European Radiocommunications Committee (ERC)
within the European Conference of Postal and Telecommunications Administrations (CEPT)

FREQUENCY RANGE 29.7 MHz TO 105 GHz AND ASSOCIATED EUROPEAN TABLE OF FREQUENCY ALLOCATIONS AND UTILISATIONS

Brussels, June 1994
revised in Bonn, March 1995 and in Brugge, February 1998

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1 INTRODUCTION

Following the World Administrative Radio Conference in 1992 which allocated spectrum to new services in the 1 - 3 GHz frequency range CEPT began to develop a general plan to promote the harmonised European use of frequencies within the band 1350 - 2690 MHz. Particular importance was attached to the early development of such a general plan in order to provide a framework for the implementation of the decisions of WARC-92 and the consequential changes required, in a harmonised way, throughout CEPT member countries and to provide the necessary guidance for European radio equipment manufacturers to commence production.

Since then CEPT has endorsed the principle of adopting a harmonised European Table of Frequency Allocations and Utilisations by the year 2008. This work is being progressed by the CEPT ERC's European Radiocommunications Office (ERO) through a series of Detailed Spectrum Investigations (DSIs) which consider in turn different frequency ranges. The frequency range 960 - 3400 MHz has not yet been covered by a DSI. However, the frequency range 860 – 3400 MHz is due to be covered by DSI Phase III during 1998/99. Therefore, in view of the urgency of requiring a common European position in the spectrum between 960 - 3400 MHz and the timescales involved in the production of the DSIs it was decided to take advantage of the work already being undertaken by CEPT for the frequency band 1350 - 2690 MHz by extending the frequency range to cover this broader band. The frequency range 29.7 - 960 MHz was covered by DSI Phase II and the range 3.4 - 105 GHz was covered by DSI Phase I which has lead to an agreed frequency allocation and utilisation plan.

2 WARC-92, WRC-95 and WRC-97

Due account has been taken of the relevant decisions of the World Radio Conferences WARC-92, WRC-95 and WRC-97 and of strategies developed by other international fora concerning, in particular, the introduction and development of mobile and mobile-satellite services.

3 EUROPEAN TABLE OF FREQUENCY ALLOCATIONS AND UTILISATIONS

A European Table of Frequency Allocations and Utilisations for the frequency band 29.7 MHz to 105 GHz expected beyond the year 2008 has been developed and is attached as Annex 1 to this Report. Although the implementation of this Table has been arranged for the year 2008 it is expected that CEPT member countries will endeavour to implement, as soon as possible, as many parts of the Table as they are able. It is also expected that the Table will be used as a source document by CEPT member countries for the development of Recommendations, Decisions, and European Common Proposals (ECPs) for future Radio Conferences of the ITU dealing with this frequency range.

This Report and its associated table will be reviewed periodically and revised as necessary by the ERC taking into account the results of World Radio Conferences, future DSIs, ERC Decisions and other relevant developments.

4 CEPT DECISIONS AND RECOMMENDATIONS

During the preparation of the Table account was taken of work already completed by CEPT in respect of systems expected to operate in this frequency range. The ERC Decisions and ERC Recommendations, which are relevant to this frequency range, have been incorporated into the Table and are listed in Annex 4.

5 MILITARY REQUIREMENTS

Liaison with military authorities from CEPT countries has also been necessary in view of their use of, and requirements in, this frequency range. Although no single representative military body exists for all CEPT member countries, the North Atlantic Treaty Organisation (NATO) has a Joint Civil/Military Frequency Agreement (NJFA) which was felt to be a useful basis from which to develop a view of military frequency requirements. A forum that allows both civil and military frequency managers from all CEPT countries to meet has also been established by CEPT. This forum established a project team (JPT1) which has looked in detail at

the requirements for harmonised military usage of spectrum to meet the needs of both NATO and non-NATO CEPT countries. The results of the studies by JPT1 are reflected in the Table.

Military requirements vary both between activities and countries. In some countries national requirements may be more than the harmonised band, in other countries for the time being there may be no national requirements in a specific harmonised band.

In general, the harmonised military bands should provide *a common military frequency resource* in order to allow systems to operate in common border areas, facilitate common exercises and Peace Keeping Operations (PKO), include the core frequency assets for day-to-day training, exercise, combat readiness and employment and support electronic countermeasures (ECM) training.

Any spectrum reorganisation should aim at a provision of a common military frequency resource in accordance with the ECA.

ANNEX 1

EUROPEAN TABLE OF FREQUENCY ALLOCATIONS AND UTILISATIONS IN THE RANGE 29.7 MHz TO 105 GHz EXPECTED BEYOND THE YEAR 2008

EXPLANATORY NOTES TO THE TABLE

The heading of this table includes five columns, with the following contents:

Column 1: Frequency Band
Indicates the frequency band referred to in that row of the table

Column 2: RR Region 1 Allocations and relevant footnotes
Contains in each frequency band:
- Current RR Article S5 allocations which correspond to Region 1.
- Current RR Article S5 footnotes
- Underlined footnotes are additional allocations to one or more CEPT member countries.

See Annex 3 for description of RR Article S5 footnotes.

Column 3: European Common Allocation (ECA)
Contains in each frequency band:
- Allocations of major use or major interest in CEPT member countries expected beyond 2008.
- RR Art. S5 footnotes affecting a major number of CEPT countries beyond 2008.

Column 4: Major utilisation
This column includes where appropriate in each frequency band and for the services allocated in the European Common Allocation:
- The major uses in CEPT member countries expected beyond 2008.
- Mention of systems expected to be in use in a major number of CEPT member countries beyond the year 2008.

Mention of specific utilisations of a given service does not preclude the use of other services mentioned in the European Common Allocation.

Column 5: Notes
This column indicates where appropriate in each frequency band:
- EU footnotes (see Annex 2 for description of footnotes).
- Mention of relevant ERC Decisions and/or ERC Recommendations approved by the ERC.
- Where applicable, the date of entry into force of:
  a) a specific allocation of the European Common Allocation column.
  b) ERC Decision / ERC Recommendation mentioned in the utilisations column.
  c) major utilisation contained in the utilisation column.
- Any other relevant information such as the nature of use of a major utilisation.

In respect of **defence systems** two terms are used with the associated definitions:

1) Common military tuning range:- A common military tuning range is normally a recommended tuning range for radio equipment operating across harmonised military bands. Such a tuning range forms the basis for planning of future military equipment procurement.

2) Harmonised military band:- A frequency band which is in general military use in Europe and identified for military utilisation in the European Common Allocation Table (ECA). Such a frequency band forms a basis for military use and planning. The band can be shared between civil and military users according to national requirements and legislation.

