXED 5.146 BROADCASTING 5.134
15800 - 16360		Fixed		Both civil and military use	15800 - 16360 FIXED
16360 - 17410		Maritime mobile	EN 300 373-2, EN 300 373-3 ETS 300 067 + A1 non-harmonised standard) RR AP25 applies in part of the band	Both civil and military use	16360 - 17410 MARITIME MOBILE 5.109 5.110 5.132 5.145
17410 - 17480		Fixed		Both civil and military use	17410 - 17480 FIXED
17480 - 17550		Fixed		Valid until April 1, 2007	17480 - 17550 FIXED 5.146 BROADCASTING 5.134
17550 - 17900		Broadcasting			17550 - 17900 BROADCASTING
17900 - 17970		Aeronautical mobile (R)	RR AP27		17900 - 17970 AERONAUTICAL MOBILE (R)
17970 - 18030		Aeronautical-mobile (OR)	RR AP26	Both civil and military use	17970 - 18030 AERONAUTICAL MOBILE (OR)

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
18030 - 18052		Fixed		Both civil and military use	18030 - 18052 FIXED
18052 - 18068		Fixed		Both civil and military use	18052 - 18068 FIXED Space research
18068 - 18168		Amateur	PTSFS 2004:8		18068 - 18168 AMATEUR AMATEUR-SATELLITE
18168 - 18780		Fixed		Both civil and military use	18168 - 18780 FIXED
18168 - 18780		Mobile except aeronautical mobile		Both civil and military use	Mobile except aeronautical mobile
18780 - 18900		Maritime mobile	EN 300 373-2, EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard) RR AP25 applies in part of the band	Both civil and military use	18780 - 18900 MARITIME MOBILE
18900 - 19020		Fixed		Valid until April 1, 2007	18900 - 19020 FIXED 5.146 BROADCASTING 5.134
19020 - 19680		Fixed		Both civil and military use	19020 - 19680 FIXED

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
19680 - 19800		Maritime mobile	EN 300 373-2, EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard) RR AP25 applies in part of the band	Both civil and military use	19680 - 19800 MARITIME MOBILE 5.132
19800 - 19990		Fixed		Both civil and military use	19800 - 19990 FIXED
19990 - 19995		No utilisation (at present)			19990 - 19995 Space research STANDARD FREQUENCY AND TIME SIGNAL 5.111
19995 - 20010		No utilisation (at present)			19995 - 20010 STANDARD FREQUENCY AND TIME SIGNAL (20000 kHz) 5.111
20010 - 21000		Fixed		Both civil and military use	20010 - 21000 FIXED
20010 - 21000		Mobile		Both civil and military use	Mobile
21000 - 21450		Amateur	PTSFS 2004:8		21000 - 21450 AMATEUR AMATEUR-SATELLITE
21450 - 21850		Broadcasting			21450 - 21850 BROADCASTING

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
21850 - 21870		Fixed		Both civil and military use	21850 - 21870 FIXED
21870 - 21924		Fixed		Both civil and military use	21870 - 21924 FIXED 5.155B
21924 - 22000		Aeronautical mobile (R)	RR AP25 applies in part of the band		21924 - 22000 AERONAUTICAL MOBILE (R)
22000 - 22855		Maritime mobile	EN 300 373-2, EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard) RR AP25 applies in part of the band	Both civil and military use	22000 - 22855 MARITIME MOBILE 5.132
22855 - 23000		Fixed		Both civil and military use	22855 - 23000 FIXED
23000 - 23200		Fixed		Both civil and military use	23000 - 23200 FIXED
23000 - 23200		Mobile except aeronautical mobile (R)		Both civil and military use	Mobile except aeronautical mobile (R)
23200 - 23350		Fixed		Both civil and military use	23200 - 23350 FIXED
23200 - 23350		Aeronautical-mobile (OR)		Both civil and military use	5.156A AERONAUTICAL MOBILE (OR)

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
23350 - 24000		Fixed		Both civil and military use	23350 - 24000 FIXED MOBILE except aeronautical mobile 5.157
23350 - 24000		Mobile except aeronautical mobile		Both civil and military use	
24000 - 24890		Fixed		Both civil and military use	24000 - 24890 FIXED LAND MOBILE
24890 - 24990		Amateur	PTSFS 2004:8		
24990 - 25005		No utilisation (at present)			24890 - 24990 AMATEUR AMATEUR-SATELLITE
24990 - 25005		No utilisation (at present)			
25005 - 25010		No utilisation (at present)			24990 - 25005 STANDARD FREQUENCY AND TIME SIGNAL (25000 kHz)
25005 - 25010		No utilisation (at present)			
25010 - 25070		Fixed		Both civil and military use	25005 - 25010 STANDARD FREQUENCY AND TIME SIGNAL Space research
25010 - 25070		Mobile except aeronautical mobile		Both civil and military use	
25010 - 25070		Mobile except aeronautical mobile		Both civil and military use	

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
25070 - 25210		Maritime mobile	EN 300 373-2, EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard) RR AP25 applies in part of the band	Both civil and military use	25070 - 25210 MARITIME MOBILE
25210 - 25550		Fixed		Both civil and military use	25210 - 25550 FIXED
25210 - 25550		Mobile except aeronautical mobile		Both civil and military use	MOBILE except aeronautical mobile
25550 - 25670		No utilisation (at present)			25550 - 25670 RADIO ASTRONOMY 5.149
25670 - 26100		Broadcasting			25670 - 26100 BROADCASTING
26100 - 26175		Maritime mobile	EN 300 373-2, EN 300 373-3 ETS 300 067 + A1 (non-harmonised standard) RR AP25 applies in part of the band	Both civil and military use	26100 - 26175 MARITIME MOBILE 5.132

Frequency band or Centre frequency (kHz)	Duplex band or Duplex frequency (omitted for Simplex) (kHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (kHz)
26175 - 27500		Fixed		Both civil and military use	26175 - 27500 FIXED MOBILE except aeronautical mobile 5.150
26175 - 26600		Land mobile			
26600 - 26650		Land mobile Paging	EN 300 224-2		
26650 - 26690		Land mobile			
26690 - 27410		Land mobile Paging	EN 300 224-2		
26820 - 27200		Short Range Devices (SRD) Radio control Telemetry Baby voice monitors	EN 300 220-3 PTSFS 2004:8		
26957 - 27283		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8	Both civil and military use	
26960 - 27410		Land mobile CB Radio (PR27)	EN 300 135-2 EN 300 433-2 PTSFS 2004:8	Both civil and military use	
27410 - 27500		Land mobile			

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
27.5 - 28		Mobile		Both civil and military use	27.5 - 28 METEOROLOGICAL AIDS FIXED MOBILE
28 - 29.7		Amateur	PTSFS 2004:8		28 - 29.7 AMATEUR AMATEUR-SATELLITE
29.7 - 30.005		Land mobile	EN 300 135-2		29.7 - 30.005 FIXED MOBILE
30.005 - 30.01		Land mobile	EN 300 135-2		30.005 - 30.01 SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
30.01 - 37.5		Mobile		Both civil and military use	30.01 - 37.5 FIXED MOBILE
30.01 - 31.7		Land mobile	EN 300 135-2 EN 300 220-3		
30.02		Short Range Devices (SRD) Mobile traffic lights control	EN 300 220-3 PTSFS 2004:8		
30.035 - 31.075		Land mobile	EN 300 220-3 PTSFS 2004:8		
30.265 - 30.355		Short Range Devices (SRD) Radio control Telemetry	EN 300 220-3 PTSFS 2004:8		
30.355 - 31.035		Land mobile			
30.93		Land mobile	EN 300 220-3 PTSFS 2004:8		
31.075 - 31.125		Land mobile	EN 300 220-3 PTSFS 2004:8		
31.135 - 31.165		Land mobile	EN 300 220-3 PTSFS 2004:8		
31.17		Land mobile Test and demonstration			
31.175 - 31.225		Land mobile	EN 300 220-3 PTSFS 2004:8		
31.235 - 31.275		Land mobile	EN 300 220-3 PTSFS 2004:8		
31.335 - 31.345		Land mobile	EN 300 220-3 PTSFS 2004:8		
31.345 - 31.375		Land mobile	EN 300 220-3 PTSFS 2004:8		
31.425 - 31.675		Land mobile	EN 300 220-3 PTSFS 2004:8		
31.57		Land mobile	EN 300 220-3 PTSFS 2004:8		
32.5375		Land mobile Test and demonstration			
34.995 - 35.235		Short Range Devices (SRD) Model air craft control	EN 300 220-3 PTSFS 2004:8		

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
37.5 - 38.25		Mobile		Both civil and military use	37.5 - 38.25 FIXED MOBILE Radio astronomy 5.149
38.25 - 39.986		Mobile		Both civil and military use	38.25 - 39.986 FIXED MOBILE
39.986 - 40.02		Mobile		Both civil and military use	39.986 - 40.02 FIXED MOBILE Space research
40.4625		Land mobile Telemetry	EN 300 220-3 PTSFS 2004:8		40.02 - 40.98 FIXED MOBILE 5.150
40.5375		Land mobile Telemetry	EN 300 220-3 PTSFS 2004:8		
40.5625		Land mobile Telemetry	EN 300 113-2 PTSFS 2004:8		
40.66 - 40.75		Short Range Devices (SRD) Radio control Telemetry	EN 300 220-3 PTSFS 2004:8		
40.98 - 41.015		Mobile		Both civil and military use	40.98 - 41.015 FIXED
41 - 43.6		Short Range Devices (SRD) Radio microphones	EN 300 422-2 PTSFS 2004:8		MOBILE Space research

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
41 - 43.6		Short Range Devices (SRD) Radio microphones	EN 300 422-2 PTSFS 2004:8		41.015 - 44 FIXED MOBILE
41.015 - 44		Mobile		Military use	
44 - 47		Mobile		Military use	44 - 47 FIXED MOBILE 5.162A
47 - 68		Broadcasting Television	ST61	Band 1, channel 2 - 4	47 - 68 BROADCASTING LAND MOBILE 5.164 5.162A
68 - 74.8	68 - 74.8	Land mobile Base station transmitters Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Simplex and duplex	68 - 74.8 FIXED MOBILE except aeronautical mobile 5.149
70.1375		Land mobile Test and demonstration			
74.8 - 75.2		Aeronautical radio navigation ILS/Marker beacons 75 MHz	ICAO SARP		74.8 - 75.2 AERONAUTICAL RADIONAVIGATION 5.180

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
75.2 - 87.5		Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		75.2 - 87.5 FIXED MOBILE except aeronautical mobile
75.625 - 76.025	80.625 - 81.025	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Simplex and duplex	
76.025 - 77.475	81.025 - 82.475	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		
77.475 - 80.625		Land mobile Base station transmitters Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
80.625 - 81.025	75.625 - 76.025	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2	Simplex and duplex	
81.025 - 82.475	76.025 - 77.475	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
82.475 - 83		Land mobile Base station transmitters Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
83 - 83.6	83.6 - 84.2	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2	Simplex and duplex	
83.6 - 84.2	83 - 83.6	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Simplex and duplex	
84.2 - 87.5		Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
87.5 - 100		Broadcasting FM sound analogue	EN 302 018-2 GE84		87.5 - 100 BROADCASTING

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
100 - 108		Broadcasting FM sound analogue	EN 302 018-2 GE84		100 - 108 BROADCASTING
108 - 117.975		Aeronautical radio navigation ILS	ICAO SARP		108 - 117.975 AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE (R) 5.197A
108 - 117.975		Aeronautical radio navigation VOR	ICAO SARP		
117.975 - 137		Aeronautical mobile (R)			117.975 - 137 AERONAUTICAL MOBILE (R) 5.111 5.198 5.199 5.200 5.203
121.45 - 121.55		Mobile-satellite Low power transmitters for distress radio (EPIRB)	EN 300 152-2;-3		
121.725		Aeronautical mobile (R) Test and demonstration			
137 - 137.025	148 - 150.05	Mobile-satellite (space-to-Earth)	EN 301 721 ERC/DEC(99)06		137 - 137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.209 Fixed Mobile except aeronautical mobile (R) 5.208

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
137.025 - 137.175	148 - 150.05	Mobile-satellite (space-to-Earth)	EN 301 721 ERC/DEC(99)06		<p>137.025 - 137.175</p> <p>SPACE OPERATION (space-to-Earth)</p> <p>METEOROLOGICAL-SATELLITE (space-to-Earth)</p> <p>SPACE RESEARCH (space-to-Earth)</p> <p>Mobile-satellite (space-to-Earth)</p> <p>5.208A</p> <p>5.209</p> <p>Fixed</p> <p>Mobile except aeronautical mobile (R)</p> <p>5.208</p>
137.175 - 137.825	148 - 150.05	Mobile-satellite (space-to-Earth)	EN 301 721 ERC/DEC(99)06		<p>137.175 - 137.825</p> <p>SPACE OPERATION (space-to-Earth)</p> <p>METEOROLOGICAL-SATELLITE (space-to-Earth)</p> <p>SPACE RESEARCH (space-to-Earth)</p> <p>MOBILE-SATELLITE (space-to-Earth)</p> <p>5.208A</p> <p>5.209</p> <p>Fixed</p> <p>Mobile except aeronautical mobile (R)</p> <p>5.208</p>

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
137.825 - 138	148 - 150.05	Mobile-satellite (space-to-Earth)	EN 301 721 ERC/DEC(99)06		137.825 - 138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.208
138 - 143.6		Aeronautical-mobile (OR)		Military use	138 - 143.6 AERONAUTICAL MOBILE (OR) MARITIME MOBILE 5.211 LAND MOBILE 5.211
138 - 143.6		Maritime mobile		Military use	
138 - 143.6		Land mobile		Both civil and military use	
143.6 - 143.65		Aeronautical-mobile (OR)		Military use	143.6 - 143.65 SPACE RESEARCH (space-to-Earth) AERONAUTICAL MOBILE (OR) MARITIME MOBILE 5.211 LAND MOBILE 5.211
143.6 - 143.65		Maritime mobile		Military use	
143.6 - 143.65		Land mobile		Military use	

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
143.65 - 144		Aeronautical-mobile (OR)		Military use	143.65 - 144 AERONAUTICAL MOBILE (OR) MARITIME MOBILE 5.211 LAND MOBILE 5.211
143.65 - 144		Maritime mobile		Military use	
143.65 - 144		Land mobile		Military use	
144 - 146		Amateur	PTSFS 2004:8		144 - 146 AMATEUR AMATEUR-SATELLITE
146 - 148		Fixed		Military use	146 - 148 FIXED MOBILE except aeronautical mobile (R)
146 - 148		Mobile except aeronautical mobile (R)		Both civil and military use	
146 - 147	150 - 151	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		
148 - 149.9		Fixed		Military use	148 - 149.9 FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221
148 - 149.9		Mobile except aeronautical mobile (R)		Both civil and military use	
148 - 149.9		Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
148 - 149.9	137 - 138 400.15 - 401	Mobile-satellite (Earth-to-space)	EN 301 721 PTSFS 2004:8 ERC/DEC(99)06 ERC/DEC(99)05		