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Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
29.700 - 30.005 MHz	FIXED MOBILE	MOBILE	Defence systems. Radio microphones, under study.	EU1 EU2
30.005 - 30.010 MHz	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	MOBILE	Defence systems. Radio microphones, under study.	EU1 EU2
30.01 - 37.50 MHz	FIXED MOBILE	MOBILE	PMR. Defence systems. Radio microphones 30.01 - 34.90 MHz. Model control 34.995 - 35.225 MHz (exclusive allocation).	EU1 EU2 EU27 ERC Recommendation CEPT/ERC/REC 70-03. The bands 30.3 - 30.5 MHz and 32.15 - 32.45 MHz are harmonised military bands.
37.50 - 38.25 MHz	FIXED MOBILE Radio Astronomy S5.149	MOBILE except Aeronautical Mobile Radio Astronomy S5.149	PMR. Defence systems.	EU1 EU2 RA continuum measurements.
38.250 - 39.986 MHz	FIXED MOBILE	MOBILE	PMR. Defence systems.	EU1 EU2 39.0 - 39.2 MHz is under study as a harmonised band for meteor-scatter applications.
39.986 - 40.020 MHz	FIXED MOBILE Space Research	MOBILE Space Research	PMR. Defence systems.	EU1 EU2
40.02 - 40.66 MHz	FIXED MOBILE S5.150	MOBILE	PMR. Defence systems.	EU1 EU2
40.660 - 40.700 MHz		MOBILE S5.150	Defence systems. ISM. General SRD.	EU1 EU2 ERC Recommendation CEPT/ERC/REC 70-03.
40.70 - 40.98 MHz		MOBILE	PMR. Defence systems.	EU1 EU2
40.980 - 41.015 MHz	FIXED MOBILE Space Research S5.160 S5.161	MOBILE Space Research	PMR. Defence systems.	EU1 EU2
41.015 - 44.000 MHz	FIXED MOBILE S5.160 S5.161	MOBILE	PMR. Defence systems.	EU1 EU27 This is a harmonised military band.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
44.0 - 46.4 MHz	FIXED MOBILE S5.162A	MOBILE S5.162A	PMR. Defence systems.	EU1 EU27 This is a harmonised military band. Geographical sharing with wind profiler radars in the range 46 - 68 MHz.
46.4 - 47.0 MHz		MOBILE except Aeronautical Mobile S5.162A	PMR. Defence systems.	EU1 EU27 This is a harmonised military band. Geographical sharing with wind profiler radars in the range 46 – 68 MHz.
47 – 48 MHz	BROADCASTING S5.162A S5.163 S5.164 S5.165 S5.169 S5.171	LAND MOBILE S5.162A S5.164	PMR. On-site paging in the band 47.00 - 47.25 MHz. Defence systems.	EU1 EU2 EU3 Geographical sharing with wind profiler radars in the range 46 – 68 MHz.
48.0 - 48.5 MHz		LAND MOBILE S5.162A S5.164	PMR. SAB. Defence systems.	EU1 EU2 EU3 Geographical sharing with wind profiler radars in the range 46 – 68 MHz.
48.5 - 50.0 MHz		LAND MOBILE S5.162A S5.164	PMR. General SRD 49.50 - 50.00 MHz. Defence systems.	EU1 EU2 EU3 Geographical sharing with wind profiler radars in the range 46 – 68 MHz.
50 - 51 MHz		LAND MOBILE Amateur S5.162A S5.164	PMR. Defence systems.	EU1 EU2 EU3 Geographical sharing with wind profiler radars in the range 46.0 – 68.0 MHz.
51 - 52 MHz		LAND MOBILE Amateur S5.162A S5.164	PMR. Defence systems.	EU1 EU2 EU3 Geographical sharing with wind profiler radars in the range 46 – 68 MHz.
52 - 54 MHz		LAND MOBILE S5.162A S5.164	PMR. SAB. Defence systems.	EU1 EU2 EU3 Geographical sharing with wind profiler radars in the range 46 – 68 MHz.
54 - 61 MHz		LAND MOBILE S5.162A S5.164	PMR. SAB. Defence systems.	EU1 EU2 EU3 ERC Recommendation T/R 25-08, Annex 2b, ML paired with 61 - 68 MHz. Geographical sharing with wind profiler radars in the range 46 – 68 MHz.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
61 - 68 MHz	BROADCASTING S5.162A S5.164 S5.165 S5.169 S5.171	LAND MOBILE S5.162A S5.164	PMR. Defence systems.	EU1 EU2 EU3 ERC Recommendation T/R 25-08, Annex 2b, FB paired with 54 - 61 MHz. Geographical sharing with wind profiler radars in the range 46 - 68 MHz.
68.00 - 70.45 MHz	FIXED MOBILE except Aeronautical Mobile S5.149 S5.174 S5.175 S5.177 S5.179	MOBILE	PMR. Defence systems.	EU1 EU2 EU4 ERC Recommendation T/R 25-08, Annex 2b, ML paired with 77.80 - 80.25 MHz.
70.45 - 74.80 MHz		MOBILE except Aeronautical Mobile Radio Astronomy S5.149	PMR. Defence systems.	EU1 EU2 EU4 EU27 ERC Recommendation T/R 25-08, Annex 2.b, ML paired with 80.25 - 84.60 MHz. 73.3 - 74.1 MHz is a harmonised military band. RA continuum measurements. RA: 73.0 - 74.6 MHz for solar wind monitoring.
74.8 - 75.2 MHz	AERONAUTICAL RADIONAVIGATION S5.180 S5.181	AERONAUTICAL RADIONAVIGATION S5.180 S5.181	ILS/Marker beacons.	EU1
75.2 - 77.7 MHz	FIXED MOBILE except aeronautical mobile S5.175 S5.179 S5.184 S5.187	MOBILE	PMR. Defence systems.	EU1 EU2 ERC Recommendation T/R 25-08, Annex 2b, ML paired with 85.00 - 87.50 MHz.
77.7 - 77.8 MHz		MOBILE	PMR. Defence systems.	EU1 EU2 ERC Recommendation T/R 25-08, Annex 2b, Single frequency.
77.8 - 84.6 MHz		MOBILE	PMR. Defence systems.	EU1 EU2 EU27 ERC Recommendation T/R 25-08, Annex 2b, FB paired with 68.00 - 74.80 MHz. Harmonised military band 79.0-79.7 MHz.
84.6 - 85.0 MHz		MOBILE	PMR. Defence systems.	EU1 EU2 ERC Recommendation T/R 25-08, Annex 2b, Single frequency.
85.0 - 87.5 MHz		MOBILE	PMR. Defence systems.	EU1 EU2 ERC Recommendation T/R 25-08, Annex 2b, FB paired with 75.20 - 77.70 MHz.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
87.5 - 100.0 MHz	BROADCASTING S5.190	BROADCASTING	FM sound broadcasting Geneva Agreement 1984.	
100 - 108 MHz	BROADCASTING S5.194	BROADCASTING	FM sound broadcasting Geneva Agreement 1984.	
108.000 - 117.975 MHz	AERONAUTICAL RADIONAVIGATION S5.197	AERONAUTICAL RADIONAVIGATION S5.197	ILS/Localiser 108 - 112 MHz. VOR 108.000 - 117.975 MHz.	
117.975 - 121.450 MHz	AERONAUTICAL MOBILE (R) S5.111 S5.198 S5.199 S5.200 S5.201	AERONAUTICAL MOBILE (R) S5.200	Aeronautical mobile communications for safety and regularity of flight.	EU5
121.45 - 121.55 MHz		MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL MOBILE S5.199 S5.200	EPIRB	Band only available for distress and safety purposes.
121.55 - 136.00 MHz		AERONAUTICAL MOBILE (R) S5.200 S5.201 S5.202	Aeronautical mobile communications for safety, regularity of flight, airline business and airport mobile communications.	EU5
136 - 137 MHz	AERONAUTICAL MOBILE (R) S5.202 S5.203 S5.203A S5.203B			
137.000 - 137.025 MHz	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 Fixed Mobile except Aeronautical mobile (R) S5.204 S5.205 S5.206 S5.208	METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 Space Operation (space-to-Earth) Space Research (space-to-Earth) S5.206 S5.208	Meteorological Satellite. Low earth orbiting satellites.	EU6 Mobile restricted to Aeronautical Mobile (OR), including air sport.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
137.025 - 137.175 MHz	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-Satellite (space-to-Earth) S5.208A S5.209 Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.208	METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE Mobile-Satellite (space-to-Earth) S5.208A S5.209 Space Operation (space-to-Earth) Space Research (space-to-Earth) S5.206 S5.208	Meteorological Satellite. Low earth orbiting satellites.	EU6 Mobile restricted to Aeronautical Mobile (OR), including air sport.
137.175 - 137.825 MHz	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.208	METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 Space Operation (space-to-Earth) Space Research (space-to-Earth) S5.206 S5.208	Meteorological Satellite. Low earth orbiting satellites.	EU6 Mobile restricted to Aeronautical Mobile (OR), including air sport.
137.825 - 138.000 MHz	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-Satellite (space-to-Earth) S5.208A S5.209 Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.208	METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE Mobile-Satellite (space-to-Earth) S5.208A S5.209 Space Operation (space-to-Earth) Space Research (space-to-Earth) S5.206 S5.208	Meteorological Satellite. Low earth orbiting satellites.	EU6 Mobile restricted to Aeronautical Mobile (OR), including air sport.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
138.0 - 143.6 MHz	AERONAUTICAL MOBILE (OR) S5.210 S5.211 S5.212 S5.214	AERONAUTICAL MOBILE (OR) LAND MOBILE Space Research (space-to-Earth) S5.210 S5.211	Air operation control. Various mobile applications. SRD.	EU2 EU5 EU27 This is a harmonised military band. SRDs in the band 138.20 - 138.45 MHz. ERC Recommendation CEPT/ERC/REC 70-03.
143.60 - 143.65 MHz	AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) S5.211 S5.212 S5.214	AERONAUTICAL MOBILE (OR) LAND MOBILE SPACE RESEARCH (space-to-Earth) S5.211	Air operation control. Various mobile applications.	EU2 EU5 EU27 This is a harmonised military band.
143.65 - 144.00 MHz	AERONAUTICAL MOBILE (OR) S5.210 S5.211 S5.212 S5.214	AERONAUTICAL MOBILE (OR) LAND MOBILE S5.210 S5.211	Air operation control. Various mobile applications.	EU2 EU5 EU27 This is a harmonised military band.
144 - 146 MHz	AMATEUR S5.120 AMATEUR-SATELLITE	AMATEUR S5.120 AMATEUR-SATELLITE		
146.0 - 146.8 MHz	FIXED MOBILE except aeronautical mobile (R)	MOBILE	PMR	EU7 ERC Recommendation T/R 25-08, Annex 2b, Single frequency.
146.8 - 148.0 MHz		MOBILE	PMR	EU7 ERC Recommendation T/R 25-08, Annex 2b, ML paired with 151.4 - 152.6 MHz.
148.0 - 148.4 MHz	FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) S5.209 S5.218 S5.219 S5.221	MOBILE-SATELLITE (Earth-to-space) S5.209 MOBILE S5.218 S5.219 S5.221	Low earth orbiting satellites. PMR.	EU6 EU7 ERC Recommendation T/R 25-08, Annex 2b, ML paired with 152.6 - 153.0 MHz.
148.4 - 149.9 MHz		MOBILE-SATELLITE (Earth-to-space) S5.209 MOBILE S5.218 S5.219 S5.221	Low earth orbiting satellites. PMR.	EU6 EU7 ERC Recommendation T/R 25-08, Annex 2b, ML paired with 153.0 - 154.5 MHz.
149.90 - 150.05 MHz	MOBILE-SATELLITE (Earth-to-space) S5.209 S5.224A RADIONAVIGATION-SATELLITE S5.224B S5.220 S5.222 S5.223	RADIONAVIGATION-SATELLITE S5.224B MOBILE-SATELLITE (Earth-to-space) S5.209 S5.224A MOBILE S5.220 S5.222 S5.223	Low earth orbiting satellites. PMR.	EU6 ERC Recommendation T/R 25-08, Annex 2b, Single frequency.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
150.05 - 151.40 MHz	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149	MOBILE except Aeronautical Mobile RADIO ASTRONOMY S5.149	PMR. Radio astronomy applications.	EU7 ERC Recommendation T/R 25-08, Annex 2b, ML paired with 154.65 - 156.00 MHz. RA continuum measurement and pulsar/solar observation.
151.4 - 153.0 MHz		MOBILE except Aeronautical Mobile RADIO ASTRONOMY S5.149	PMR. Radio astronomy applications.	EU7 ERC Recommendation T/R 25-08, Annex 2b, FB paired with 146.8 - 148.4 MHz. RA continuum measurement and pulsar/solar observation.
153 - 154 MHz	FIXED MOBILE except aeronautical mobile (R) Meteorological Aids	MOBILE except Aeronautical Mobile	PMR	EU7 ERC Recommendation T/R 25-08, Annex 2b, FB paired with 148.4 - 149.9 MHz.
154.0 - 154.5 MHz	FIXED MOBILE except aeronautical mobile (R) S5.226 S5.227			
154.50 - 154.65 MHz		MOBILE except Aeronautical Mobile	PMR	EU7 ERC Recommendation T/R 25-08, Annex 2b, Single frequency.
154.65 - 156.00 MHz		MOBILE except Aeronautical Mobile	PMR	EU7 ERC Recommendation T/R 25-08, Annex 2b, FB paired with 150.05 - 151.40 MHz.
156.0000 - 156.5125 MHz		MOBILE except Aeronautical Mobile S5.226	RR Appendix 18	EU7 EU8 Ship station, paired with 160.600 - 160.950 MHz / single frequency 156.375 - 156.5125 MHz.
156.5125 - 156.5375 MHz		MARITIME MOBILE S5.226 S5.227	156.525 MHz digital selective call for distress, safety and calling.	
156.5375 - 156.7625 MHz		MOBILE except Aeronautical Mobile S5.226	RR Appendix 18	EU7 EU8 Single frequency.
156.7625 - 156.8375 MHz	MARITIME MOBILE (distress and calling) S5.111 S5.226	MARITIME MOBILE S5.111 S5.226	International distress, safety and call frequency + guard bands.	