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
149.9 - 150.05	137 - 138 400.15 - 401	Mobile-satellite (Earth-to-space)	EN 301 721 PTSFS 2004:8 ERC/DEC(99)06 ERC/DEC(99)05		149.9 - 150.05 RADIONAVIGATION-SATELLITE 5.224B LAND MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A 5.220 5.222 5.223
150 - 151	146 - 147	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		150.05 - 153 FIXED MOBILE except aeronautical mobile
150.05 - 153		Fixed		Military use	RADIO ASTRONOMY 5.149
150.05 - 153		Mobile except aeronautical mobile		Both civil and military use	
151.5 - 151.575		Short Range Devices (SRD) Radiolocation (tracking of human beings and animals)	EN 300 220-3 PTSFS 2004:8	2 channels	
152.01 - 152.265		Short Range Devices (SRD) Radiolocation (tracking of animals)	EN 300 220-3 PTSFS 2004:8	10 channels	
153 - 154		Fixed		Military use	153 - 154 FIXED
153 - 154		Mobile except aeronautical mobile (R)		Military use	MOBILE except aeronautical mobile (R) Meteorological aids

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
154 - 156.7625		Fixed		Military use	154 - 156.7625 FIXED MOBILE except aeronautical mobile (R) 5.226 5.227
154 - 156.7625		Mobile except aeronautical mobile (R)		Both civil and military use	
155 - 155.9875		Maritime mobile Port operations	EN 300 162-2;-3 EN 3001 025-2;-3 EN 301 178-2 PTSFS 2004:8 ETS 300 225 (non-harmonised standard)	National communication	
155 - 155.9875		Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Inland use only	
155.425		Land mobile Hunters' radio	EN 300 086-2 EN 300 296-2 PTSFS 2004:8		
155.4625 - 155.5375		Land mobile Hunters' radio	EN 300 086-2 EN 300 296-2 PTSFS 2004:8	3 channels	
155.9875 - 156.0125		Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Portable equipment, max 0.5 W e.r.p. low antenna height	
156.0125 - 156.3625	160.6125 - 160.9625	Maritime mobile Ship station transmitters	RR AP18 EN 300 162-2;-3 EN 3001 025-2;-3 EN 301 178-2 PTSFS 2004:8 ETS 300 225 (non-harmonised standard)	International communications	
156.0125 - 156.3625	160.6125 - 160.9625	Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Inland use only	
156.3625 - 156.7625		Maritime mobile	RR AP18 EN 300 162-2;-3 EN 3001 025-2;-3 EN 301 178-2 PTSFS 2004:8 ETS 300 225 (non-harmonised standard)		
156.3625 - 156.7625		Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Inland use only	
156.5125 - 156.5375		Maritime mobile SAR communications	RR AP18	DSC	

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
156.7625 - 156.8375		Maritime mobile Distress and calling	RR AP18 EN 300 162-2;-3 EN 3001 025-2;-3 EN 301 178-2 PTSFS 2004:8 (no harmonised standard)	Channel 16	156.7625 - 156.8375 MARITIME MOBILE (distress and calling) 5.111 5.226

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
156.8375 - 156.8875		Maritime mobile Port operations Ship to ship communications	EN 300 162		156.8375 - 174 FIXED MOBILE except aeronautical mobile 5.226
156.8375 - 156.8875		Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Inland use only	
156.8875 - 157.4375	161.4875 - 162.0375	Maritime mobile Ship station transmitters	RR AP18 EN 300 162-2;-3 EN 3001 025-2;-3 EN 301 178-2 PTSFS 2004:8 ETS 300 225 (non-harmonised standard)		
156.8875 - 157.4375	161.4875 - 162.0375	Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Inland use only	
157.4375 - 158.075		Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
158.075 - 160.6125	166.075 - 168.6125	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
158.9875	166.9875	Land mobile Test and demonstration		Mobile transmitters	
160.6125 - 160.9625	156.0125 - 156.3625	Maritime mobile Coast station transmitters	RR AP18 EN 300 162-2		
160.6125 - 160.9625	156.0125 - 156.3625	Land mobile Base station transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
160.9625 - 161.3625	168.9625 - 169.3625	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
161.3625 - 161.4875		Land mobile Base station transmitters Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
161.4875 - 162.0375	156.8875 - 157.4375	Maritime mobile Coast station transmitters	RR AP18 EN 300 162-2		
161.4875 - 162.0375	156.8875 - 157.4375	Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Inland use only	
161.85 - 162.15		Maritime mobile AIS	RR AP18 ERC/DEC(99)17	2 channels	
162.025 - 163	170.025 - 171	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
163 - 164	171 - 172	Fixed		Military use	
163 - 164	171 - 172	Mobile		Military use	
164 - 166	172 - 174	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
166 - 166.075		Land mobile Alarm and paging	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
166.05 - 168.625	158.05 - 160.625	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		
166.9875	158.9875	Land mobile Base station transmitters Test and demonstration			
168.625 - 168.95		Land mobile Base station transmitters Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
168.95 - 169.375	160.95 - 161.375	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		
169.375 - 169.4		Short Range Devices (SRD) Alarm	EN 300 220-3 PTSFS 2004:8	1 channel	
169.4 - 170		Land mobile Paging	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
169.65		Land mobile ERMES	ETS 300 133(non-harmonised standard) ERC/DEC/(94)02 90/544/EEC		
169.725		Land mobile ERMES	ETS 300 133 (non-harmonised standard) ERC/DEC/(94)02 90/544/EEC		
170.025 - 171	162.025 - 163	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		
171 - 172	163 - 164	Fixed		Military use	
171 - 172	163 - 164	Mobile		Military use	
172 - 174	164 - 166	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		
174 - 223		Broadcasting Television	ST61	Band III, channel 5-11	
174 - 223		Broadcasting T-DAB	WI95		
					5.235
223 - 230		Broadcasting Television	ST61	Band III, channel 12	223 - 230 Fixed Mobile
223 - 230		Broadcasting T-DAB	WI95		
					BROADCASTING

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
230 - 235		Broadcasting T-DAB	WI95		230 - 235 FIXED MOBILE
235 - 240		Broadcasting T-DAB			235 - 267 FIXED
235 - 267		Mobile		Both civil and military use	MOBILE
235 - 267		Fixed		Military use	5.111
242.95 - 243.05		Mobile-satellite Low power transmitters for distress radio (EPIRB)	EN 300 152-2;-3 PTSFS 2004:8		5.199 5.254 2.256
267 - 272		Fixed		Military use	267 - 272 FIXED
267 - 272		Mobile		Military use	MOBILE
					Space operation (space-to-Earth) 5.254 5.257
272 - 273		Fixed		Military use	272 - 273 SPACE OPERATION (space-to-Earth)
272 - 273		Mobile		Military use	FIXED MOBILE 5.254
273 - 312		Fixed		Military use	273 - 312 FIXED
273 - 312		Mobile		Military use	MOBILE 5.254

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
312 - 315		Fixed		Military use	312 - 315 FIXED MOBILE Mobile-satellite (Earth-to-space) 5.254 5.255
312 - 315		Mobile		Military use	
315 - 322		Fixed		Military use	315 - 322 FIXED MOBILE 5.254
315 - 322		Mobile		Military use	
322 - 328.6		Fixed		Military use	322 - 328.6 FIXED MOBILE RADIO ASTRONOMY 5.149
322 - 328.6		Mobile		Military use	
328.6 - 335.4		Aeronautical radio navigation ILS		Both civil and military use	328.6 - 335.4 AERONAUTICAL RADIONAVIGATION 5.258

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
335.4 - 387		Fixed		Both civil and military use	335.4 - 387 FIXED MOBILE 5.254
335.4 - 387		Mobile		Both civil and military use	
336 - 339	357 - 360	Land mobile SAP/SAB Point to point audio links			
357 - 360	336 - 339	Land mobile SAP/SAB Point to point audio links			
370 - 371	386 - 387	Fixed Fixed link (narrow band)	EN 301 751 Channel plan, see Annex 3		
374 - 376	387 - 389	Fixed Fixed link (narrow band)	EN 301 751 Channel plan, see Annex 3		
378 - 380	408 - 410	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
380 - 385	390 - 395	Land mobile Mobile transmitters		Planned for digital transmission only.	
380 - 382.5	410 - 412.5	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
385 - 386	405 - 406	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
386 - 387	370 - 371	Fixed Fixed link (narrow band)	EN 301 751 Channel plan, see Annex 3		
387 - 389	374 - 376	Fixed Fixed link (narrow band)	EN 301 751 Channel plan, see Annex 3		
387 - 388.5	388.5 - 390	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
388.5 - 390	387 - 388.5	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		
					5.208A 5.254 5.255

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
390 - 399.9		Fixed		Military use	390 - 399.9 FIXED MOBILE 5.254
390 - 399.9		Mobile		Both civil and military use	
390 - 395	380 - 385	Land mobile Base station transmitters		Planned for digital transmission only.	
399.9 - 400.05		Radionavigation-satellite		Both civil and military use	399.9 - 400.05 MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260 5.220
400.05 - 400.15		Standard frequency and time signal-sateillite			400.05 - 400.15 STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261
400.15 - 401		Meteorological aids Balloon-borne radiosondes	EN 302 054-2		400.15 - 401 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) 5.263 MOBILE-SATELLITE (space-to-Earth) 5.208A 5.209 SPACE OPERATION (space-to-Earth) 5.264
400.15 - 401	148 - 150.05	Mobile-satellite (space-to-Earth)	EN 301 721 ERC/DEC(99)06		

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
401 - 402		Meteorological aids Balloon-borne radiosondes	EN 302 054-2	Both civil and military use	401 - 402 Fixed METEOROLOGICAL AIDS
401 - 402		Fixed		Military use	
401 - 402		Mobile except aeronautical mobile		Military use	
					SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Mobile except aeronautical mobile
402 - 403		Meteorological-satellite (Earth-to-space)			402 - 403 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) Fixed
402 - 403		Meteorological aids Balloon-borne radiosondes	EN 302 054-2	Both civil and military use	
402 - 403		Fixed		Military use	
402 - 403		Mobile except aeronautical mobile		Military use	
402 - 405		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		METEOROLOGICAL-SATELLITE (Earth-to-space) Mobile except aeronautical mobile

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (MHz)
402 - 405		Short Range Devices (SRD)	EN 300 330-2 PTSFS 2004:8		403 - 406 METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile
403 - 406		Mobile except aeronautical mobile		Both civil and military use	
403 - 406		Fixed		Military use	
404 - 405	413 - 414	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Planned for simplex operation with 12.5 kHz channel separation.	
404		Meteorological aids Balloon-borne radiosondes	EN 302 054-2	Both civil and military use	
405 - 406	385 - 386	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2	Planned for simplex operation with 12.5 kHz channel separation.	
406 - 406.1		Mobile-satellite Low power transmitters for distress radio (ELT) Low power transmitters for distress radio (EPIRB) Low power transmitters for distress radio (PLB)	EN 300 066 (non-harmonised standard) PTSFS 2004:8		406 - 406.1 MOBILE-SATELLITE (Earth-to-space) 5.266 5.267
406.1 - 410		Mobile except aeronautical mobile		Both civil and military use	406.1 - 410 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149
406.1 - 408		Fixed		Both civil and military use	
406.1 - 432				Re-assignment in alignment with ERC/REC T/R 25-08	
408 - 410	378 - 380	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2	Planned for simplex operation with 12.5 kHz channel separation.	

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
406.1 - 432				Re-assignment in alignment with ERC/REC T/R 25-08	410 - 420 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268
410 - 412.5	380 - 382.5	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		
410 - 415	420 - 425	Land mobile Mobile transmitters		Planned for simplex operation with 12.5 kHz channel separation.	
413 - 414		Fixed	EN 301 460-1, EN 301 460-2 EN 301 460-3 EN 301 460-4 EN 301 460-5	Valid until Dec 31, 2005	
413 - 414	404 - 405	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		
415 - 420	425 - 430	Land mobile Mobile transmitters		Planned for digital transmission only.	

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (IR) (MHz)
406.1 - 432				Re-assignment with ERC/REC T/R 25-08	420 - 430 FIXED MOBILE except aeronautical mobile Radiolocation
420 - 422		Land mobile			
420 - 425	410 - 415	Land mobile Base station transmitters		Planned for 12.5 kHz channel separation.	
422 - 423		Land mobile Base station transmitters Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
423 - 425	430 - 432	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
425 - 427	440 - 442	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		
425 - 430	415 - 420	Land mobile Base station transmitters		Planned for digital transmission only.	
426.85	441.85	Land mobile Test and demonstration			
427 - 430		Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Simplex	
429.4375 - 429.4625		Short Range Devices (SRD) Alarm	EN 300 220-3 PTSFS 2004:8	1 channel	
406.1 - 432				Re-assignment with ERC/REC T/R 25-08	430 - 432 FIXED MOBILE except aeronautical mobile
430 - 432	423 - 425	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2	Planned for simplex operation.	
					5.274

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
432 - 438		Amateur	PTSFS 2004:8		432 - 438 AMATEUR
433.05 - 434.79		Short Range Devices (SRD)	EN 300 220-3 PTSFS 2004:8		RADIOLOCATION Earth exploration-satellite (active) 5.279A 5.138 5.282
438 - 439.6875		Short Range Devices (SRD) Radio control Telemetry	EN 300 220-3 EN 300 113-2		438 - 440 FIXED MOBILE except aeronautical mobile
439.6875 - 439.9875		Short Range Devices (SRD) Radio control Telemetry	EN 300 220-3 PTSFS 2004:8		5.274

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
440 - 442	425 - 427	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Planned for simplex operation.	440 - 450 FIXED MOBILE except aeronautical mobile Radiolocation 5.286
440 - 442				Re-allocation in alignment with ERC/REC T/R 25-08	
441.85	426.85	Land mobile Test and demonstration			
442 - 444	448 - 450	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		
444 - 444.5875		Land mobile		Simplex. Low power.	
444 - 447.3				Re-allocation in alignment with ERC/REC T/R 25-08	
444.5875 - 447.3		Land mobile	EN 300 086-2 EN 300 296-2 PTSFS 2004:8	Planned for simplex operation with 12.5 and 25 kHz channel separation.	
446 - 446.1		Land mobile PMR 446	EN 300 296-2 PTSFS 2004:8		
447.3 - 448		Land mobile	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2	Simplex 25 kHz channel separation	
448 - 450	442 - 444	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		
450 - 453	460 - 463	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		450 - 455 FIXED MOBILE 5.209 5.286 5.286A
453 - 457.5	463 - 467.5	Land mobile Mobile transmitters	SS 63 63 80 as amended ECC/DEC(02)03 ECC/DEC(04)06 PTSFS 2004:8	NMT-450 included	

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
453 - 457.5	463 - 467.5	Land mobile Mobile transmitters	SS 63 63 80 as amended PTSFS 2004:8	NMT-450 included	455 - 456 FIXED MOBILE 5.209 5.286A
453 - 457.5	463 - 467.5	Land mobile Mobile transmitters	SS 63 63 80 as amended PTSFS 2004:8	NMT-450 included	456 - 459 FIXED
457.5 - 460	467.5 - 470	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		MOBILE MARITIME MOBILE 5.287
457.5125 - 457.5875	467.5125 - 467.5875	Maritime mobile Base station transmitters On-board communications	EN 300 720-2	3 channels with 25 kHz channel separation or 5 channels with 12.5 KHz separation	5.287
457.5 - 460	467.5 - 470	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2		459 - 460 FIXED MOBILE 5.209 5.286A
460 - 463	450 - 453	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		460 - 470 FIXED
463 - 467.5	453 - 457.5	Land mobile Base station transmitters	ECC/DEC(02)03 ECC/DEC(04)06	NMT-450 included	MOBILE
467.5 - 470	457.5 - 460	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2		Meteorological-satellite (space-to-Earth) 5.287
467.5125 - 467.5875	457.5125 - 457.5875	Maritime mobile On-board communications Mobile transmitters	EN 300 720-2	25 kHz channel separation with 3 channels or 12.5 KHz with 5 channels	5.289