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
156.8375 - 157.4500 MHz	FIXED MOBILE except Aeronautical mobile S5.226 S5.229	MOBILE except Aeronautical Mobile S5.226	RR Appendix 18. 156.8375 - 156.8750 MHz single frequency maritime.	EU7 EU8 Ship station, paired with 161.500 - 162.050 MHz / single frequency 156.850 MHz.
157.45 - 160.60 MHz		MOBILE except Aeronautical Mobile	PMR	EU7 ERC Recommendation T/R 25-08, Annex 2b, ML paired with 162.050 - 165.200 MHz.
160.600 - 160.975 MHz		MOBILE except Aeronautical Mobile S5.226	RR Appendix 18	EU7 EU8 Coast station, paired with 156.000 156.375 MHz.
160.975 - 161.475 MHz		MOBILE except Aeronautical Mobile	PMR	EU7 ERC Recommendation T/R 25-08, Annex 2b, Single frequency.
161.475 - 162.050 MHz		MOBILE except Aeronautical Mobile S5.226	RR Appendix 18	EU7 EU8 Coast station, paired with 156.875 – 157.450 MHz.
162.05 – 165.20 MHz		MOBILE except Aeronautical Mobile	PMR	EU7 ERC Recommendation T/R 25-08, Annex 2b, FB paired with 157.450 - 160.600 MHz.
165.200 - 165.225 MHz		MOBILE except Aeronautical Mobile	PMR	
165.225 - 169.400 MHz		MOBILE except Aeronautical Mobile	PMR	EU7 ERC Recommendation T/R 25-08, Annex 2b, ML paired with 169.825 - 174.000 MHz.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
169.400 - 169.825 MHz	FIXED MOBILE except Aeronautical mobile S5.226 S5.229	MOBILE except Aeronautical Mobile	ERMES 169.4125-169.8125 MHz PMR.	EU7 ERC Decision CEPT/ERC/DEC/(94)02 ERMES in the band 169.4125-169.8125 MHz. ERC Recommendation T/R 25-08, Annex 2b, Single frequency.
169.825 - 174.000 MHz		MOBILE except Aeronautical Mobile	PMR	EU7 ERC Recommendation T/R 25-08, Annex 2b, FB paired with 165.225 - 169.400 MHz.
174 – 216 MHz	BROADCASTING S5.235 S5.237 S5.243	BROADCASTING LAND MOBILE S5.235	TV Stockholm Agreement 1961. T-DAB Wiesbaden Special Arrangement 1995. Radio microphones on a tuning range basis, under study.	EU9 ERC Recommendation T/R 25-05. ERC Recommendation T/R 52-02.
216 - 223 MHz		BROADCASTING S5.235	T-DAB Wiesbaden Special Arrangement 1995.	ERC Recommendation T/R 52-02. Existing TV transmitters according to Stockholm Agreement 1961.
223 – 225 MHz	BROADCASTING FIXED MOBILE S5.243 S5.246 S5.247	BROADCASTING	T-DAB Wiesbaden Special Arrangement 1995.	ERC Recommendation T/R 52-02.
225 - 230 MHz		BROADCASTING Land Mobile	T-DAB Wiesbaden Special Arrangement 1995.	EU10 ERC Recommendation T/R 52-02. T-DAB sharing with defence on national basis. This band is within the military tuning range 225 - 400 MHz.
230 – 235 MHz	FIXED MOBILE S5.247 S5.251 S5.252	MOBILE	T-DAB Defence systems.	EU10 EU27 ERC Recommendation T/R 52-02. This is a harmonised military band. T-DAB allotments in this band according to Wiesbaden Special Arrangement 1995. T-DAB sharing with defence on a national basis.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
235 – 240 MHz	FIXED MOBILE S5.111 S5.199 S5.252 S5.254 S5.256	MOBILE S5.254	T-DAB Defence systems.	EU10 EU27 ERC Recommendation T/R 52-02. This is a harmonised military band. T-DAB allotments in this band according to Wiesbaden Special Arrangement 1995. T-DAB sharing with defence on a national basis.
240.00 – 242.95 MHz		MOBILE S5.254	Defence systems.	EU10 EU27 Air Traffic Control. This is a harmonised military band.
242.95 - 243.05 MHz		MOBILE SATELLITE (Earth-to-space) AERONAUTICAL MOBILE S5.199 S5.254 S5.256	EPIRB	Band only available for distress and safety purposes.
243.05 - 267.00 MHz		MOBILE S5.254	Defence systems.	EU10 EU27 Air Traffic Control. This is a harmonised military band.
267 - 272 MHz	FIXED MOBILE Space Operation (space -Earth) S5.254 S5.257	MOBILE S5.254	Defence systems.	EU10 EU27 Air Traffic Control. This is a harmonised military band.
272 – 273 MHz	SPACE OPERATION (space-to-Earth) FIXED MOBILE S5.254	MOBILE S5.254	Defence systems.	EU10 EU27 Air Traffic Control (ATC) This is a harmonised military band.
273 – 312 MHz	FIXED MOBILE S5.254	MOBILE S5.254	Defence systems.	EU10 EU27 Air Traffic Control. This is a harmonised military band.
312 - 315 MHz	FIXED MOBILE Mobile-Satellite (Earth-to-space) S5.254 S5.255	MOBILE S5.254 S5.255	Defence systems.	EU10 EU27 Air Traffic Control. This is a harmonised military band.
315 – 322 MHz	FIXED MOBILE S5.254	MOBILE S5.254	Defence systems.	EU10 EU27 Air Traffic Control. This is a harmonised military band.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
322.0 – 328.6 MHz	FIXED MOBILE RADIO ASTRONOMY S5.149	MOBILE RADIO ASTRONOMY S5.149	Defence systems. Radio astronomy applications.	EU10 EU27 This is a harmonised military band. RA continuum measurements, also VLBI.
328.6 - 335.4 MHz	AERONAUTICAL RADIONAVIGATION S5.258 S5.259	AERONAUTICAL RADIONAVIGATION S5.258 S5.259	ILS/Glide path	EU2
335.4 - 380.0 MHz	FIXED MOBILE S5.254	MOBILE S5.254	Defence systems	EU7 EU10 EU27 Air Traffic Control. This is a harmonised military band.
380 – 385 MHz		MOBILE S5.254	Emergency services Defence systems.	EU2 EU10 EU27 ERC Decision ERC/DEC/(96)01 ERC Recommendation T/R 02-02 ERC Recommendation T/R 22-05, ML paired with 390.00 – 395.00 MHz. This is a harmonised military band. Emergency services sharing with defence applications.
385 - 387 MHz		MOBILE S5.254 S5.255	Digital land mobile – TETRA Defence systems.	EU2 EU10 EU27 ERC Decision ERC/DEC(96)04. ERC Recommendation T/R 22-05, ML paired with 395.00 - 399.90 MHz. This is a harmonised military band.
387 – 390 MHz	FIXED MOBILE Mobile-Satellite (space-to-Earth) S5.208A S5.254 S5.255			

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
390 – 395 MHz	FIXED MOBILE S5.254	MOBILE S5.254	Emergency services. Defence systems.	EU2 EU10 EU27 ERC Decision ERC/DEC/(96)01. ERC Recommendation T/R 02-02. ERC Recommendation T/R 22-05, FB paired with 380 - 385 MHz. This is a harmonised military band. Emergency services sharing with defence applications.
395.0 - 399.9 MHz		MOBILE S5.254	Digital land mobile - TETRA. Defence systems.	EU2 EU10 EU27 ERC Decision ERC/DEC(96)04. ERC Recommendation T/R 22-05 FB paired with 385 - 389.9 MHz. This is a harmonised military band.
399.90 - 400.0500 MHz	MOBILE- SATELLITE (Earth- space) S5.209 S5.224A S5.220 RADIONAVIGATION-SATELLITE S5.222 S5.224B S5.260	RADIONAVIGATION-SATELLITE S5.222 S5.224B S5.260 MOBILE SATELLITE (Earth- space) S5.209 S5.224A S5.220		
400.0500 - 400.150 MHz	STANDARD FREQUENCY AND TIME SIGNAL SATELLITE (400.1 MHz) S5.261 S5.262	MOBILE		
400.15 - 401.00 MHz	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) S5.263 MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 Space Operation (space-to-Earth) S5.262 S5.264	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) S5.263 MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 S5.264	Low earth orbiting satellites. Meteorological radio sondes.	

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
401 – 402 MHz	METEOROLOGICAL AIDS EARTH EXPLORATION-SAT (Earth-to-space) METEOROLOGICAL SATELLITE (Earth-to-space) SPACE OPERATION (space-to-Earth) Fixed Mobile except aeronautical mobile	EARTH EXPLORATION-SAT (Earth-to-space) METEOROLOGICAL AIDS METEOROLOGICAL SATELLITE (Earth-to-space)	Meteorological radio sondes. Meteorological satellites, data collection platform.	EU2 EU11 ERC Recommendation CEPT/ERC/REC 70-03, ultra low power medical implants (3MHz within the band 401-406 MHz under study).
402 - 403 MHz	METEOROLOGICAL AIDS EARTH EXPLORATION-SAT (Earth-to-space) METEOROLOGICAL SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	METEOROLOGICAL AIDS EARTH EXPLORATION-SAT (Earth-to-space) METEOROLOGICAL SATELLITE (Earth-to-space)	Meteorological radio sondes. Meteorological satellites, data collection platform.	EU2 EU11 ERC Recommendation CEPT/ERC/REC 70-03, ultra low power medical implants (3MHz within the band 401-406 MHz under study).
403 - 406 MHz	METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	METEOROLOGICAL AIDS	Meteorological radio sondes.	EU2 EU11 ERC Recommendation CEPT/ERC/REC 70-03, ultra low power medical implants (3MHz within the band 401-406 MHz under study).
406.0 - 406.1 MHz	MOBILE-SATELLITE (Earth-to-space) S5.266 S5.267	MOBILE-SATELLITE (Earth-to-space) S5.266 S5.267	EPIRB	Band only available for distress and safety purposes.
406.1 - 410.0 MHz	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149	LAND MOBILE RADIO ASTRONOMY S5.149	Analogue and digital land mobile Radio astronomy applications.	Single frequency operation. RA continuum measurement and pulsar observation.
410 – 420 MHz	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-space) S5.268	MOBILE except Aeronautical Mobile	Analogue and digital PMR. TETRA.	EU7 ERC Decision ERC/DEC/(96)04. ERC Recommendation T/R 22-05. ERC Recommendation T/R 25-08, Annex 2b, ML paired with 420 - 430 MHz.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
420 - 430 MHz	FIXED MOBILE except aeronautical mobile Radiolocation S5.269 S5.271	MOBILE except Aeronautical Mobile Radiolocation	Analogue and digital PMR. TETRA.	EU7 ERC Decision ERC/DEC/(96)04. ERC Recommendation T/R 22-05. ERC Recommendation T/R 25-08, Annex 2b, FB paired with 410 - 420 MHz.
430.00 - 433.05 MHz	AMATEUR RADIOLOCATION S5.138 S5.271 S5.272 S5.273 S5.274 S5.275 S5.276 S5.277 S5.280 S5.281 S5.282 S5.283	AMATEUR RADIOLOCATION S5.277		EU2 EU12
433.05 - 434.79 MHz		AMATEUR RADIOLOCATION Land Mobile S5.138 S5.280 S5.277	ISM. General SRD.	EU2 EU12 ERC Recommendation CEPT/ERC/REC 70-03.
434.79 - 438.00 MHz		AMATEUR AMATEUR-SATELLITE RADIOLOCATION S5.277		EU2 EU12 Amateur Satellite Service restricted to 435 - 438 MHz.
438 – 440 MHz		AMATEUR RADIOLOCATION S5.277		EU2 EU12
440 - 450 MHz	FIXED MOBILE except aeronautical mobile Radiolocation S5.269 S5.271 S5.286	MOBILE except aeronautical mobile Radiolocation	Analogue and digital PMR. PMR 446 in the band 446.0 - 446.1 MHz.	EU7 On-site paging (call-out & answer-back).