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
470 - 790		Broadcasting Television	ST61 CH97	Band IV/V, channel 21 - 60	470 - 790 BROADCASTING Land mobile 5.296 5.149 5.306 5.311
790 - 862		Broadcasting Television	ST61 CH97	Band V, channel 61 - 69	790 - 862 FIXED MOBILE except aeronautical mobile 5.316 BROADCASTING

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
862 - 866		Land mobile Digital cordless telephony (DCT)	SS 63 63 68 (Ed.3, (May 1995) PTSFS 2004:8		862 - 890 FIXED MOBILE except aeronautical mobile 5.317A
863 - 865		Short Range Devices (SRD) Audio applications SRD with continuous transmission Radio microphones	EN 300 220-3 EN 300 422-2 EN 301 357-2 PTSFS 2004:8		
864.1 - 868.1		Land mobile Digital cordless telephony (CT-2)	EN 301 797 PTSFS 2004:8		
868 - 870		Short Range Devices (SRD) Data transmission Alarm Radio control Telemetry	EN 300 220-3 PTSFS 2004:8		
870 - 876	915 - 921	Land mobile Mobile transmitters	EN 300 086-2 EN 300 296-2 EN 300 219-2 EN 300 341-2 EN 300 390-2 EN 300 113-2 ECC/DEC(02)03 ECC/DEC(04)06		
876 - 880	921 - 925	Land mobile Mobile transmitters UIC Railway systems (GSM-R)	EN 301 419-1;-2;-3 EN 301 419-7 99/569/EG EN 301 511 ECC/DEC(02)05 ECC/DEC(02)09 ECC/DEC(02)10		
880 - 890	925 - 935	Land mobile E-GSM Mobile transmitters	EN 301 419-1;-2;-3 EN 301 511 ERC/DEC(97)02		

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
890 - 914	935 - 959	Land mobile GSM Mobile transmitters	87/372/EEC ERC/DEC/(94)01 ERC/DEC/(98)20 EN 301 419-1;-2;-3 EN 301 511 PTSFS 2004:8		890 - 942 FIXED MOBILE except aeronautical mobile Radiolocation 5.317A
914 - 915	959 - 960	Land mobile Mobile transmitters Cordless telephony (CT-1)	EN 301 796 PTSFS 2004:8	Valid until Dec 31, 2008	
915 - 921	870 - 876	Land mobile Base station transmitters	EN 300 086-2 EN 300 219-2 EN 300 113-2 ECC/DEC(02)03 ECC/DEC(04)06		
921 - 925	876 - 880	Land mobile Base station transmitters UIC Railway systems (GSM-R)	EN 301 502 99/569/EG ECC/DEC(02)05 ECC/DEC(02)09 ECC/DEC(02)10		
925 - 935	880 - 890	Land mobile Base station transmitters E-GSM	EN 301 502 ERC/DEC(97)02		
935 - 959	890 - 914	Land mobile Base station transmitters GSM	87/372/EEC ERC/DEC/(94)01 EN 301 502 PTSFS 2004:8		
935 - 959	890 - 914	Land mobile Base station transmitters GSM	87/372/EEC ERC/DEC/(94)01 EN 301 502 PTSFS 2004:8		
959 - 960	914 - 915	Land mobile Base station transmitters Cordless telephony (CT-1)	EN 301 796 PTSFS 2004:8	Valid until Dec 31, 2008	
960 - 1164		Aeronautical radio navigation DME		Both civil and military use	
1027.5 - 1032.5	1087.5 - 1092.5	Aeronautical radio navigation SSR		Both civil and military use	960 - 1164 AERONAUTICAL RADIONAVIGATION 5.328
1087.5 - 1092.5	1027.5 - 1032.5	Aeronautical radio navigation SSR		Both civil and military use	

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
1164 - 1215		Aeronautical radio navigation DME		Both civil and military use	1164 - 1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.328A
1190 - 1214		Radionavigation-satellite Galileo		Both civil and military use	
1215 - 1240		Radiolocation		Both civil and military use	1215 - 1240 RADIOLOCATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A RADIONAVIGATION 5.331 5.332
1215 - 1240		Radionavigation-satellite GPS		Both civil and military use	
1215 - 1240		Radionavigation		Both civil and military use	

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
1240 - 1300		Radiolocation Radar		Both civil and military use	1240 - 1300 RADIOLOCATION EARTH EXPLORATION -SATELLITE (active) SPACE RESEARCH (active) RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A RADIONAVIGATION 5.331 Amateur 5.332 5.335A
1240 - 1300		Radionavigation		Both civil and military use	
1240 - 1300		Amateur	PTSFS 2004:8		
1260 - 1300		Radionavigation-satellite Galileo		Both civil and military use	
1300 - 1350		Aeronautical radio navigation Radar		Both civil and military use	1300 - 1350 AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.149 5.337A
1300 - 1350		Radiolocation		Both civil and military use	
1330 - 1400		Radio astronomy			
1330 - 1400		Radio astronomy		Onsala Space Observatory	1350 - 1400 FIXED MOBILE RADIOLOCATION 5.149 5.339 5.339A
1350 - 1375		Fixed		Military use	
1350 - 1375		Mobile		Military use	
1350 - 1355		Radiolocation		Both civil and military use	
1375 - 1400	1427 - 1452	Fixed Fixed link (digital)	EN 301 751 Channel plan in Annex B of ERC/REC T/R 13-01		

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
1400 - 1427		Radio astronomy		Onsala Space Observatory	1400 - 1427 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341
1427 - 1452	1375 - 1400	Fixed Fixed link (digital)	EN 301 751 Channel plan in Annex B of ERC/REC T/R 13-01		1427 - 1429 FIXED SPACE OPERATION (Earth-to-space) MOBILE except aeronautical mobile 5.341
1427 - 1452	1375 - 1400	Fixed Fixed link (digital)	EN 301 751 Channel plan in Annex B of ERC/REC T/R 13-01		1429 - 1452 FIXED MOBILE except aeronautical mobile 5.339A 5.341
1452 - 1479.5		Broadcasting T-DAB	MA02		1452 - 1492 FIXED
1479.5 - 1492		Broadcasting-satellite S-DAB			MOBILE except aeronautical mobile BROADCASTING 5.345 BROADCASTING-SATELLITE 5.345 5.341 5.347A

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
1492 - 1500		No utilisation (at present)			1492 - 1518 FIXED MOBILE except aeronautical mobile
1500 - 1525		Fixed		Military use	
1500 - 1525		Mobile except aeronautical mobile		Military use	
					5.341
1500 - 1525		Fixed		Military use	1518 - 1525 FIXED MOBILE except aeronautical mobile
1500 - 1525		Mobile except aeronautical mobile		Military use	
1518 - 1525	1668 - 1675	Mobile-satellite (space-to-Earth)			MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.348C 5.341
1525 - 1530		Mobile-satellite (space-to-Earth)	EN 301 426 EN 301 444 EN 301 681 ERC/DEC(98)01 ERC/DEC(98)02 ERC/DEC(98)03 ERC/DEC(98)04		1525 - 1530 MOBILE-SATELLITE (space-to-Earth) 5.351A 5.353A
1525 - 1530		Fixed		Military use	FIXED
					SPACE OPERATION (space-to-Earth) Earth exploration-satellite Mobile except aeronautical mobile 5.341 5.347A 5.351 5.354

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
1530 - 1535		Mobile-satellite (space-to-Earth)	EN 301 426 EN 301 444 EN 301 681 ERC/DEC(98)01 ERC/DEC(98)02 ERC/DEC(98)03 ERC/DEC(98)04		1530 - 1535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth)
1530 - 1544		Fixed		Military use	5.351A 5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile 5.341 5.347A 5.351 5.354
1530 - 1544		Fixed		Military use	1535 - 1559 MOBILE-SATELLITE (space-to-Earth)
1535 - 1559		Mobile-satellite (space-to-Earth)	EN 301 426 EN 301 444 EN 301 681 ERC/DEC(98)01 ERC/DEC(98)02 ERC/DEC(98)03 ERC/DEC(98)04		5.351A 5.356 5.341 5.347A
1544 - 1545		Maritime mobile Search and rescue satellite systems incl. GMDSS			5.351 5.353A 5.354 5.357
1545 - 1559		Fixed		Military use	5.357A
1559 - 1563		Radionavigation-satellite Galileo			1559 - 1610 AERONAUTICAL RADIONAVIGATION
1563 - 1587		Radionavigation-satellite GPS			RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space)
1587 - 1593		Radionavigation-satellite Galileo			5.328B
1590 - 1626.5		Aeronautical radio navigation		Military use	5.329A
					5.341 5.363

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
1590 - 1626.5		Aeronautical radio navigation		Military use	1610 - 1610.6 AERONAUTICAL RADIONAVIGATION 5.341 5.363 5.364 5.366 5.367 5.368 5.371 5.372
1610 - 1626.5		Mobile-satellite (Earth-to-space)	EN 301 441 ERC/DEC/(97)03 ERC/DEC/(97)05 PTSFS 2004:8		
1590 - 1626.5		Aeronautical radio navigation		Military use	1610.6 - 1613.8 AERONAUTICAL RADIONAVIGATION 5.149 5.341 5.363 5.364 5.366 5.367 5.368 5.371 5.372
1610 - 1626.5		Mobile-satellite (Earth-to-space)	EN 301 441 ERC/DEC/(97)03 ERC/DEC/(97)05 PTSFS 2004:8		
1610.6 - 1613.8		Radio astronomy		Onsala Space Observatory	
1590 - 1626.5		Aeronautical radio navigation		Military use	1613.8 - 1626.5 AERONAUTICAL RADIONAVIGATION 5.341 5.363 5.364 5.365 5.366 5.367 5.368 5.371 5.372
1610 - 1626.5		Mobile-satellite (Earth-to-space)	EN 301 441 ERC/DEC/(97)03 ERC/DEC/(97)05 PTSFS 2004:8		

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
1626.5 - 1645		Fixed		Military use	1626.5 - 1660 MOBILE-SATELLITE (Earth-to-space) 5.341 5.351 5.353A 5.354 5.357A 5.374 5.375 5.376
1626.5 - 1645		Mobile		Military use	
1626.5 - 1645.5		Mobile-satellite (Earth-to-space)	EN 301 426 EN 301 444 EN 301 681 PTSFS 2004:8 ERC/DEC(98)01 ERC/DEC(98)02 ERC/DEC(98)03 ERC/DEC(98)04		
1645.5 - 1646.5		Maritime mobile Search and rescue satellite systems incl. GMDSS	ETS 300 372 (non-harmonised standard)		
1646.5 - 1660		Mobile-satellite (Earth-to-space)	EN 301 426 EN 301 444 EN 301 681 PTSFS 2004:8 ERC/DEC(98)01 ERC/DEC(98)02 ERC/DEC(98)03 ERC/DEC(98)04		
1647 - 1660		Fixed		Military use	
1647 - 1660		Mobile		Military use	
1660 - 1660.5		Mobile-satellite (Earth-to-space)	EN 301 426 EN 301 444 EN 301 681 PTSFS 2004:8 ERC/DEC(98)01 ERC/DEC(98)02 ERC/DEC(98)03 ERC/DEC(98)04		
1660 - 1660.5		Radio astronomy		Onsala Space Observatory	
1660 - 1660.5		Fixed		Military use	
1660 - 1660.5		Mobile		Military use	

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
1660.5 - 1668.4		Radio astronomy		Onsala Space Observatory	1660.5 - 1668 RADIO ASTRONOMY SPACE RESEARCH (passive)
1660.5 - 1668.4		Fixed		Military use	
1660.5 - 1668.4		Mobile		Military use	
					Fixed Mobile except aeronautical mobile 5.149 5.341 5.379A
1668 - 1668.4		Radio astronomy		Onsala Space Observatory	1668 - 1668.4 MOBILE-SATELLITE (Earth-to-space) 5.348C 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379A 5.379D
1668 - 1675	1518 - 1525	Mobile-satellite (Earth-to-space)			

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
1668 - 1675		Mobile-satellite (Earth-to-space)			1668.4 - 1670 MOBILE-SATELLITE (Earth-to-space) 5.348C 5.379B 5.379C METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.341 5.379D 5.379E
1668.4 - 1670		Radio astronomy		Onsala Space Observatory	
1668.4 - 1670		Fixed		Military use	
1668.4 - 1670		Mobile		Military use	
1668 - 1675	1518 - 1525	Mobile-satellite (Earth-to-space)			1670 - 1675 MOBILE-SATELLITE (Earth-to-space) 5.348C 5.379B METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE 5.380 5.341 5.379D 5.379E 5.380A
1670 - 1675		Fixed		Military use	
1670 - 1675		Mobile		Military use	

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
1675 - 1690		Fixed		Military use	1675 - 1690 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341
1675 - 1690		Mobile except aeronautical mobile		Military use	
1690 - 1700		Fixed		Military use	1690 - 1700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile 5.289 5.341
1690 - 1700		Mobile except aeronautical mobile		Military use	
1700 - 1710		Fixed		Military use	1700 - 1710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341
1700 - 1710		Mobile except aeronautical mobile		Military use	

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
1710 - 1785	1805 - 1880	Land mobile GSM 1800 Mobile transmitters	EN 301 419-1;-2;-3 EN 301 511 ERC/DEC(95)03 ERC/DEC(97)11 ERC/DEC(98)21 PTSFS 2004:8		1710 - 1930 FIXED MOBILE 5.380 5.384A 5.388A 5.149 5.341 5.385 5.388
1718.8 - 1722.2		Radio astronomy			
1785 - 1790		Mobile		Military use	
1790 - 1800		Mobile		Military use	
1800 - 1805		Mobile		Military use	
1805 - 1880	1710 - 1785	Land mobile Base station transmitters GSM 1800	EN 301 502 ERC/DEC(95)03 ERC/DEC(97)11 ERC/DEC(98)21		
1880 - 1900		Land mobile DECT	EN 301 406 ERC/REC T/R 22-02 ERC/DEC/(94)03 91/287/EEG PTSFS 2004:8		
1900 - 1920		Land mobile IMT-2000/UMTS/3G	EN 301 908 1-9 (-10 DECT) ERC/DEC/(99)25 ERC/DEC/(00)01 128/99/EG	TDD	
1920 - 1980	2110 - 2170	Land mobile IMT-2000/UMTS/3G Mobile transmitters	EN 301 908 1-9 (-10 DECT) ERC/DEC(97)07 ERC/DEC/(99)25 ERC/DEC/(00)01 ERC/DEC(00)06 128/99/EC	FDD	
1920 - 1980	2110 - 2170	Land mobile IMT-2000/UMTS/3G Mobile transmitters	EN 301 908 1-9 (-10 DECT) ERC/DEC(97)07 ERC/DEC/(99)25 ERC/DEC/(00)01 ERC/DEC(00)06 128/99/EC	FDD	
					5.388
1920 - 1980		Land mobile IMT-2000/UMTS/3G Mobile transmitters	EN 301 908 1-9 (-10 DECT) ERC/DEC(97)07 ERC/DEC/(99)25 ERC/DEC/(00)01 ERC/DEC(00)06 128/99/EC	FDD	1970 - 1980 FIXED MOBILE 5.388A
					5.388