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
450 - 455 MHz	FIXED MOBILE S5.209 S5.271 S5.286 S5.286A S5.286B S5.286C S5.286D S5.286E	MOBILE	Analogue and digital PMR TETRA. Existing public cellular networks.	EU7 ERC Decision ERC/DEC/(96)04. ERC Recommendation T/R 22-05. ERC Recommendation T/R 25-08, Annex 2b, ML paired with 460 - 465 MHz. On-site paging (call-out & answer-back).
455 - 456 MHz	FIXED MOBILE S5.209 S5.271 S5.286A S5.286B S5.286C S5.286E	MOBILE	Analogue and digital PMR TETRA. Existing public cellular networks.	EU7 ERC Decision ERC/DEC/(96)04 . ERC Recommendations T/R 22-01 and T/R 22-05. ERC Recommendation T/R 25-08, Annex 2b, ML paired with 465 - 466 MHz. On-site paging (call-out & answer-back).
456 – 459 MHz	FIXED MOBILE S5.271 S5.287	MOBILE S5.287	Analogue and digital PMR on board communications 457.525 - 457.575 MHz (maritime). TETRA. Existing public cellular networks.	EU7 ERC Decision ERC/DEC/(96)04. ERC Recommendations T/R 22-05 and T/R 32-02. ERC Recommendation T/R 25-08, Annex 2b, ML, paired with 466 - 469 MHz. On-site paging (call-out & answer-back).
459 – 460 MHz	FIXED MOBILE S5.209 S5.271 S5.268A S5.286B S5.286C S5.286E	MOBILE	Analogue and digital PMR. TETRA. Existing public cellular networks.	EU7 ERC Decision ERC/DEC/(96)04. ERC Recommendation T/R 22-05. ERC Recommendation T/R 25-08, Annex 2b, ML paired with 469 - 470 MHz. On-site paging (call-out & answer-back).
460 – 470 MHz	FIXED MOBILE Meteorological-Satellite (space-to-Earth) S5.287 S5.289 S5.290	MOBILE S5.287 S5.289	Analogue and digital PMR. TETRA. On board communications 467.525 - 467.575 MHz (maritime). Existing public cellular networks.	EU7 ERC Decision ERC/DEC/(96)04. ERC Recommendations T/R 22-01, T/R 22-05 and T/R 32-02. ERC Recommendation T/R 25-08, Annex 2b, FB paired with 450 - 460 MHz. On-site paging (call-out & answer-back).