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
1980 - 2010	2170 - 2200	Mobile-satellite (Earth-to-space)	EN 301 442 ERC/DEC/(97)03 ERC/DEC/(97)04 ERC/DEC/(97)05		1980 - 2010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.389A 5.388
2010 - 2025		Land mobile IMT-2000/UMTS/3G	EN 301 908 1-9 (-10 DECT) ERC/DEC/(99)25 ERC/DEC/(00)01 128/99/EC	TDD	2010 - 2025 FIXED MOBILE 5.384A 5.388 5.388A
2025 - 2110		Fixed		Military use	2025 - 2110 FIXED
2025 - 2110	2200 - 2290	Space operation (Earth-to-space) TT&C		Esrangle, Kiruna	MOBILE 5.391
2025 - 2110		Mobile		Military use	SPACE RESEARCH (Earth-to-space) (space-to-space) SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space)(space-to-space) 5.392

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
2110 - 2170	1920 - 1980	Land mobile Base station transmitters IMT-2000/UMTS/3G	EN 301 908 1-9 (-10 DECT) ERC/DEC(97)07 ERC/DEC/(99)25 ERC/DEC/(00)01 ERC/DEC(00)06 128/99/E		2110 - 2120 FIXED MOBILE SPACE RESEARCH (Earth-to-space) (outer space) 5.388 5.388A
2110 - 2170	1920 - 1980	Land mobile Base station transmitters IMT-2000/UMTS/3G	EN 301 908 1-9 (-10 DECT) ERC/DEC(97)07 ERC/DEC/(99)25 ERC/DEC/(00)01 ERC/DEC(00)06 128/99/EC		2120 - 2160 FIXED MOBILE 5.388 5.388A
2110 - 2170	1920 - 1980	Land mobile Base station transmitters IMT-2000/UMTS/3G	EN 301 908 1-9 (-10 DECT) ERC/DEC(97)07 ERC/DEC/(99)25 ERC/DEC/(00)01 ERC/DEC(00)06 128/99/EC		2160 - 2170 FIXED MOBILE 5.388 5.388A
2170 - 2200	1980 - 2010	Mobile-satellite (space-to-Earth)	EN 301 442 ERC/DEC/(97)03 ERC/DEC/(97)04 ERC/DEC/(97)05		2170 - 2200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A 5.389A 5.388

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
2200 - 2290		Fixed		Military use	2200 - 2290 FIXED MOBILE 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION -SATELLITE (space-to-Earth)(space-to-space) 5.392
2200 - 2290	2025 - 2110	Space operation (space-to-Earth) TT&C		Esrange, Kiruna	
2200 - 2290		Mobile		Military use	
2290 - 2300		Fixed		Military use	2290 - 2300 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) (outer space)
2290 - 2300		Mobile except aeronautical mobile		Military use	
2300 - 2450		Fixed		Military use	2300 - 2450 FIXED MOBILE Amateur Radiolocation 5.150 5.282
2300 - 2450		Mobile		Military use	
2300 - 2450		Amateur	PTSFS 2004:8		
2400 - 2483.5		Short Range Devices (SRD) Radio LANs (RLANs)	EN 300 440-2 EN 300 328 PTSFS 2004:8		

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
2400 - 2483.5		Short Range Devices (SRD) Radio LANs (RLANs)	EN 300 440-2 EN 300 328 PTSFS 2004:8		2450 - 2483.5 FIXED MOBILE Radiolocation
2450 - 2483.5		Fixed		Military use	
2450 - 2483.5		Mobile		Military use	
					ISM 5.150
2483.5 - 2500		Mobile-satellite (space-to-Earth)	EN 301 441 ERC/DEC/(97)03 ERC/DEC/(97)05		2483.5 - 2500 FIXED MOBILE
2484.5 - 2568.5	2603.5 - 2687.5	Fixed Fixed link (digital)	EN 301 751	Valid until Dec 31, 2005	
					MOBILE-SATELLITE (space-to-Earth) 5.351A 5.402 Radiolocation ISM 5.150 5.371 5.398 5.399
2484.5 - 2568.5	2603.5 - 2687.5	Fixed	EN 301 751	Valid until Dec 31, 2005	2500 - 2520 FIXED
2500 - 2690		Land mobile IMT-2000/UMTS/3G	EN 301 751	Extension band	
					5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.414 5.403

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
2484.5 - 2568.5	2603.5 - 2687.5	Fixed	EN 301 751	Valid until Dec 31, 2005	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 5.417C 5.417D 5.418B 5.418C
2500 - 2690		Land mobile IMT-2000/UMTS/3G	ECC/DEC(02)06	Extension band	
2520 - 2593	2597 - 2670	Fixed	EN 301 751 Channel plan see Annex D of ERC/REC T/R 13-01	Valid until Dec 31, 2005	
2597 - 2670	2520 - 2593	Fixed	EN 301 751 Channel plan see Annex D of ERC/REC T/R 13-01	Valid until Dec 31, 2005	
2603.5 - 2687.5	2484.5 - 2568.5	Fixed	EN 301 751	Valid until Dec 31, 2005	
2500 - 2690		Land mobile IMT-2000/UMTS/3G	ECC/DEC(02)06	Extension band	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 5.347A 5.420
2597 - 2670		Fixed Fixed link (digital)	EN 301 751 Channel plan see Annex D of ERC/REC T/R 13-01	Valid until Dec 31, 2005	
2603.5 - 2687.5	2484.5 - 2568.5	Fixed	EN 301 751	Valid until Dec 31, 2005	

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
2500 - 2690		Land mobile IMT-2000/UMTS/3G	ECC/DEC(02)06	Extension band	2670 - 2690 FIXED
2603 - 2687.5	2484.5 - 2568.5	Fixed Fixed link (digital)	EN 301 751	Valid until Dec 31, 2005	5.409 5.410 5.411
					MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.347A 5.419 5.420
2690 - 2700		No utilisation (at present)			2690 - 2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
2700 - 2900		Aeronautical radio navigation Radar		Both civil and military use	2700 - 2900 AERONAUTICAL RADIONAVIGATION
2700 - 2900		Radiolocation Radar		Both civil and military use	5.337 Radiolocation
					5.423

Frequency band or Centre frequency (MHz)	Duplex band or Duplex frequency (omitted for Simplex) (MHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (MHz)
2900 - 3100		Radionavigation		Both civil and military use	2900 - 3100 RADIONAVIGATION 5.426 RADIOLOCATION 5.424A 5.425 5.427
2900 - 3100		Radiolocation Radar		Both civil and military use	
3100 - 3300		Radiolocation Radar		Both civil and military use	3100 - 3300 RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149
3260 - 3267		Radio astronomy			
3300 - 3400		Radiolocation Radar		Both civil and military use	3300 - 3400 RADIOLOCATION 5.149
3332 - 3339		Radio astronomy			
3345.8 - 3352.5		Radio astronomy			

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
3.4 - 3.6		Fixed Radio access (FWA)	EN 301 753 ERC/REC 14-03 PTSFS 2004:8		3.4 - 3.6 FIXED FIXED-SATELLITE (space-to-Earth) Mobile Radiolocation
3.6 - 3.8		Fixed	EN 301 753 EN 301 751		3.6 - 4.2 FIXED
3.6 - 4.2		Fixed-satellite (space-to-Earth)	EN 301 443		FIXED-SATELLITE (space-to-Earth)
3.8 - 4.2		Fixed	EN 301 751 Annex B of ERC/REC 12-08	Both civil and military use	Mobile
4.2 - 4.4		Aeronautical radio navigation Radio altimeters (for aircrafts)		Both civil and military use	4.2 - 4.4 AERONAUTICAL RADIONAVIGATION 5.438 5.440
4.4 - 4.5		Fixed		Military use	4.4 - 4.5 FIXED
4.4 - 4.5		Mobile		Military use	MOBILE
4.5 - 4.8		Fixed		Military use	4.5 - 4.8 FIXED
4.5 - 4.8	6.725 - 7.075	Fixed-satellite (space-to-Earth)	RR AP30B		FIXED-SATELLITE (space-to-Earth)
4.5 - 4.8		Mobile		Military use	5.441 MOBILE

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
4.8 - 4.99		Fixed		Military use	4.8 - 4.99 FIXED MOBILE 5.442
4.8 - 4.99		Mobile		Military use	
4.825 - 4.835		Radio astronomy			
					Radio astronomy 5.149 5.339
4.99 - 5		Radio astronomy		Onsla Space observatory	4.99 - 5 FIXED MOBILE except aeronautical mobile Space research (passive) RADIO ASTRONOMY 5.149
5 - 5.15		Aeronautical radio navigation MLS			5 - 5.01 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367
5 - 5.15		Aeronautical radio navigation MLS			5.01 - 5.03 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) (space-to-space) 5.443B 5.328B 5.367

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
5 - 5.15		Aeronautical radio navigation MLS			5.03 - 5.15 AERONAUTICAL RADIONAVIGATION 5.367 5.444 5.444A
5.15 - 5.25		Aeronautical radio navigation			5.15 - 5.25 AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B 5.446 5.447B 5.447C
5.15 - 5.25		Mobile			
5.15 - 5.35		Short Range Devices (SRD) Radio LANs (RLANs)	EN 301 893 v1.2.3 ECC/DEC(04)08 PTSFS 2004:8 ETS 300 836-1 ed.1		
5.15 - 5.35		Short Range Devices (SRD) Radio LANs (RLANs)	EN 301 893 v1.2.3 ECC/DEC(04)08 PTSFS 2004:8		5.25 - 5.255 RADIOLOCATION SPACE RESEARCH 5.447D EARTH EXPLORATION -SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.448A
5.25 - 5.255		Radiolocation Radar		Military use	

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
5.15 - 5.35		Short Range Devices (SRD) Radio LANs (RLANs)	EN 301 893 v1.2.3 ECC/DEC(04)08 PTSFS 2004:8		5.255 - 5.35 RADIOLOCATION SPACE RESEARCH (active) 5.447D EARTH EXPLORATION -SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.448A
5.255 - 5.35		Radiolocation Radar		Military use	
5.35 - 5.46		Radiolocation Radar		Military use	5.35 - 5.46 AERONAUTICAL RADIONAVIGATION 5.449 EARTH EXPLORATION -SATELLITE (active) 5.448B RADIOLOCATION 5.448D SPACE RESEARCH (active)
5.44		Aeronautical radio navigation Airborne radiobeacons		Both civil and military use	
5.46 - 5.47		Radionavigation		Both civil and military use	5.46 - 5.47 RADIONAVIGATION 5.449 EARTH EXPLORATION -SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.448B
5.46 - 5.47		Radiolocation Radar		Military use	

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
5.47 - 5.65		Maritime radionavigation		Both civil and military use	5.47 - 5.57 MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A EARTH EXPLORATION -SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.448B 5.452
5.47 - 5.725		Short Range Devices (SRD) Radio LANs (RLANs)	EN 301 893 ERC/DEC(99)23 PTSFS 2004:8		
5.47 - 5.65		Radiolocation Radar		Both civil and military use	
5.525		Aeronautical radio navigation Airborne radiobeacons			
5.47 - 5.65		Maritime radionavigation		Both civil and military use	5.57 - 5.65 MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.452
5.47 - 5.65		Radiolocation Radar		Both civil and military use	
5.47 - 5.725		Short Range Devices (SRD) Radio LANs (RLANs)	EN 301 893 ERC/DEC(99)23 PTSFS 2004:8		
5.605 - 5.612		Radiolocation Weather radar			
5.47 - 5.725		Short Range Devices (SRD) Radio LANs (RLANs)	EN 301 893 ERC/DEC(99)23 PTSFS 2004:8		5.65 - 5.725 RADIOLOCATION MOBILE except aeronautical mobile 5.446A 5.450A Amateur Space research (outer space) 5.282
5.65 - 5.725		Radiolocation		Military use	
5.65 - 5.725		Amateur	PTSFS 2004:8		
5.657 - 5.667		Radiolocation Weather radar			

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
5.725 - 5.83		Radiolocation		Military use	5.725 - 5.83 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur
5.725 - 5.83		Amateur	PTSFS 2004:8		
5.725 - 5.875		Short Range Devices (SRD)	EN 300 440-2 PTSFS 2004:8		
5.795 - 5.805		Short Range Devices (SRD) RTTT	EN 300 674 ERC/DEC/(92)02		
					ISM 5.150
5.725 - 5.875		Short Range Devices (SRD)	EN 300 440-2 PTSFS 2004:8		5.83 - 5.85 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) ISM 5.150
5.83 - 5.85		Radiolocation		Military use	
5.83 - 5.85		Amateur	PTSFS 2004:8		
5.725 - 5.875		Short Range Devices (SRD)	EN 300 440-2 PTSFS 2004:8		5.85 - 5.925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.150
5.85 - 5.925		Fixed	EN 301 751		
5.85 - 5.925		Fixed-satellite (Earth-to-space)	EN 301 443		

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (GHz)
5.925 - 6.7		Fixed-satellite (Earth-to-space)	EN 301 443		5.925 - 6.7 FIXED
5.925 - 6.168	6.182 - 6.425	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		FIXED-SATELLITE (Earth-to-space)
6.182 - 6.425	5.925 - 6.168	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		5.457A 5.457B
6.425 - 6.76	6.76 - 7.125	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		MOBILE
6.65 - 6.6752		Radio astronomy			5.149 5.440 5.458
6.425 - 6.76	6.76 - 7.125	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		6.7 - 7.075 FIXED
6.725 - 7.025	4.5 - 4.8	Fixed-satellite (Earth-to-space)	RR AP30B		FIXED-SATELLITE (Earth-to-space) (space-to-Earth)
6.76 - 7.125	6.425 - 6.76	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		5.441 MOBILE 5.458 5.458A 5.458B 5.458C
6.76 - 7.125	6.425 - 6.76	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		7.075 - 7.145 FIXED
7.125 - 7.145		Fixed		Military use	MOBILE 5.458
7.145 - 7.25		Fixed		Military use	7.145 - 7.235 FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
7.145 - 7.25		Fixed		Military use	7.235 - 7.25 FIXED MOBILE 5.458
7.25 - 7.3		Fixed		Military use	7.25 - 7.3 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 5.461
7.3 - 7.425		Fixed		Military use	7.3 - 7.45 FIXED
7.424 - 7.565	7.585 - 7.726	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		7.424 - 7.565 FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461A
7.424 - 7.565	7.585 - 7.726	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		7.45 - 7.55 FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461A

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
7.424 - 7.565	7.585 - 7.726	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		7.55 - 7.75 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile
7.565 - 7.585		Fixed			
7.585 - 7.726	7.424 - 7.565	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		
7.726 - 7.764		Fixed			
7.764 - 8.128	8.128 - 8.5	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	ENG/OB, 7764-7932 / 8128-8296 MHz	7.75 - 7.85 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile
7.764 - 8.128	8.128 - 8.5	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	ENG/OB, 7764-7932 / 8128-8296 MHz	
7.764 - 8.128	8.128 - 8.5	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	ENG/OB, 7764-7932 / 8128-8296 MHz	7.85 - 7.9 FIXED MOBILE except aeronautical mobile
7.764 - 8.128	8.128 - 8.5	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	ENG/OB, 7764-7932 / 8128-8296 MHz	
7.764 - 8.128	8.128 - 8.5	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	ENG/OB, 7764-7932 / 8128-8296 MHz	7.9 - 8.025 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.461
7.764 - 8.128	8.128 - 8.5	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	ENG/OB, 7764-7932 / 8128-8296 MHz	

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (GHz)
7.764 - 8.128	8.128 - 8.5	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	ENG/OB, 7764-7932 / 8128-8296 MHz	8.025 - 8.175 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.462A 5.463
8.025 - 8.4		Earth exploration-satellite (Space-to-Earth)		Esrang, Kiruna	
8.128 - 8.5	7.764 - 8.128	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	ENG/OB, 7764-7932 / 8128-8296 MHz	
8.025 - 8.4		Earth exploration-satellite (Space-to-Earth)		Esrang, Kiruna	8.175 - 8.215 FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.462A 5.463
8.128 - 8.5	7.764 - 8.128	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	ENG/OB, 7764-7932 / 8128-8296 MHz	
8.025 - 8.4		Earth exploration-satellite (Space-to-Earth)		Esrang, Kiruna	8.215 - 8.4 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.462A 5.463
8.128 - 8.5	7.764 - 8.128	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	ENG/OB, 7764-7932 / 8128-8296 MHz	

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
8.128 - 8.5		Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	ENG/OB, 7764-7932 / 8128-8296 MHz	8.4 - 8.5 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.465
8.5 - 8.55		Radiolocation Radar		Both civil and military use	8.5 - 8.55 RADIOLOCATION
8.55 - 8.65		Radiolocation Radar		Both civil and military use	8.55 - 8.65 EARTH EXPLORATION -SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.469A
8.65 - 8.75		Radiolocation Radar		Both civil and military use	8.65 - 8.75 RADIOLOCATION
8.75 - 8.85		Radiolocation		Both civil and military use	8.75 - 8.85 RADIOLOCATION
8.75 - 8.85		Aeronautical radio navigation		Both civil and military use	AERONAUTICAL RADIONAVIGATION 5.470
8.8		Aeronautical radio navigation Airborne doppler navigation aids			
8.85 - 9		Radiolocation		Military use	8.85 - 9 RADIOLOCATION
8.85 - 9		Maritime radionavigation		Military use	MARITIME RADIONAVIGATION 5.472

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
9 - 9.2		Aeronautical radio navigation		Both civil and military use	9 - 9.2 AERONAUTICAL RADIONAVIGATION 5.337
9 - 9.2		Radiolocation		Both civil and military use	
					Radiolocation
9.2 - 9.3		Radiolocation		Military use	9.2 - 9.3 RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.474
9.2 - 9.3		Maritime radionavigation		Military use	
9.3 - 9.5		Radiolocation Radar		Both civil and military use	9.3 - 9.5 RADIONAVIGATION 5.476 Radiolocation 5.427 5.474 5.475
9.3 - 9.5		Radiolocation		Both civil and military use	
9.5 - 9.8		Radiolocation		Military use	9.5 - 9.8 RADIOLOCATION EARTH EXPLORATION -SATELLITE (active) SPACE RESEARCH (active) RADIONAVIGATION 5.476A
9.5 - 9.8		Radionavigation		Military use	
9.8 - 9.9	9.9 - 10	Fixed Fixed link (analogue)	Channel plan, see Annex 3		9.8 - 10 Fixed RADIOLOCATION 5.479
9.9 - 10	9.8 - 9.9	Fixed Fixed link (analogue)	Channel plan, see Annex 3		
9.975 - 10.025		Meteorological-satellite Weather radar		Military use	

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
9.975 - 10.025		Meteorological-satellite Weather radar		Military use	10 - 10.45 FIXED MOBILE RADIOLOCATION Amateur 5.479
10 - 10.25		Fixed Radio access (FWA)		FWA 10224-10294 / 10574-10644 MHz Both civil and military use	
10 - 10.25		Radiolocation		Military use	
10 - 10.45		Amateur	PTSFS 2004:8		
10.224 - 10.294	10.574 - 10.644	Fixed Radio access (FWA)	EN 301 753 ERC/REC 12-05 PTSFS 2004:8		
10.25 - 10.28		Radiolocation Low power radar	EN 300 440-2 PTSFS 2004:8	Fixed and mobile Both civil and military use	
10.35 - 10.38		Radiolocation Low power radar	EN 300 440-2 PTSFS 2004:8	Fixed and mobile Both civil and military use	
10.45 - 10.5		Radiolocation		Both civil and military use	
10.45 - 10.5		Amateur	PTSFS 2004:8		
10.51 - 10.55		Radiolocation Low power radar	EN 300 440-2 PTSFS 2004:8	Fixed and mobile Both civil and military use	10.5 - 10.55 FIXED Radiolocation MOBILE
10.55 - 10.58		Radiolocation Low power radar	EN 300 440-2 PTSFS 2004:8	Both civil and military use	10.55 - 10.6 FIXED MOBILE except aeronautical mobile Radiolocation
10.574 - 10.644	10.224 - 10.294	Fixed Radio access (FWA)	EN 301 753 ERC/REC 12-05 PTSFS 2004:8		

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
10.574 - 10.644	10.224 - 10.294	Fixed Radio access (FWA)	EN 301 753 ERC/REC 12-05 PTSFS 2004:8		10.6 - 10.68 EARTH EXPLORATION -SATELLITE (passive)
10.6 - 10.68		Radio astronomy		Onsala Space Observatory	FIXED
10.6 - 10.68		Radiolocation		Both civil and military use	MOBILE except aeronautical mobile
					RADIO ASTRONOMY
					SPACE RESEARCH (passive)
					Radiolocation
					5.149 5.482
10.68 - 10.7		Radio astronomy		Onsala Space Observatory	10.68 - 10.7 EARTH EXPLORATION -SATELLITE (passive)
					RADIO ASTRONOMY
					SPACE RESEARCH (passive)
					5.340
10.7 - 10.95	12.75 - 13.25	Fixed-satellite (space-to -Earth)	RR AP30B		10.7 - 11.7 FIXED
10.7 - 11.7	14 - 14.5 13.75 - 14	Fixed-satellite (space-to -Earth) Satellite terminal (AES) Satellite terminal (ESV) Satellite terminal (SNG) Satellite terminal (VSAT)	EN 301 427 EN 301 428 EN 301 430 EN 302 186		FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.441 5.484 5.484A
10.7 - 11.7		Fixed-satellite (space-to -Earth) Satellite terminal Satellite TV reception			MOBILE except aeronautical mobile
11.2 - 11.45	12.75 - 13.25	Fixed-satellite (space-to -Earth)	RR AP30B		

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
11.7 - 12.5		Broadcasting-satellite Satellite TV reception	RR AP30		11.7 - 12.5 FIXED BROADCASTING BROADCASTING-SATELLITE Mobile except aeronautical mobile 5.487 5.487A 5.492
12.5 - 12.75	14 - 14.5 29.5 - 30	Fixed-satellite (space-to-Earth) Satellite terminal (AES) Satellite terminal (ESV) Satellite terminal (SNG) Satellite terminal (VSAT)	EN 301 427 EN 301 428 EN 301 430 EN 302 186		12.5 - 12.75 FIXED-SATELLITE (space-to-Earth) 5.484A FIXED-SATELLITE (Earth-to-space)
12.75 - 13.25	11.2 - 11.45 10.7 - 10.95	Fixed-satellite (Earth-to-space)	RR AP30B		12.75 - 13.25 FIXED
12.75 - 12.975	13.017 - 13.241	Fixed Fixed link (digital)	EN 301 751 Annex A of ERC/REC 12-02	Both civil and military use	FIXED-SATELLITE (Earth-to-space) 5.441
13.017 - 13.241	12.75 - 12.975	Fixed Fixed link (digital)	EN 301 751 Annex A of ERC/REC 12-02	Both civil and military use	MOBILE Space research (space-to-Earth) (outer space)
13.25 - 13.4		Aeronautical radio navigation Airborne doppler navigation aids		Both civil and military use	13.25 - 13.4 EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
13.4 - 13.75		Radiolocation		Both civil and military use	13.4 - 13.75 RADIOLOCATION Standard frequency and time signal-satellite (Earth-to-space) SPACE RESEARCH 5.501A EARTH EXPLORATION-SATELLITE (active) <i>5.501B</i>
13.75 - 14		Radiolocation		Both civil and military use	13.75 - 14 RADIOLOCATION
13.75 - 14	10.7 - 11.7	Fixed-satellite (Earth-to-space) Satellite terminal (VSAT)	EN 301 430		FIXED-SATELLITE (Earth-to-space) 5.484A Standard frequency and time signal-satellite (Earth-to-space) Space research Earth exploration-satellite <i>5.502</i> <i>5.503</i>

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
14 - 14.25	10.7 - 11.7 12.5 - 12.75	Fixed-satellite (Earth-to-space)	EN 301 427 EN 301 428 EN 301 430 PTSFS 2004:8		14 - 14.25 FIXED-SATELLITE (Earth-to-space)
14 - 14.25		Mobile-satellite (Earth-to-space) Satellite terminal (AES)	EN 302 186		5.457A 5.457B 5.484A
					5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504C 5.506A Space research 5.504A
14.25 - 14.3	10.7 - 11.7 12.5 - 12.75	Fixed-satellite (Earth-to-space)	EN 301 428 EN 301 430 PTSFS 2004:8		14.25 - 14.3 FIXED-SATELLITE (Earth-to-space)
14.25 - 14.3		Mobile-satellite (Earth-to-space) Satellite terminal (AES)	EN 302 186		5.457A 5.457B 5.484A
					5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.506A 5.508A Space research

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
14.3 - 14.4	10.7 - 11.7 12.5 - 12.75	Fixed-satellite (Earth-to-space) Satellite terminal (ESV) Satellite terminal (SNG) Satellite terminal (VSAT)	EN 301 428 EN 301 430 PTSFS 2004:8		14.3 - 14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A
14.3 - 14.4		Mobile-satellite (Earth-to-space) Satellite terminal (AES)	EN 302 186		5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A 5.509A Radionavigation-satellite 5.504A
14.4 - 14.47	10.7 - 11.7 12.5 - 12.75	Fixed-satellite (Earth-to-space) Satellite terminal (ESV) Satellite terminal (SNG) Satellite terminal (VSAT)	EN 301 428 EN 301 430 PTSFS 2004:8		14.4 - 14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A
14.4 - 14.47		Mobile-satellite (Earth-to-space) Satellite terminal (AES)	EN 302 186		5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A 5.509A Space research (space-to-Earth) 5.504A

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
14.47 - 14.5		Mobile-satellite (Earth-to-space) Satellite terminal (AES)	EN 302 186		14.47 - 14.5 FIXED
14.47 - 14.5	10.7 - 11.7 12.5 - 12.75	Fixed-satellite (Earth-to-space) Satellite terminal (ESV) Satellite terminal (SNG) Satellite terminal (VSAT)	EN 301 428 EN 301 430 PTSFS 2004:8		FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy 5.149 5.504A
14.5 - 14.613	14.921 - 15.033	Fixed Fixed link (digital)	EN 301 751 Channel plan, Annex 3		14.5 - 14.8 FIXED
14.613 - 14.725		Fixed		Military use	FIXED-SATELLITE (Earth-to-space)
14.613 - 14.725		Mobile		Military use	5.510
14.725 - 14.823	15.145 - 15.243	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	Both civil and military use	MOBILE
					Space research

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (GHz)
14.725 - 14.823	15.145 - 15.243	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	Both civil and military use	14.8 - 15.35 FIXED MOBILE Space research 5.339
14.823 - 14.921		Fixed		Military use	
14.823 - 14.921		Mobile		Military use	
14.921 - 15.033	14.5 - 14.613	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		
15.033 - 15.145		Fixed		Military use	
15.033 - 15.145		Mobile		Military use	
15.145 - 15.243	14.725 - 14.823	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3	Both civil and military use	
15.243 - 15.35		Fixed		Military use	
15.243 - 15.35		Mobile		Military use	
15.35 - 15.4		Radio astronomy		Onsala Space Observatory	
					15.35 - 15.4 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
15.4 - 15.43		Aeronautical radio navigation TILS		Both civil and military use	15.4 - 15.43 AERONAUTICAL RADIONAVIGATION 5.511D
15.43 - 15.63		Aeronautical radio navigation TILS		Both civil and military use	15.43 - 15.63 FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION 5.511C

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
15.63 - 15.7		Aeronautical radio navigation TILS		Both civil and military use	15.63 - 15.7 AERONAUTICAL RADIO NAVIGATION 5.511D
15.7 - 16.6		Radiolocation		Military use	15.7 - 16.6 RADIOLOCATION
16.6 - 17.1		Radiolocation		Military use	16.6 - 17.1 RADIOLOCATION Space research (Earth-to-space) (outer space)
17.1 - 17.2		No utilisation (at present)			17.1 - 17.2 RADIOLOCATION 5.513A
17.2 - 17.3		No utilisation (at present)			17.2 - 17.3 RADIOLOCATION EARTH EXPLORATION -SATELLITE (active) SPACE RESEARCH (active)
17.3 - 17.7		Fixed-satellite (Earth-to-space) (space-to-Earth) Feeder links in the broadcasting-satellite service Satellite terminal	RR AP30A		17.3 - 17.7 FIXED-SATELLITE (Earth-to-space) 5.516 FIXED-SATELLITE (space-to-Earth) 5.516A Radiolocation

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
17.7 - 18.1		Fixed Fixed link (digital)	EN 301 751 Annex A of ERC/REC 12-03	Both civil and military use	17.7 - 18.1 FIXED
17.7 - 18.1		Fixed-satellite (Earth-to-space) Feeder links in the broadcasting-satellite service	RR AP30A		FIXED-SATELLITE (space-to-Earth) 5.484A
					FIXED-SATELLITE (Earth-to-space) 5.516 MOBILE
18.1 - 18.4		Fixed	EN 301 751 Annex A of ERC/REC 12-03		18.1 - 18.4 FIXED
18.1 - 18.4		Fixed-satellite (Earth-to-space) Feeder links in the broadcasting-satellite service	RR AP30A		FIXED-SATELLITE (space-to-Earth) 5.484A
					5.516B FIXED-SATELLITE (Earth-to-space) 5.520 MOBILE 5.519
18.4 - 18.6		Fixed	EN 301 751 Annex A of ERC/REC 12-03		18.4 - 18.6 FIXED
					FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (GHz)
18.6 - 18.8		Fixed	EN 301 751 Annex A of ERC/REC 12-03	Both civil and military use	18.6 - 18.8 FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile EARTH EXPLORATION -SATELLITE (passive) Space research (passive) 5.522A
18.8 - 19.3		Fixed	EN 301 751 Annex A of ERC/REC 12-03	Both civil and military use	18.8 - 19.3 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.523A MOBILE
19.3 - 19.7		Fixed	EN 301 751 Annex A of ERC/REC 12-03		19.3 - 19.7 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B 5.523C 5.523D 5.523E MOBILE