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
470 – 608 MHz	BROADCASTING S5.149 S5.291A S5.294 S5.296 S5.300 S5.302 S5.304 S5.306 S5.311 S5.312	BROADCASTING Mobile S5.291A S5.296	Stockholm Agreement 1961 complemented by the Chester 1997 Agreement. SAB. Radio microphones on a tuning range basis, under study.	Mobile restricted to SAB. Band 470 - 862 MHz to be reviewed for possible future applications after the introduction of DVB-T.
608 - 614 MHz		BROADCASTING Radio Astronomy Mobile S5.149 S5.296 S5.306	Stockholm Agreement 1961complemented by the Chester 1997 Agreement. SAB. Radio microphones on a tuning range basis, under study.	Mobile restricted to SAB. Band 470 - 862 MHz to be reviewed for possible future applications after the introduction of DVB-T. RA continuum measurements and VLBI.
614 – 790 MHz		BROADCASTING Mobile S5.296 S5.312	Stockholm Agreement 1961 complemented by the Chester 1997 Agreement. SAB. Radio microphones on a tuning range basis, under study.	EU13 Mobile restricted to SAB. Band 470 - 862 MHz to be reviewed for possible future applications after the introduction of DVB-T.
790 –838 MHz	FIXED BROADCASTING S5.312 S5.314 S5.315 S5.316 S5.319 S5.321	BROADCASTING Mobile S5.316	Stockholm Agreement 1961 complemented by the Chester Agreement 1997. SAB. Radio microphones on a tuning range basis, under study. Defence systems.	EU2 EU13 Mobile restricted to SAB and tactical radio relay. Band 470 - 862 MHz to be reviewed for possible future applications after the introduction of DVB-T.
838 - 862 MHz		BROADCASTING MOBILE S5.316	Stockholm Agreement 1961 complemented by the Chester 1997 Agreement. SAB. Radio microphones on a tuning range basis, under study. Defence systems.	EU2 EU13 MOBILE primary restricted to tactical radio relay. SAB, mobile on a secondary basis. Band 470 - 862 MHz to be reviewed for possible future applications after the introduction of DVB-T.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
862 – 870 MHz	FIXED MOBILE except Aeronautical Mobile BROADCASTING S5.322 S5.319 S5.323	MOBILE S5.323	Single frequency applications. Cordless Telephones. Defence systems. SRD in 868 - 870 MHz. Social alarms in 869.2 -869.25 MHz. Wireless audio in 863 - 865 MHz.	EU2 EU13 ERC Decision ERC/DEC/(97)06. ERC Recommendation CEPT/ERC/REC 70-03.
870 – 876 MHz		MOBILE S5.323	Digital land mobile. TETRA. Defence systems.	EU2 EU13 ERC Decision ERC/DEC/(96)04. ERC Recommendation T/R 22-05, ML paired with 915 – 921 MHz.
876 - 880 MHz		MOBILE S5.323	Digital land mobile. UIC railway systems. Defence systems.	EU2 EU13 ERC Recommendation T/R 25-09, ML paired with 921 – 925 MHz.
880 - 890 MHz		MOBILE S5.323	EGSM. Defence systems.	EU2 EU13 ERC Decision ERC/DEC/(97)02, ML paired with 925 - 935 MHz.
890 – 915 MHz	FIXED MOBILE except aeronautical mobile BROADCASTING S5.322 Radiolocation S5.323	MOBILE Radiolocation S5.323	GSM. Existing cellular networks.	EU13 EU14 ERC Decision ERC/DEC/(94)01, ML paired with 935 - 960 MHz.
915 - 921 MHz		MOBILE Radiolocation S5.323	Digital land mobile. TETRA. Defence systems.	EU2 EU13 EU14 ERC Decision ERC/DEC/(96)04. ERC Recommendation T/R 22-05, FB paired with 870 - 876 MHz.
921 – 925 MHz	FIXED MOBILE except aeronautical mobile BROADCASTING S5.322 Radiolocation S5.323	MOBILE Radiolocation S5.323	Digital land mobile. UIC railway systems. Defence systems.	EU2 EU13 EU14 ERC Recommendation T/R 25-09, FB paired with 876 - 880 MHz.
925 – 935 MHz		MOBILE Radiolocation S5.323	EGSM. Defence systems.	EU2 EU13 EU14 ERC Decision ERC/DEC/(97)02, FB paired with 880 - 890 MHz.
935 – 942 MHz		MOBILE Radiolocation S5.323	GSM. Existing cellular networks.	EU13 EU14 ERC Decision ERC/DEC/(94)01, FB paired with 890 - 897 MHz.
942 – 960 MHz	FIXED MOBILE except aeronautical mobile BROADCASTING S5.322 S5.323	MOBILE S5.323	GSM. Existing cellular networks.	EU13 ERC Decision ERC/DEC/(94)01, FB paired with 897 - 915 MHz.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
960 - 1215 MHz	AERONAUTICAL RADIONAVIGATION S5.328	AERONAUTICAL RADIONAVIGATION S5.328	Flight, Safety, Navigation and Information Distribution Systems (for example, DME, TACAN, SSR, MIDS).	
1215 - 1240 MHz	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION RADIONAVIGATION -SATELLITE (space-to-Earth) SPACE RESEARCH (active) S5.329 S5.330 S5.331 S5.332	RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) EARTH EXPLORATION SATELLITE (active) SPACE RESEARCH (active) RADIONAVIGATION S5.329 S5.331 S5.332	Radar and Navigation Systems and Active Sensors. GNSS	
1240 - 1260 MHz	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION RADIONAVIGATION -SATELLITE(space-to-Earth) SPACE RESEARCH (active) Amateur S5.329 S5.330 S5.331 S5.332	RADIOLOCATION RADIONAVIGATION SATELLITE(space-to-Earth) EARTH EXPLORATION SATELLITE (active) SPACE RESEARCH (active) RADIONAVIGATION Amateur S5.329 S5.331 S5.332	Radar and Navigation Systems and Active Sensors. GNSS	
1260 - 1270 MHz	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Amateur S5.282 S5.330 S5.331 S5.332	RADIOLOCATION EARTH EXPLORATION SATELLITE (active) SPACE RESEARCH (active) RADIONAVIGATION Amateur Amateur-Satellite S5.282 S5.331 S5.332	Radar and Navigation Systems and Active Sensors.	
1270 - 1300 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Amateur S5.282 S5.330 S5.331 S5.332	RADIOLOCATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIONAVIGATION Amateur S5.331 S5.332	Radar and Navigation Systems and Active Sensors.	Wind profiler radars between 1270 MHz and 1295 MHz.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
1300 - 1350 MHz	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation S5.149	AERONAUTICAL RADIONAVIGATION S5.337 RADIOLOCATION S5.149	Radar and Navigation Systems.	RA spectral line observations 1330 - 1400 MHz.
1350 - 1400 MHz	FIXED MOBILE RADIOLOCATION S5.149 S5.338 S5.339	FIXED RADIOLOCATION MOBILE S5.149 S5.339	Defence systems. Low capacity fixed links.	EU2 EU15 EU15A Channel plan for the fixed service in ERC Recommendation T/R 13- 01, Annex A. RA spectral line observations 1330 - 1400 MHz.
1400 - 1427 MHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.341	EARTH EXPLORATION-SATELLITE (passive). RADIO ASTRONOMY SPACE RESEARCH (passive). S5.340 S5.341	Passive applications.	EU15
1427 - 1429 MHz	SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile S5.341	SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile S5.341	Defence systems. Low capacity fixed links.	EU2 EU15A EU15 Channel plan for the fixed service in ERC ERC Recommendation T/R 13 - 01, Annex B.
1429 - 1452 MHz	FIXED MOBILE except aeronautical mobile S5.341 S5.342	FIXED MOBILE except aeronautical mobile S5.341		
1452 - 1492 MHz	FIXED MOBILE except aeronautical mobile BROADCASTING S5.345 S5.347 BROADCASTING - SATELLITE S5.345 S5.347 S5.341 S5.342	BROADCASTING S5.345 S5.347 BROADCASTING-SATELLITE S5.345 S5.347 Fixed Mobile except Aeronautical Mobile S5.341	Digital Audio Broadcasting. T-DAB. Wiesbaden Special Arrangement 1995.	EU15 ERC Recommendation T/R 52-02.
1492 - 1517 MHz	FIXED MOBILE except aeronautical mobile S5.341 S5.342	FIXED MOBILE except aeronautical mobile S5.341	Defence systems. Low capacity fixed links.	EU2 EU15 EU15A Channel plan for the fixed service in ERC Recommendation T/R 13 - 01, Annex A.
1517 - 1525 MHz		FIXED MOBILE except aeronautical mobile S5.341	Unidirectional fixed links. Defence systems.	EU2 EU15 EU15A

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
1525 - 1530 MHz	SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) Earth Exploration- Satellite Mobile except aeronautical mobile S5.349 S5.341 S5.342 S5.350 S5.351 S5.352A S5.354	SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 S5.354	Unidirectional fixed links. Mobile satellite systems.	EU15
1530 - 1533 MHz	SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A Earth Exploration-Satellite Fixed Mobile except aeronautical mobile S5.341 S5.342 S5.351 S5.354	SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A Earth Exploration-Satellite Fixed Mobile except aeronautical mobile S5.341 S5.351 S5.354	Mobile satellite systems.	EU15
1533 - 1535 MHz	SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A Earth Exploration Satellite Fixed Mobile except aeronautical mobile S5.341 S5.342 S5.351 S5.354	SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A Earth Exploration Satellite Mobile except aeronautical mobile S5.341 S5.351 S5.354	Mobile satellite systems.	EU15
1535 - 1544 MHz	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 S5.353A S5.354 S5.355	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 S5.353A S5.354	Mobile satellite systems.	EU15
1544 - 1545 MHz	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.354 S5.355 S5.356	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.354 S5.356	Search and rescue satellite systems including GMDSS. Mobile satellite systems.	EU15
1545 - 1555 MHz	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 S5.354 S5.355 S5.357 S5.357A S5.359	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 S5.354 S5.357 S5.357A S5.359	Mobile satellite systems.	EU15
1555 - 1559 MHz	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 S5.354 S5.355 S5.359	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 S5.354 S5.359	Mobile satellite systems.	EU15

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
1559 - 1610 MHz	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION SATELLITE (space-to-Earth) S5.341 S5.355 S5.359 S5.363	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION SATELLITE (space-to-Earth) S5.341 S5.359	GNSS	EU15
1610 - 1610.6 MHz	AERONAUTICAL RADIONAVIGATION MOBILE SATELLITE (Earth-to-space) S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	AERONAUTICAL RADIONAVIGATION MOBILE SATELLITE (Earth-to-space) S5.341 S5.359 S5.364 S5.366 S5.367 S5.368 S5.371 S5.372	Satellite personal communications systems.	EU15 ERC Decision ERC/DEC/(97)03
1610.6 - 1613.8 MHz	AERONAUTICAL RADIONAVIGATION MOBILE SATELLITE (Earth-to-space) RADIO ASTRONOMY S5.149 S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	AERONAUTICAL RADIONAVIGATION MOBILE SATELLITE (Earth-to-space) RADIO ASTRONOMY S5.149 S5.341 S5.359 S5.364 S5.366 S5.367 S5.368 S5.371 S5.372	Satellite personal communications systems. Radio astronomy applications.	EU15 ERC Decision ERC/DEC/(97)03 Important band for radio astronomy spectral line observations.
1613.8 - 1626.5 MHz	MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Mobile-Satellite (space-to-Earth) S5.341 S5.355 S5.359 S5.363 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	AERONAUTICAL RADIONAVIGATION MOBILE SATELLITE (Earth-to-space) Mobile satellite (space-to-Earth) S5.341 S5.359 S5.364 S5.365 S5.366 S5.367 S5.368 S5.371 S5.372 S5.373	Satellite personal communications systems.	EU15 ERC Decision ERC/DEC/(97)03
1626.5 - 1631.5 MHz	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.353A S5.354 S5.355 S5.359	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.353A S5.354 S5.359	Mobile satellite systems.	EU15
1631.5 - 1636.5 MHz	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.353A S5.354 S5.355 S5.359 S5.374	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.353A S5.354 S5.359 S5.374	Mobile satellite systems.	EU15
1636.5 - 1645.5 MHz	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.353A S5.354 S5.355 S5.359	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.353A S5.354 S5.359	Mobile satellite systems.	EU15
1645.5 - 1646.5 MHz	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.354 S5.375	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.354 S5.375	Search and rescue satellite system including GMDSS.	EU15