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (GHz)
19.7 - 20.1	29.5 - 30	Fixed-satellite (space-to-Earth) Satellite terminal (SUT)	EN 301 459		19.7 - 20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth)
20.1 - 20.2	29.5 - 30	Fixed-satellite (space-to-Earth) Satellite terminal (SUT)	EN 301 459		20.1 - 20.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528
20.2 - 21.2		Fixed-satellite (space-to-Earth)			20.2 - 21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth)
21.2 - 21.567	21.567 - 21.931	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		21.2 - 21.4 EARTH EXPLORATION-SATELLITE (passive)
21.2 - 21.567	21.567 - 21.931	Fixed Fixed link (analogue)	Channel plan, see Annex 3		FIXED MOBILE SPACE RESEARCH (passive)

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (GHz)
21.2 - 21.567	21.567 - 21.931	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		21.4 - 22 FIXED MOBILE BROADCASTING-SATELLITE 5.347A 5.530
21.2 - 21.567	21.567 - 21.931	Fixed Fixed link (digital)	Channel plan, see Annex 3		
21.567 - 21.931	21.2 - 21.567	Fixed Fixed link (digital)	EN 301 751 Channel plan, see Annex 3		
21.567 - 21.931	21.2 - 21.567	Fixed Fixed link (analogue)	Channel plan, see Annex 3		
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		
21.931 - 22		Fixed			
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		22 - 22.21 FIXED MOBILE except aeronautical mobile 5.149
22 - 22.6	23 - 23.6	Fixed Fixed link (digital)	EN 301 751 Channel plan see Annex A of ERC/REC 12-03	Both civil and military use	
22.01 - 22.21		Radio astronomy			
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		
22 - 22.6	23 - 23.6	Fixed Fixed link (digital)	EN 301 751 Channel plan see Annex A of ERC/REC 12-03	Both civil and military use	
22.21 - 22.5		Radio astronomy		Onsala Space Observatory	22.21 - 22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		22.5 - 22.55 FIXED MOBILE

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		22.55 - 23.55 FIXED
22 - 22.6		Fixed Fixed link (digital)	EN 301 751 Channel plan see Annex A of ERC/REC T/R 13-02	Both civil and military use	INTERSATELLITE
22.55 - 23.55	23 - 23.6	Fixed Fixed link (digital)	EN 301 751 Channel plan see Annex A of ERC/REC T/R 13-02	Both civil and military use	MOBILE 5.149
22.6 - 23		Fixed			
22.81 - 22.86		Radio astronomy			
23 - 23.6	22 - 22.6	Fixed Fixed link (digital)	EN 301 751 Channel plan see Annex A of ERC/REC T/R 13-02		
23.07 - 23.12		Radio astronomy			
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		23.55 - 23.6 FIXED
23 - 23.6	22 - 22.6	Fixed Fixed link (digital)	EN 301 751 Channel plan see Annex A of ERC/REC T/R 13-02	Both civil and military use	MOBILE
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		23.6 - 24 EARTH EXPLORATION -SATELLITE (passive)
23.6 - 24		Radio astronomy		Onsala Space Observatory	RADIO ASTRONOMY
					SPACE RESEARCH (passive) 5.340
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		24 - 24.05 AMATEUR
24 - 24.05		Amateur	PTSFS 1999:1 (most recently amended by PTSFS 2004:3)		AMATEUR-SATELLITE
24 - 24.05		Radiolocation	EN 300 440-2 PTSFS 2004:8		ISM 5.150
24 - 24.05		Short Range Devices (SRD)	EN 300 440-2 PTSFS 2004:8		
24 - 24.05		Radiolocation Low power radar	EN 300 440-2 PTSFS 2004:8		

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (GHz)
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		24.05 - 24.25 RADIOLOCATION Amateur Earth exploration-satellite (active) ISM 5.150
24.05 - 24.25		Short Range Devices (SRD)	EN 300 440-2 PTSFS 2004:8		
24.05 - 24.25		Radiolocation Low power radar	EN 300 440-2 PTSFS 2004:8		
24.05 - 24.25		Amateur	PTSFS 2004:8		
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		24.25 - 24.45 FIXED
24.25 - 24.45		Fixed			
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		24.45 - 24.65 FIXED INTERSATELLITE
24.45 - 24.549		Fixed			
24.549 - 25.445	25.57 - 26.453	Fixed Radio access (FWA) Fixed link (digital)	EN 301 751 EN 301 753 Channel plan see Annex B of ERC/REC T/R 13-02 PTSFS 2004:8		
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		24.65 - 24.75 FIXED INTERSATELLITE
24.549 - 25.445	25.557 - 26.453	Fixed Radio access (FWA) Fixed link (digital)	EN 301 751 EN 301 753 Channel plan see Annex B of ERC/REC T/R 13-02 PTSFS 2004:8		
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		24.75 - 25.25 FIXED
24.549 - 25.445	25.557 - 26.453	Fixed Radio access (FWA) Fixed link (digital)	EN 301 751 EN 301 753 Channel plan see Annex B of ERC/REC T/R 13-02 PTSFS 2004:8		

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		25.25 - 25.5 FIXED
24.549 - 25.445	25.557 - 26.453	Fixed Radio access (FWA) Fixed link (digital)	EN 301 751 EN 301 753 see Channel plan Annex B of ERC/REC T/R 13-02 PTSFS 2004:8		MOBILE INTERSATELLITE 5.536
25.445 - 25.5		Fixed			Standard frequency and time signal-satellite (Earth-to-space)
21.65 - 26.65		Short Range Devices (SRD) SRR	2005/50/EC		25.5 - 27 FIXED
25.5 - 25.557		Fixed			MOBILE
25.557 - 26.453	24.549 - 25.445	Fixed Radio access (FWA) Fixed link (digital)	EN 301 751 EN 301 753 Channel plan see Annex B of ERC/REC T/R 13-02 PTSFS 2004:8		INTERSATELLITE 5.536 EARTH EXPLORATION -SATELLITE (space-to-Earth)
26.453 - 27		Fixed			5.536A 5.536B 5.536C Standard frequency and time signal-satellite (Earth-to-space)
27 - 27.5		Fixed			27 - 27.5 FIXED MOBILE INTERSATELLITE 5.536

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
27.5 - 27.8285		Fixed-satellite (Earth-to-space)			27.5 - 28.5 FIXED
27.8285 - 28.4445	28.9485 - 29.4525	Fixed Radio access (FWA)	EN 301 751 EN 301 753 Channel plan see Annex C of ERC/REC T/R 13-02 PTSFS 2004:8	FWA 27.9405-28.4445 / 28.9485-29.4525 GHz	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B
28.4445 - 28.9485		Fixed-satellite (Earth-to-space)			5.539 MOBILE 5.538 5.540
28.4445 - 28.9485		Fixed-satellite (Earth-to-space)			28.5 - 29.1 FIXED
28.9485 - 29.4525	27.8285 - 28.4445	Fixed Radio access (FWA)	EN 301 751 EN 301 753 Channel plan Annex C of ERC/REC T/R 13-02 PTSFS 2004:8	FWA 27.9405-28.4445 / 28.9485-29.4525 GHz	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration- satellite (Earth-to-space) 5.541 5.540

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
28.9485 - 29.4525	27.8285 - 28.4445	Fixed Radio access (FWA)	EN 301 751 EN 301 753 Channel plan Annex C of ERC/REC T/R 13-02 PTSFS 2004:8	FWA 27.9405-28.4445 / 28.9485-29.4525 GHz	29.1 - 29.5 FIXED FIXED-SATELLITE (Earth-to-space)
29.4525 - 29.5		Fixed-satellite (Earth-to-space)			5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 <i>5.540</i>
29.5 - 29.9	10.95 - 11.2 11.45 - 11.7 12.5 - 12.75 19.7 - 20.2	Fixed-satellite (Earth-to-space) Satellite terminal (SIT) Satellite terminal (SUT)	EN 301 459 PTSFS 2004:8		29.5 - 29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Mobile-satellite (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 <i>5.540</i>

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
29.9 - 30	10.95 - 11.2 11.45 - 11.7 12.5 - 12.75 19.7 - 20.2	Fixed-satellite (Earth-to-space) Satellite terminal (SIT) Satellite terminal (SUT)	EN 301 459 PTSFS 2004:8		29.9 - 30 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540
30 - 31		No utilisation (at present)			30 - 31 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth)
31 - 31.3		Fixed	EN 301 751 EN 301 753 ERC/REC 02-02		31 - 31.3 FIXED
31.2 - 31.3		Radio astronomy			MOBILE Space research 5.544 Standard frequency and time signal-satellite (space-to-Earth) 5.149

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (GHz)
31.3 - 31.5		Radio astronomy		Onsala Space Observatory	31.3 - 31.5 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
31.5 - 31.8		Radio astronomy		Onsala Space Observatory	31.5 - 31.8 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149
31.8 - 31.815		Fixed			31.8 - 32 RADIONAVIGATION
31.815 - 32.571	32.627 - 33.383	Fixed	EN 301 751 EN 301 753 ERC/REC 01-02 PTSFS 2004:8		FIXED 5.547A
					SPACE RESEARCH (space-to-Earth) (outer space) 5.547 5.548

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
31.815 - 32.571	32.627 - 33.383	Fixed	EN 301 751 EN 301 753 ERC/REC 01-02 PTSFS 2004:8		32 - 32.3 RADIONAVIGATION FIXED 5.547A SPACE RESEARCH (space-to-Earth) (outer space) 5.547 5.548
31.815 - 32.571	32.627 - 33.383	Fixed	EN 301 751 EN 301 753 ERC/REC 01-02 PTSFS 2004:8		32.3 - 33 INTERSATELLITE
32.571 - 32.627		Fixed			FIXED 5.547A
32.627 - 33.383	31.815 - 32.571	Fixed	EN 301 751 EN 301 753 ERC/REC 01-02 PTSFS 2004:8		RADIONAVIGATION 5.547 5.548
32.627 - 33.383	31.815 - 32.571	Fixed	EN 301 751 EN 301 753 ERC/REC 01-02 PTSFS 2004:8		33 - 33.4 RADIONAVIGATION
33.383 - 33.4		Fixed			FIXED 5.547A 5.547
33.4 - 34.2		No utilisation (at present)			33.4 - 34.2 RADIOLOCATION
34.2 - 34.7		No utilisation (at present)			34.2 - 34.7 RADIOLOCATION SPACE RESEARCH (Earth-to-space) (outer space)

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
34.7 - 35.2		No utilisation (at present)			34.7 - 35.2 RADIOLOCATION Space research
35.2 - 35.5		No utilisation (at present)			35.2 - 35.5 METEOROLOGICAL AIDS RADIOLOCATION
35.5 - 36		No utilisation (at present)			35.5 - 36 METEOROLOGICAL AIDS RADIOLOCATION EARTH EXPLORATION -SATELLITE (active) SPACE RESEARCH (active) 5.549A
36 - 36.43		No utilisation (at present)			36 - 37 EARTH EXPLORATION -SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149
36.43 - 36.5		Radio astronomy			
36.5 - 37		No utilisation (at present)			

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
37 - 37.058		Fixed			37 - 37.5 FIXED
37.058 - 38.178	38.318 - 39.438	Fixed Fixed link (digital)	EN 301 751 Annex A of REC T/R 12-01		MOBILE
					SPACE RESEARCH (space-to-Earth) 5.547
37.058 - 38.178	38.318 - 39.438	Fixed Fixed link (digital)	EN 301 751 Annex A of REC T/R 12-01		37.5 - 38 FIXED
					FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (space-to-Earth) Earth exploration satellite (space-to-Earth) 5.547
37.058 - 38.178	38.318 - 39.438	Fixed Fixed link (digital)	EN 301 751 Annex A of REC T/R 12-01		38 - 39.5 FIXED
38.178 - 38.318		Fixed			FIXED-SATELLITE (space-to-Earth)
38.318 - 39.438	37.058 - 38.178	Fixed Fixed link (digital)	EN 301 751 Annex A of REC T/R 12-01		MOBILE
39.438 - 39.5		Fixed			Earth exploration satellite (space-to-Earth) 5.547

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
39.5 - 40		Fixed-satellite (space-to-Earth)			<p>39.5 - 40</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth)</p> <p>5.516B</p> <p>MOBILE</p> <p>MOBILE-SATELLITE (space-to-Earth)</p> <p>Earth exploration satellite (space-to-Earth)</p> <p>5.547</p>
40 - 40.5		Fixed-satellite (space-to-Earth)			<p>40 - 40.5</p> <p>FIXED</p> <p>FIXED-SATELLITE (space-to-Earth)</p> <p>5.516B</p> <p>MOBILE</p> <p>MOBILE-SATELLITE (space-to-Earth)</p> <p>Earth exploration satellite (space-to-Earth)</p> <p>EARTH EXPLORATION-SATELLITE (Earth-to-space)</p> <p>SPACE RESEARCH (Earth-to-space)</p>

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
40.5 - 41		Fixed			40.5 - 41 BROADCASTING-SATELLITE FIXED-SATELLITE (space-to-Earth)
40.5 - 41		Broadcasting			
40.5 - 41		Broadcasting-satellite			
					BROADCASTING FIXED Mobile 5.547
41 - 42.5		Fixed			41 - 42.5 BROADCASTING-SATELLITE FIXED-SATELLITE (space-to-Earth)
41 - 42.5		Broadcasting			
41 - 42.5		Broadcasting-satellite			
					5.516B FIXED BROADCASTING Mobile 5.547 5.551H 5.551I
42.5 - 43.5		Radio astronomy		Onsala Space Observatory	42.5 - 43.5 FIXED
42.5 - 43.5		Fixed			
					FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.547

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
43.5 - 47		No utilisation (at present)			43.5 - 47 MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554
47 - 47.2		Amateur	PTSFS 2004:8		47 - 47.2 AMATEUR AMATEUR-SATELLITE
47.2 - 50.2		Fixed	ERC/REC 12-10		47.2 - 47.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A
47.2 - 50.2		Fixed	ERC/REC 12-10		47.5 - 47.9 FIXED
47.5 - 47.9		Fixed-satellite (space-to-Earth)			FIXED-SATELLITE (Earth-to-space) 5.552 FIXED-SATELLITE (space-to-Earth) 5.516B 5.554A MOBILE

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (GHz)
47.2 - 50.2		Fixed	ERC/REC 12-10		47.9 - 48.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A
47.2 - 50.2		Fixed	ERC/REC 12-10		48.2 - 48.54 FIXED
48.2 - 48.54		Fixed-satellite (space-to-Earth)			FIXED-SATELLITE (Earth-to-space) 5.552 FIXED-SATELLITE (space-to-Earth) 5.516B 5.554A 5.555B MOBILE
47.2 - 50.2		Fixed	ERC/REC 12-10		48.54 - 49.44 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.149 5.340 5.555

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations (RR) (GHz)
47.2 - 50.2		Fixed	ERC/REC 12-10		49.44 - 50.2 FIXED
49.44 - 50.2		Fixed-satellite (space-to-Earth)			FIXED-SATELLITE (Earth-to-space) 5.552 FIXED-SATELLITE (space-to-Earth) 5.516B 5.554A 5.555B MOBILE
50.2 - 50.4		No utilisation (at present)			50.2 - 50.4 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340
50.4 - 51.4		Fixed			50.4 - 51.4 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Mobile-satellite (Earth-to-space)
51.4 - 52.6		Fixed	ERC/REC 12-11		51.4 - 52.6 FIXED MOBILE 5.547 5.556

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
52.6 - 54.25		No utilisation (at present)			52.6 - 54.25 EARTH EXPLORATION -SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556
54.25 - 55.78		No utilisation (at present)			54.25 - 55.78 EARTH EXPLORATION -SATELLITE (passive) INTERSATELLITE 5.556A SPACE RESEARCH (passive)
55.78 - 56.9		Fixed	ERC/REC 12-12		55.78 - 56.9 EARTH EXPLORATION -SATELLITE (passive) FIXED 5.557A INTERSATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
56.9 - 57		Fixed	ERC/REC 12-12		56.9 - 57 EARTH EXPLORATION -SATELLITE (passive) FIXED INTERSATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547
57 - 58.2		Fixed	EN 301 751 ERC/REC 12-09 PTSFS 2004:8		57 - 58.2 EARTH EXPLORATION -SATELLITE (passive) FIXED INTERSATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547
58.2 - 59		Fixed	EN 301 751 ERC/REC 12-09 PTSFS 2004:8		58.2 - 59 EARTH EXPLORATION -SATELLITE (passive) MOBILE FIXED SPACE RESEARCH (passive) 5.547 5.556

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
59 - 59.3		No utilisation (at present)			59 - 59.3 FIXED
					INTERSATELLITE 5.556A EARTH EXPLORATION -SATELLITE (passive) SPACE RESEARCH (passive) MOBILE 5.558 RADIOLOCATION 5.559
59.3 - 64		No utilisation (at present)			59.3 - 64 FIXED
					INTERSATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138
64 - 65		Fixed			64 - 65 FIXED
					INTERSATELLITE MOBILE except aeronautical mobile 5.547 5.556

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
65 - 66		Fixed			65 - 66 EARTH EXPLORATION -SATELLITE SPACE RESEARCH INTERSATELLITE FIXED MOBILE except aeronautical mobile 5.547
66 - 71		No utilisation (at present)			66 - 71 MOBILE 5.553 5.558 MOBILE-SATELLITE INTERSATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554
71 - 74		No utilisation (at present)			71 - 74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
74 - 75.5		No utilisation (at present)			74 - 76 FIXED
75.5 - 76		Amateur	PTSFS 2004:8		
					FIXED-SATELLITE (space-to-Earth)
					MOBILE
					BROADCASTING
					BROADCASTING-SATELLITE
					Space research (space-to-Earth)
					5.559A
					5.561
76 - 77		Short Range Devices (SRD) RTTT	EN 301 091 (non-harmoniserad standard) PTSFS 2004:8 ECC/DEC(02)01		76 - 77.5 RADIO ASTRONOMY
76 - 77.5		Amateur	PTSFS 2004:8		
77 - 81		Short Range Devices (SRD) SRR	ECC/DEC(04)03		RADIOLOCATION
					Amateur
					Amateur-satellite
					Space research (space-to-Earth)
					5.149
77 - 81		Short Range Devices (SRD) SRR	ECC/DEC(04)03		77.5 - 78 AMATEUR
77.5 - 78		Amateur	PTSFS 2004:8		
77.5 - 78		Radio astronomy			
					AMATEUR-SATELLITE
					Radio astronomy
					Space research (space-to-Earth)

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
77 - 81		Short Range Devices (SRD) SRR	ECC/DEC(04)03		78 - 79 RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth) 5.149 5.560
78 - 79		Amateur	PTSFS 2004:8		
78 - 79		Radio astronomy			
77 - 81		Short Range Devices (SRD) SRR	ECC/DEC(04)03		79 - 81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149
79 - 81		Radio astronomy		Onsala Space Observatory	
79 - 81		Amateur	PTSFS 2004:8		

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
81 - 84		Radio astronomy		Onsala Space Observatory	81 - 84 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) 5.149 5.561A
84 - 86		Radio astronomy		Onsala Space Observatory	84 - 86 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149
86 - 92		Radio astronomy		Onsala Space Observatory	86 - 92 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
92 - 94		Radio astronomy		Onsala Space Observatory	92 - 94 FIXED MOBILE RADIOLOCATION RADIO ASTRONOMY 5.149
94 - 94.1		Radio astronomy			94 - 94.1 EARTH EXPLORATION -SATELLITE (active) Radio astronomy SPACE RESEARCH (active) RADIOLOCATION 5.562 5.562A
94.1 - 95		Radio astronomy		Onsala Space Observatory	94.1 - 95 FIXED RADIO ASTRONOMY MOBILE RADIOLOCATION 5.149

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
95 - 100		Radio astronomy		Onsala Space Observatory	95 - 100 FIXED MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE RADIO ASTRONOMY 5.149 5.554
100 - 102		Radio astronomy		Onsala Space Observatory	100 - 102 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341
102 - 105		Radio astronomy		Onsala Space Observatory	102 - 105 FIXED RADIO ASTRONOMY MOBILE 5.149 5.341

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
105 - 109.5		Radio astronomy		Onsala Space Observatory	105 - 109.5 FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341
109.5 - 111.8		Radio astronomy		Onsala Space Observatory	109.5 - 111.8 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341
111.8 - 114.25		Radio astronomy		Onsala Space Observatory	111.8 - 114.25 FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
114.25 - 116		Radio astronomy		Onsala Space Observatory	114.25 - 116 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341
116 - 119.98		No utilisation (at present)			116 - 119.98 EARTH EXPLORATION -SATELLITE (passive) INTERSATELLITE 5.562C SPACE RESEARCH (passive) 5.341
119.98 - 122.25		No utilisation (at present)			119.98 - 122.25 EARTH EXPLORATION -SATELLITE (passive) INTERSATELLITE 5.562C SPACE RESEARCH (passive) 5.341
122.25 - 123		Amateur	PTSFS 2004:8		122.25 - 123 FIXED INTERSATELLITE MOBILE 5.558 Amateur 5.138

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
123 - 130		No utilisation (at present)			123 - 130 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.149 5.554
130 - 134		No utilisation (at present)			130 - 134 EARTH EXPLORATION-SATELLITE (active) FIXED INTERSATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A
134 - 136		Amateur	PTSFS 2004:8		134 - 136 AMATEUR AMATEUR-SATELLITE Radio astronomy

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
136 - 141		Amateur	PTSFS 2004:8		136 - 141 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149
141 - 148.5		No utilisation (at present)			141 - 148.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149
148.5 - 151.5		No utilisation (at present)			148.5 - 151.5 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
151.5 - 155.5		No utilisation (at present)			151.5 - 155.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
155.5 - 158.5		No utilisation (at present)			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		No utilisation (at present)			158.5 - 164 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)
164 - 167		No utilisation (at present)			164 - 167 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
167 - 174.5		No utilisation (at present)			167 - 174.5 FIXED FIXED-SATELLITE (space-to-Earth) INTERSATELLITE MOBILE 5.558 5.149
174.5 - 174.8		No utilisation (at present)			174.5 - 174.8 FIXED INTERSATELLITE 5.562H MOBILE 5.558
174.8 - 182		No utilisation (at present)			174.8 - 182 EARTH EXPLORATION -SATELLITE (passive) INTERSATELLITE 5.562H SPACE RESEARCH (passive) 5.149 5.385
182 - 185		No utilisation (at present)			182 - 185 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
185 - 190		No utilisation (at present)			185 - 190 EARTH EXPLORATION-SATELLITE (passive) INTERSATELLITE 5.562H SPACE RESEARCH (passive)
190 - 191.8		No utilisation (at present)			190 - 191.8 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340
191.8 - 200		No utilisation (at present)			191.8 - 200 FIXED INTERSATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
200 - 202		No utilisation (at present)			200 - 202 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A
202 - 209		No utilisation (at present)			202 - 209 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A
209 - 217		No utilisation (at present)			209 - 217 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.341

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
217 - 226		No utilisation (at present)			217 - 226 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341
226 - 231.5		No utilisation (at present)			226 - 231.5 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
231.5 - 232		No utilisation (at present)			231.5 - 232 FIXED MOBILE Radiolocation
232 - 235		No utilisation (at present)			232 - 235 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
235 - 238		No utilisation (at present)			235 - 238 EARTH EXPLORATION -SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B
238 - 240		No utilisation (at present)			238 - 240 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE
240 - 241		No utilisation (at present)			240 - 241 FIXED MOBILE RADIOLOCATION

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
241 - 248		Amateur	PTSFS 2004:8		241 - 248 RADIOLOCATION RADIO ASTRONOMY Amateur Amateur-satellite 5.138 5.149
248 - 250		Amateur	PTSFS 2004:8		248 - 250 AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149
250 - 252		No utilisation (at present)			250 - 252 EARTH EXPLORATION -SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A

Frequency band or Centre frequency (GHz)	Duplex band or Duplex frequency (omitted for Simplex) (GHz)	Utilisation	Reference Documents ETSI standards, ECC channel plans etc.	Remarks	Allocated bands and Services according to the International Radio Regulations(RR) (GHz)
252 - 265		No utilisation (at present)			252 - 265 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554
265 - 275		No utilisation (at present)			265 - 275 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.563A
275 - 1000		No utilisation (at present)			275 - 1000 Not allocated 5.565

Annex 1 Footnotes to the Radio Regulations

The full text, in the original language, of the footnotes to the International Radio Regulations is reproduced below.

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

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

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

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

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

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

5.74 *Additional Allocation:* in Region 1, the frequency band 285.3–285.7 kHz is also allocated to the maritime radionavigation service (other than radiobeacons) on a primary basis.

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

5.79 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 **S52** 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, the Russian Federation, Finland, Georgia, Hungary, Ireland, Iceland, Israel, Kazakhstan, Latvia, Liechtenstein, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., the United Kingdom, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the bands 1 715–1 800 kHz and 1 850–2 000 kHz. However, when allocating the bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W. (WRC-03)

5.100 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.

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)

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:

3 360–13 410 kHz,
25 550–25 670 kHz,
37.5–38.25 MHz,
73–74.6 MHz in Regions 1 and 3,
150.05–153 MHz in Region 1,
322–328.6 MHz,
406.1–410 MHz,
608–614 MHz in Regions 1 and 3,
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 in Regions 1 and 3,

36.43–36.5 GHz,

42.5–43.5 GHz,
42.77–42.87 GHz,
43.07–43.17 GHz,
43.37–43.47 GHz,
48.94–49.04 GHz,
76–86 GHz,
92–94 GHz,
94.1–100 GHz,
102–109.5 GHz,
111.8–114.25 GHz,
128.33–128.59 GHz,
129.23–129.49 GHz,
130–134 GHz,
136–148.5 GHz,
151.5–158.5 GHz,
168.59–168.93 GHz,
171.11–171.45 GHz,
172.31–172.65 GHz,
173.52–173.85 GHz,
195.75–196.15 GHz,
209–226 GHz,
241–250 GHz,
252–275 GHz

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

5.150 The following bands:

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

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

5.151 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 Rep., 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, Serbia and Montenegro, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the band 47-68 MHz, in Romania the band 47-58 MHz, in South Africa the band 47-50 MHz, and in the Czech Rep. 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).

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, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05–153 MHz, 322–328.6 MHz, 406.1–410 MHz and 608–614 MHz from harmful interference from unwanted emissions. The threshold levels of interference detrimental to the radio astronomy service are shown in Table 1 of Recommendation ITU-R RA.769-1. (WRC-97)

5.209 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 (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, 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, 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**.

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 radiocommunication service.

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

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).

5.257 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).

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

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

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

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

The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service 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)

5.287 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, Côte d'Ivoire, 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 in countries other than those listed in this footnote. (WRC-03).

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/m²) 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 (WRC-03)** applies. (WRC-03)

5.316 *Additional allocation:* in Germany, Saudi Arabia, Bosnia and Herzegovina, Burkina Faso, Cameroon, Côte d'Ivoire, Croatia, Denmark, Egypt, Finland, Greece, Israel, Jordan, Kenya, The Former Yugoslav Republic of Macedonia, Libyan Arab Jamahiriya, Liechtenstein, Mali, Monaco, Norway, the Netherlands, Portugal, the United Kingdom, Syrian Arab Republic, Serbia and Montenegro, Sweden and Switzerland, the band 790-830 MHz, and in these same countries and in Spain, France, Gabon and Malta, the band 830-862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band. (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.

5.328 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.

5.331 *Additional allocation:* in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Nigeria, Norway, Oman, the Netherlands, Poland, Portugal, Qatar, Syrian Arab Republic, Slovakia, the 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.

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 GHz²,
52.6-54.25 GHz,
86-92 GHz,
100-102 GHz,
109.5-111.8 GHz,
114.25-116 GHz,
148.5-151.5 GHz,
164-167 GHz,
182-185 GHz,
190-191.8 GHz,
200-209 GHz,
226-231.5 GHz,
250-252 GHz. (WRC-03)

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

5.345 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)**.

5.347A 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 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 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from the stations in the fixed service. No. **5.43A** does not apply. (WRC-03)

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

5.348B In the band 1 518-1 525 MHz, stations in the mobile-satellite service shall not claim protection from aeronautical mobile telemetry stations in the mobile service in the territory of the United States (see Nos. **5.343** and **5.344**) and in the countries listed in No. **5.342**. No. **5.43A** does not apply. (WRC-03)

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)**.

5.353A 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.)

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

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

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

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

5.367 *Additional allocation:* The 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/m²) in 10 MHz and -194 dB(W/m²) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2 000 s. (WRC-03)

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

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

5.380 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.

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)**.)

5.388A In Regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz and, in Region 2, the bands 1 885-1 980 MHz and 2 110-2 160 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications-2000 (IMT-2000), in accordance with Resolution **221 (Rev.WRC-03)**. Their use by IMT-2000 applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-03)

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

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

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

5.398 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.

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**.

5.416 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 broadcasting-satellite service (sound), pursuant to No. **5.418**, for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. **9.12**. (WRC-03)

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

5.419 The 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**.
- 5.441** The use of the bands 4 500–4 800 MHz (space-to-Earth), 6 725–7 025 MHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix **30B**. The use of the bands 10.7–10.95 GHz (space-to-Earth), 11.2–11.45 GHz (space-to-Earth) and 12.75–13.25 GHz (Earth-to-space) by geostationary-satellite systems in the fixed-satellite service shall be in accordance with the provisions of Appendix **30B**. The use of the bands 10.7–10.95 GHz (space-to Earth), 11.2–11.45 GHz (space-to-Earth) and 12.75–13.25 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.
- 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/m²) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4 990-5 000 MHz, radionavigation-satellite service systems

operating in the band 5 010-5 030 MHz shall comply with the limits in the band 4 990-5 000 MHz defined in Resolution **741 (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. (WRC-03)

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/m² 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**.

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 $-164 \text{ dB(W/m}^2\text{)}$ in any 4 kHz band for all angles of arrival.

5.447C Administrations responsible for fixed-satellite service networks in the band 5 150–5 250 MHz operated under Nos. **5.447A** and **5.447B** shall coordinate on an equal basis in accordance with No. **9.11A** 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)

5.447F 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)

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

5.457A In the bands 5 925-6 425 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 (θ), without the consent of the affected administration:

–174 dB(W/m²) in a 4 kHz band for $0^\circ \leq \theta < 5^\circ$

–174 + 0.5 ($\theta - 5$) dB(W/m²) in a 4 kHz band for $5^\circ \leq \theta < 25^\circ$

–164 dB(W/m²) in a 4 kHz band for $25^\circ \leq \theta \leq 90^\circ$

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

5.469A 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.