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
1646.5 - 1656.5 MHz	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.354 S5.355 S5.357A S5.359 S5.376	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.354 S5.359 S5.357A S5.376	Mobile satellite systems.	EU15
1656.5 - 1660 MHz	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.354 S5.355 S5.359 S5.374	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.354 S5.355 S5.359 S5.374	Mobile satellite systems.	EU15
1660 - 1660.5 MHz	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY S5.149 S5.341 S5.351 S5.354 S5.376A	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY S5.149 S5.341 S5.351 S5.354 S5.376A	Mobile satellite systems. Radio astronomy applications.	EU15 Important band for radio astronomy. VLBI
1660.5 - 1668.4 MHz	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except Aeronautical Mobile S5.149 S5.341 S5.379A	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile S5.149 S5.341 S5.379A	Radioastronomy applications. Mobile systems.	EU2 EU15A EU15 Important band for radio astronomy: Continuum line and VLBI measurements.
1668.4 - 1670 MHz	METEOROLOGICAL AIDS FIXED MOBILE except Aeronautical Mobile RADIO ASTRONOMY S5.149 S5.341	METEOROLOGICAL AIDS FIXED RADIO ASTRONOMY Mobile except aeronautical mobile S5.149 S5.341	Radio astronomy applications. Mobile systems. Meteorological applications.	EU2 EU15A EU15 Important band for radio astronomy.
1670 - 1675 MHz	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE S5.380 S5.341	METEOROLOGICAL AIDS METEOROLOGICAL SATELLITE (space-to-Earth) MOBILE S5.380 Fixed S5.341	TFTS (ground to air). Meteorological applications.	EU15 ERC Decision ERC/DEC/(92) 01. ERC Recommendation T/R 42-01.
1675 – 1690 MHz	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except Aeronautical Mobile S5.341	METEOROLOGICAL AIDS FIXED METEOROLOGICAL SATELLITE (space-to-Earth) MOBILE except Aeronautical Mobile S5.341	Mobile systems. Meteorological applications.	EU2 EU15A EU15

Frequency band	**RR Region 1 allocation and relevant footnotes**	**European Common Allocation**	**Major Utilisation**	**Notes**
1690 – 1700 MHz	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except Aeronautical Mobile S5.289 S5.341 S5.382	METEOROLOGICAL AIDS METEOROLOGICAL SATELLITE (space-to-Earth) Fixed Mobile except Aeronautical Mobile S5.341 S5.382	Meteorological applications.	EU2 EU15A EU15
1700 - 1710 MHz	FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except Aeronautical Mobile S5.289 S5.341	FIXED METEOROLOGICAL SATELLITE (space-to-Earth) Mobile except Aeronautical Mobile S5.341	Meteorological applications.	EU2 EU15A EU15

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
1710 - 1785 MHz	FIXED MOBILE S5.380 S5.149 S5.341 S5.385 S5.387 S5.388	FIXED MOBILE S5.149 S5.341 S5.385	DCS 1800	EU15 ERC Decision ERC/DEC/(95)03. ERC Recommendation T/R 22- 07.
1785 - 1800 MHz		FIXED MOBILE	Mobile systems.	EU2 EU15 Radio microphones (under study).
1800 - 1805 MHz		MOBILE S5.380 Fixed	TFTS (air to ground).	EU15 ERC Decision ERC/DEC/(92) 01. ERC Recommendation T/R 42-01.
1805 - 1880 MHz		FIXED MOBILE	DCS 1800	EU15 ERC Decision ERC/DEC/(95)03. ERC Recommendation T/R 22 - 07.
1880 - 1885 MHz		MOBILE Fixed	DECT	EU15 ERC Decision ERC/DEC/(94) 03.
1885 - 1900 MHz		MOBILE Fixed S5.388	DECT	EU15 ERC Decision ERC/DEC/(94) 03.
1900 - 1930 MHz		FIXED MOBILE S5.388	IMT-2000	EU16 EU15 ERC Decision ERC/DEC/(97)07.
1930 - 1970 MHz	FIXED MOBILE S5.388			
1970 - 1980 MHz	FIXED MOBILE S5.388			
1980 - 2010 MHz	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A S5.389B S5.389F	FIXED MOBILE MOBILE- SATELLITE (Earth-to-space) S5.388 S5.389A	IMT-2000 satellite component. Satellite personal communications systems.	EU16 EU15 ERC Decisions ERC/DEC/(97)03, ERC/DEC/(97)04 and ERC/DEC/(97)07.
2010 - 2025 MHz	FIXED MOBILE S5.388	FIXED MOBILE S5.388	IMT-2000	EU16 EU15 ERC Decision ERC/DEC/(97)07.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
2025 - 2110 MHz	SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) S5.392	FIXED MOBILE S5.391 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) S5.392	Fixed links Space science services. Mobile systems.	EU2 EU16A EU15 Channel plan for the fixed service in ERC Recommendation T/R 13-01, Annex C.
2110 - 2120 MHz	FIXED MOBILE SPACE RESEARCH (deep space)(Earth-to-space) S5.388	FIXED MOBILE SPACE RESEARCH (Earth-to-space)(deep space) S5.388	IMT-2000	EU15 EU16 ERC Decision ERC/DEC/(97)07.
2120 - 2170 MHz	FIXED MOBILE S5.388 S5.392A	FIXED MOBILE S5.388	IMT-2000	EU15 EU16 ERC Decision ERC/DEC/(97)07.
2170 - 2200 MHz	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389A S5.389F S5.392A	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389A	IMT-2000 satellite component. Satellite personal communications systems.	EU15 EU16 ERC Decisions ERC/DEC/(97)03, ERC/DEC/(97)04 and ERC/DEC/(97)07.
2200 - 2290 MHz	SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (space-to-Earth) (space-space) S5.392	SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) S5.392	Fixed links Space science services Mobile systems.	EU15 EU16A Channel plan for the fixed service in ERC Recommendation T/R 13-01, Annex C. RA VLBI.
2290 - 2300 MHz	FIXED MOBILE except Aeronautical Mobile SPACE RESEARCH (deep space)(space-to-Earth)	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	Mobile systems.	EU2 EU15 RA VLBI.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
2300 - 2400 MHz	FIXED MOBILE Amateur Radiolocation S5.150 S5.282 S5.395	FIXED MOBILE Amateur Radiolocation S5.150	Mobile systems.	EU2 EU15 ERC Recommendation CEPT/ERC/REC 62-02. Parts of the band are used for aeronautical telemetry on a national basis.
2400 - 2450 MHz		FIXED MOBILE Amateur Amateur satellite S5.150 S5.282	ISM SRD RLAN RFID	EU2 EU15 ERC Recommendation CEPT/ERC/REC 70-03.
2450 - 2483.5 MHz	FIXED MOBILE Radiolocation S5.150 S5.397	FIXED MOBILE S5.150	ISM SRD RLAN RFID	EU2 EU15 ERC Recommendation CEPT/ERC/REC 70-03.
2483.5 - 2500 MHz	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) Radiolocation S5.150 S5.371 S5.397 S5.398 S5.399 S5.400 S5.402	FIXED MOBILE MOBILE- SATELLITE (space-to-Earth) S5.150 S5.371 S5.397 S5.402	In accordance with ECA. Satellite personal communications systems. ISM.	EU15 ERC Decision ERC/DEC/(97)03).
2500 - 2520 MHz	FIXED S5.409 S5.410 S5.411 MOBILE except Aeronautical Mobile MOBILE-SATELLITE (space-to-Earth) S5.403 S5.405 S5.407 S5.408 S5.412 S5.414	MOBILE- SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile S5.403 S5.414	Mobile satellite systems.	EU15
2520 - 2655 MHz	FIXED S5.409 S5.410 S5.411 MOBILE except Aeronautical Mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.403 S5.405 S5.408 S5.412 S5.417 S5.418	FIXED MOBILE except aeronautical mobile S5.339 S5.403	Fixed links. Defence systems.	EU2 EU15 Channel plan for the fixed service in ERC Recommendation T/R 13-01, Annex D.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
2655 - 2670 MHz	FIXED S5.409 S5.410 S5.411 MOBILE except Aeronautical Mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive) S5.149 S5.412 S5.417 S5.420	FIXED MOBILE except aeronautical mobile Earth exploration satellite (passive) Radio astronomy Space research (passive) S5.149 S5.420	Fixed links. Mobile systems.	EU2 EU15 Channel plan for the fixed service in ERC Recommendation T/R 13-01, Annex D. RA continuum measurements.
2670 - 2690 MHz	FIXED S5.409 S5.410 S5.411 MOBILE except Aeronautical Mobile MOBILE-SATELLITE (Earth-to-space) Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive) S5.149 S5.412 S5.419 S5.420	MOBILE- SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile Radioastronomy S5.149 S5.419 S5.420	Mobile satellite systems.	EU15 RA continuum measurements.
2690 - 2700 MHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.421 S5.422	EARTH EXPLORATION - SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	Passive applications.	
2700 - 2900 MHz	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation S5.423	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation S5.423	Radars and Navigation Systems. Meteorological radars.	
2900 - 3100 MHz	RADIONAVIGATION S5.426 Radiolocation S5.425 S5.427	RADIONAVIGATION S5.426 Radiolocation S5.425 S5.427	Radars	