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, Iran (Islamic Republic of), 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. (WRC-03)

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

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

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

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

5.492 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)

5.501A 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:

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

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

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

- in the band 13.77-13.78 GHz, the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in geostationary-satellite orbit shall not exceed:
 - i) $4.7D + 28 \text{ dB(W/40 kHz)}$, 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) $49.2 + 20 \log(D/4.5) \text{ dB(W/40 kHz)}$, 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) $66.2 \text{ dB(W/40 kHz)}$ 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.

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 (Islamic Republic of), 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 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)

5.508A In the band 14.25-14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, 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 (Islamic Republic of), 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 feeder-link of a non-geostationary system in the mobile-satellite service (space-to-Earth) operating in the 15.43–15.63 GHz band shall not exceed the level of $-156 \text{ dB(W/m}^2\text{)}$ in a 50 MHz bandwidth, into any radio astronomy observatory site for more than 2% of the time.

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 $-146 \text{ dB(W/m}^2\text{/MHz)}$ for any angle of arrival. In the band 15.63–15.65 GHz, where an administration plans emissions from a non-geostationary space station that exceed $-146 \text{ dB(W/m}^2\text{/MHz)}$ 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)

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

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

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

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

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

This identification does not preclude the use of these bands by other fixed-satellite service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in these 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)

5.519 *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**.

5.520 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.

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.

5.535A 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, Libya, Liechtenstein, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, Syria, Slovakia, Czech Republic, Romania, the United Kingdom, Singapore, Sweden, Switzerland, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the band 25.5–27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-97)

5.536C In Algeria, Saudi Arabia, Bahrain, Botswana, Brazil, Cameroon, Comoros, Cuba, Djibouti, Egypt, United Arab Emirates, Estonia, Finland, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lithuania, Malaysia, Morocco, Nigeria, Oman, Qatar, Syrian Arab Republic, Somalia, Sudan, Tanzania, Tunisia, Uruguay, Zambia and Zimbabwe, earth stations operating in the space research service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-03)

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.

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)

5.549A In the band 35.5–36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed $-73.3 \text{ dB(W/m}^2\text{)}$ in this band. (WRC-03)

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:

– $230 \text{ dB(W/m}^2\text{)}$ in 1 GHz and $246 \text{ dB(W/m}^2\text{)}$ 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

– $209 \text{ dB(W/m}^2\text{)}$ 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 θ_{min} of the radiotelescope (for which a default value of 5° should be adopted in the absence of notified information).

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

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

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

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC-03)** shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-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/m²) in 1 GHz and –153 dB(W/m²) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and

–116 dB(W/m²) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.

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

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

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

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

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

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

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

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

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

5.561 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.

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

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

5.562A In the bands 94–94.1 GHz and 130–134 GHz, transmissions from space stations of the Earth exploration-satellite service (active) that are directed into the main beam of a radio astronomy antenna have the potential to damage some radio astronomy receivers. Space agencies operating the transmitters and the radio astronomy stations concerned should mutually plan their operations so as to avoid such occurrences to the maximum extent possible.

5.562B In the bands 105–109.5 GHz, 111.8–114.25 GHz, 155.5–158.5 GHz and 217–226 GHz, the use of this allocation is limited to space-based radio astronomy only.

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

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 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 $-144 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ 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.

Annex 2 Reference documents

The Swedish National Post and Telecom Agency's administrative provisions etc.

PTSFS 1999:1	The National Post and Telecom Agency's administrative provisions on the use of amateur radio equipment, etc. <i>(most recently amended by PTSFS 2004:3)</i>
PTSFS 2004:7	The National Post and Telecom Agency's administrative provision on requirements, etc. for radio and telecommunications terminal equipment
PTSFS 2004:8	National Post and Telecom Agency's provisions on exemption from the obligation for a licence for certain radio transmitters

CEPT ECC/ERC Decisions

ERC/DEC/(92)02	ERC Decision of 22 October 1992 on frequency bands to be designated for the co-ordinated introduction of the Road Transport Telematic Systems.
ERC/DEC/(94)01	ERC Decision of 24 October 1994 on the frequency bands to be designated for the co-ordinated introduction of the GSM Digital pan-European communications System.
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).
ERC/DEC/(94)03	ERC Decision of 24 October 1994 on the frequency bands to be designated for the co-ordinated introduction of the Digital European Cordless Telecommunications System.
ERC/DEC(95)01	ERC Decision of 1st December 1995 on the free circulation of radio equipment in CEPT member countries
ERC/DEC(95)03	ERC Decision of 1 December 1995 on the frequency bands to be designated for the introduction of DCS 1800
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
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.
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.

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.
ERC/DEC(97)07	ERC Decision of 30 June 1997 on the frequency bands for the introduction of the Universal Mobile Telecommunications System (UMTS)
ERC/DEC(97)11	ERC Decision of 5 December 1997 on free circulation and use of DCS 1800 mobile terminals in CEPT member countries enlarging the field of application of ERC/DEC/(95)01
ERC/DEC(98)01	ERC Decision of 20 March 1998 on free circulation and use of Inmarsat-D terminals in CEPT member countries enlarging the field of application of ERC/DEC/(95)01
ERC/DEC(98)02	ERC Decision of 20 March 1998 on free circulation and use of Inmarsat-phone (also known as Inmarsat Mini-M) terminals in CEPT member countries enlarging the field of application of ERC/DEC/(95)01
ERC/DEC(98)03	ERC Decision of 20 March 1998 on free circulation and use of EMS-PRODAT terminals in CEPT member countries enlarging the field of application of ERC/DEC/(95)01
ERC/DEC(98)04	ERC Decision of 20 March 1998 on free circulation and use of EMS-MSSAT terminals in CEPT member countries enlarging the field of application of ERC/DEC/(95)01
ERC/DEC(98)20	ERC Decision of 23 November 1998 on Exemption from Individual Licensing of GSM mobile terminals
ERC/DEC(98)21	ERC Decision of 23 November 1998 on Exemption from Individual Licensing of DCS 1800 (also known as GSM 1800) mobile terminals
ERC/DEC(99)05	ERC Decision of 10 March 1999 on Free Circulation, Use and Exemption from Individual Licensing of Mobile Earth Stations of S-PCS<1GHz systems
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)
ERC/DEC(99)17	ERC Decision of 1 June 1999 on the Automatic Identification and Surveillance system (AIS) channels in the maritime VHF band
ERC/DEC(99)23	ERC Decision of 29 November 1999 on the harmonised frequencybands to be designated for the introduction of High Performance Radio Local Area Networks (HIPERLANs)

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
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)
ERC/DEC(00)06	ERC Decision of 19 October 2000 on the licensing and global circulation and use of IMT-2000 terrestrial and satellite mobile terminals
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
ECC/DEC(02)03	ECC Decision of 15 March 2002 on the availability of frequency bands for the introduction of Narrow Band Digital Land Mobile PMR/PAMR in the 400 MHz band
ECC/DEC(02)05	ECC Decision of 5 July 2002 on the designation and availability of frequency bands for railway purposes in the 876-880 MHz and 921-925 MHz bands
ECC/DEC(02)06	ECC Decision of 15 November 2002 on the designation of frequency band 2500-2690 MHz for UMTS/IMT-2000
ECC/DEC(02)09	ECC Decision of 15 November 2002 on free circulation and use of GSM-R mobile terminals operating within the frequency bands 876-880 MHz and 921-925 MHz for railway purposes in CEPT countries, enlarging the field of application of ERC/DEC/(95)01
ECC/DEC(02)10	ECC Decision of 15 November 2002 on exemption from individual licensing of GSM-R mobile terminals operating within the frequency bands 876-880 MHz and 921-925 MHz for railway purposes
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
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
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

CEPT ECC/ERC Recommendations

ERC/REC T/R 12-01	Harmonized radio frequency channel arrangements for analogue and digital terrestrial fixed systems operating in the band 37 GHz – 39,5 GHz.
ERC/REC T/R 13-01	Preferred channel arrangements for fixed services in the range 1 – 3 GHz.
ERC/REC T/R 13-02	Preferred channel arrangements for fixed services in the range 22.0–29.5 GHz.
ERC/REC T/R 22-02	Frequency band to be designated for the European digital cordless telecommunication system (DECT)
ERC/REC T/R 25-08	Coordination of frequencies in the Land Mobile Service in the range 29.7 – 960 MHz
ERC/REC 12-02	Harmonised radio frequency channel arrangement for analogue and digital terrestrial fixed systems operating in the band 12,75 GHz to 13,25 GHz.
ERC/REC 12-03	Harmonised radio frequency channel arrangements for digital terrestrial fixed systems operating in the band 17.7 GHz to 19.7 GHz
ERC/REC 12-05	Harmonised radio frequency channel arrangement for digital terrestrial fixed systems operating in the band 10,0 – 10,68 GHz.
ERC/REC 12-08	Harmonised radio frequency channel arrangements and block allocations for low, medium and high capacity systems in the band 3600 MHz to 4200 MHz
ERC/REC 12-09	Radio frequency channel arrangement for fixed service systems operating in the band 57,0 – 59,0 GHz which do not require frequency planning.
ERC/REC 12-10	Harmonised radio frequency arrangement for digital systems operating in the band 48,5 – 50,2 GHz.
ERC/REC 12-11	Radio frequency channel arrangement for fixed service systems operating in the band 51,4 – 52,6 GHz.
ERC/REC 12-12	Radio frequency channel arrangement for fixed service systems operating in the band 55,78 – 57,0 GHz.
ERC/REC 14-03	Harmonised radio frequency channel arrangement and allocations for low and medium capacity systems in the band 3400 MHz to 3600 MHz.

- ERC/REC 01-02** Preferred channel arrangement for digital fixed service systems operating in the frequency band 31,8 – 33,4 GHz.
- ECC/REC 02-02** Channel arrangements for digital fixed service systems (point-to-point and point-to-multipoint) operating in the frequency band 31 – 31.3 GHz

EC legal acts

- 87/372/EEC¹** Council Directive of 25 June 1987 on the frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community (GSM).
- 90/544/EEC²** Council Directive of 9 October 1990 on the frequency bands designated for the coordinated introduction of pan-European land-based public radio paging in the Community (ERMES).
- 91/287/EEC³** Council Directive of 3 June 1991 on the frequency band to be designated for the coordinated introduction of digital European cordless telecommunications (DECT) into the Community.
- 1999/5/EC⁴** Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive).
- 676/2002/EC⁵** Decision of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision).
- 2002/20/EC⁶** Directive of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services (Authorisation Directive).

¹ OJ L196, 17.7.1987, s. 85 (Celex 387L0372).

² OJ L310, 9.11.1990, s. 28 (Celex 390L0544).

³ OJ L144, 8.6.1991, s. 45 (Celex 391L0287).

⁴ OJ L 91, 7.4.1999, s. 10 (Celex 399L0005).

⁵ OJ L 108, 24.4.2002, s. 1 (Celex 302D0676).

⁶ OJ L 108, 24.4.2002, s. 21 (Celex 302L0020).

2002/21/EC⁷

Directive of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive).

2005/50/EC⁸

Decision of the European Commission of 17 January 2005 on harmonisation of the 24 GHz band for the time-limited use by automotive SRR equipment in the Community.

⁷ OJ L 108, 24.4.2002, s. 33 (Celex 302L0021).

⁸ OJ L 21, 25.1.2005, s. 15 (Celex 32005D0050)

Annex 3 Swedish Channel Plans

This Annex contains channel plans, specific to Sweden, relating to fixed radio communications in certain frequency bands above 370 MHz where specific Swedish channel plans are used which differ from the channel plans of CEPT. Some of the frequency bands listed below are also available to mobile radio communications, which may restrict the possibility of using all channels for fixed traffic.

Frequency band	Channel width (MHz)	Formula for calculating the centre frequency (MHz) etc.
370,0 – 371,0 / 386,0 – 387,0 MHz	0,025	$f_n = 378,5 - 8,525 + 0,025n$ $f_n = 378,5 + 7,475 + 0,025n$ $n = 1, 2, 3 \dots 40$
374,0 – 376,0 / 387,0 – 389,0 MHz	0,025	$f_n = 381,5 - 7,5 + 0,025n$ $f_n = 381,5 + 5,5 + 0,025n$ $n = 1, 2, 3 \dots 79$
	0,0125	$f_n = 381,5 - 7,49375 + 0,0125n$ $f_n = 381,5 + 5,50625 + 0,0125n$ $n = 1, 2, 3 \dots 158$
5,925 – 6,425 GHz	29,65	$f_n = 6175 - 259,45 + 29,65n$ $f_n = 6175 - 7,41 + 29,65n$ $n = 1, 2, 3 \dots 8$
6,425 – 7,125 GHz	40	$f_n = 6770 - 350 + 40n$ $f_n = 6770 - 10 + 40n$ $n = 1, 2, 3 \dots 8$
	20	$f_n = 6770 - 350 + 20n$ $f_n = 6770 - 10 + 20n$ $n = 1, 2, 3 \dots 16$
7,4245 – 7,7255 GHz	28	$f_n = 7575 - 164,5 + 28n$ $f_n = 7575 - 3,5 + 28n$ $n = 1, 2, 3 \dots 5$
	14	$f_n = 7575 - 157,5 + 14n$ $f_n = 7575 + 3,5 + 14n$ $n = 1, 2, 3 \dots 10$
	7	$f_n = 7575 - 154 + 7n$ $f_n = 7575 + 7 + 7n$ $n = 1, 2, 3 \dots 20$
	3,5	$f_n = 7575 - 150,5 + 3,5n$ $f_n = 7575 + 10,5 + 3,5n$ $n = 1, 2, 3 \dots 39$
7,764 – 8,492 GHz	28	$f_n = 8128 - 378 + 28n$ $f_n = 8128 - 14 + 28n$ $n = 1, 2, 3 \dots 13$

9,8 – 10 GHz	25; 20; 15; 10; 5	$f_n = 9900 - 100 + 5n$ $f_n = 9900 + 5n$ $n = 1, 2, 3 \dots 19$
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Frequency band	Channel width (MHz)	Formula for calculating the centre frequency (MHz) etc.
14,501 – 14,613 GHz och 14,921 – 15,033 GHz	28	$f_n = 11701 + 2786 + 28n$ $f_n = 11701 + 3206 + 28n$ $n = 1, 2, 3 \dots 4$
	14	$f_n = 11701 + 2793 + 14n$ $f_n = 11701 + 3213 + 14n$ $n = 1, 2, 3 \dots 8$
	7	$f_n = 11701 + 2796,5 + 7n$ $f_n = 11701 + 3216,5 + 7n$ $n = 1, 2, 3 \dots 16$
	3,5	$f_n = 11701 + 2800 + 3,5n$ $f_n = 11701 + 3220 + 3,5n$ $n = 1, 2, 3 \dots 31$
14,725 – 14,823 GHz och 15,145 – 15,243 GHz	14	$f_n = 11701 + 3017 + 14n$ $f_n = 11701 + 3437 + 14n$ $n = 1, 2, 3 \dots 7$
	7	$f_n = 11701 + 3020,5 + 7n$ $f_n = 11701 + 3440,5 + 7n$ $n = 1, 2, 3 \dots 14$
	3,5	$f_n = 11701 + 3024 + 3,5n$ $f_n = 11701 + 3444 + 3,5n$ $n = 1, 2, 3 \dots 27$
21,2 – 21,95 GHz	28	$f_n = 21196 - 7 + 28n$ $f_n = 21196 + 357 + 28n$ $n = 1, 2, 3 \dots 13$