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
3100 - 3300 MHz	RADIOLOCATION Earth Exploration-Satellite (active) Space Research (active) S5.149 S5.428	RADIOLOCATION Earth Exploration-Satellite (active) Space Research (active) S5.149	Radars and Active Sensors.	
3300 -3400 MHz	RADIOLOCATION S5.149 S5.429 S5.430	RADIOLOCATION	Radars	
3400 - 3500 MHz	FIXED FIXED-SATELLITE (space-to-Earth) Mobile Radiolocation S5.431	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Amateur Radiolocation	Fixed links. Wireless fixed access systems.	EU17 EU17A ERC Recommendation CEPT/ERC/REC 14-03 Fixed includes point to multipoint. Mobile for coordinated ENG/OB links for occasional use. Upper limit for airborne radars is 3410 MHz.
3500 - 3600 MHz		FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	Fixed links. Wireless fixed access systems.	EU17A ERC Recommendation CEPT/ERC/REC 14-03 Fixed includes point to multipoint. Coordinated ENG/OB links for occasional use.
3600 - 4200 MHz	FIXED FIXED-SATELLITE (space-to-Earth) Mobile	FIXED FIXED-SATELLITE (space-to-Earth)	Medium/High capacity fixed links, plan to be developed. Telecommunications satellites to coordinated Earth stations. Priority for civil networks.	ERC Recommendation CEPT/ERC/REC 12-08
4200 - 4400 MHz	AERONAUTICAL RADIONAVIGATION S5.438 S5.437 S5.440	AERONAUTICAL RADIONAVIGATION S5.438 S5.440	Radio altimeters.	EU18 Earth exploration satellite use for sea surface temperature measurements.
4400 - 4500 MHz	FIXED MOBILE	FIXED MOBILE	Transhorizon links. Defence systems.	EU2 EU20 EU27 This is a harmonised military band for fixed and mobile systems. Coordinated ENG/OB links for occasional use.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
4500 - 4800 MHz	FIXED FIXED-SATELLITE (space-to-Earth) S5.441 MOBILE	FIXED FIXED-SATELLITE (space-to-Earth) S5.441 MOBILE	Defence systems.	EU20 EU27 Coordinated ENG/OB links for occasional use. Transhorizon links. Telecommunications satellites to coordinated Earth stations. Fixed Satellite frequency plan in 4500 - 4800 MHz. Fixed Satellite Service not to be implemented in NATO Europe. This is a harmonised military band for fixed and mobile systems.
4800 - 4990 MHz	FIXED MOBILE S5.442 Radio Astronomy S5.149 S5.339	FIXED MOBILE except Aeronautical Mobile Radio Astronomy S5.149 S5.339	Defence systems.	EU20 EU27 Coordinated ENG/OB links for occasional use. This is a harmonised military band for fixed and mobile systems. Space Research and EES (passive) above 4950 MHz in some countries. RA continuum measurements.
4990 - 5000 MHz	FIXED MOBILE except Aeronautical Mobile RADIO ASTRONOMY Space Research (passive) S5.149	FIXED MOBILE except Aeronautical Mobile RADIO ASTRONOMY S5.149	RA continuum measurements and VLBI.	EU20 EU27 Coordinated ENG/OB links for occasional use. This is a harmonised military band for fixed and mobile systems.
5000 - 5030 MHz	AERONAUTICAL RADIONAVIGATION S5.367 S5.444 S5.444A	AERONAUTICAL RADIONAVIGATION Radio Astronomy Space Research (passive) S5.367 S5.444		Aeronautical Radionavigation and Fixed Satellite Service envisaged in some countries. RA VLBI observations.
5030 - 5150 MHz		AERONAUTICAL RADIONAVIGATION S5.367 S5.444 S5.444A	MLS	EU18 Aeronautical Radionavigation envisaged in some countries. Fixed Satellite Service in use in some countries.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
5150 - 5250 MHz	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) S5.447A S5.446 S5.447 S5.447B S5.447C	MOBILE FIXED-SATELLITE (Earth-to-space) S5.447A S5.446 S5.447 S5.447B S5.447C	HIPERLANs Feeder links for the Mobile-Satellite service.	ERC Decision ERC/DEC/(96)03. ERC Recommendation CEPT/ERC/REC 70-03. Aeronautical Radionavigation and Fixed Satellite Service envisaged in some countries.
5250 - 5255 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH S5.447D S5.448 S5.448A	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH Mobile S5.447D S5.448A	Weapon system radars. Shipborne and VTS Radar. Ground based and airborne weather radar. Tactical Radar. Position Fixing. Active Sensors.	EU22 ERC Recommendation CEPT/ERC/REC 70-03. HIPERLANs extension band 5250 - 5300 MHz on a national basis.
5255 - 5350 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.448 S5.448A	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Mobile S5.448A	Weapon system radars. Shipborne and VTS Radar. Ground based and airborne weather radar. Tactical Radar. Position Fixing. Active Sensors.	EU22 ERC Recommendation CEPT/ERC/REC 70-03. HIPERLANs extension band 5250 - 5300 MHz on a national basis.
5350 - 5450 MHz	EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION S5.449 Radiolocation S5.448B	EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION S5.449 Fixed Radiolocation S5.448B	Weapon system radars. Shipborne and VTS Radar. Ground based and airborne weather radar. Tactical Radar. Position Fixing. Active Sensors.	EU22
5450 - 5460 MHz		AERONAUTICAL RADIONAVIGATION S5.449 EARTH EXPLORATION-SATELLITE (active) Radiolocation S5.448B	Weapon system radars. Shipborne and VTS Radar. Ground based and airborne weather radar. Tactical Radar. Position Fixing. Active sensors.	EU22

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
5460 - 5470 MHz	RADIONAVIGATION S5.449 Radiolocation	RADIONAVIGATION S5.449 Radiolocation	Weapon system radars. Shipborne and VTS Radar. Ground based and airborne weather radar. Tactical Radar. Position Fixing.	EU22
5470 - 5650 MHz	MARITIME RADIONAVIGATION Radiolocation S5.450 S5.451 S5.452	MARITIME RADIONAVIGATION Radiolocation S5.452	Weapon system radars. Shipborne and VTS Radar. Ground based and airborne weather radar. Tactical Radar. Position Fixing.	EU22
5650 - 5725 MHz	RADIOLOCATION Amateur Space Research (deep space) S5.282 S5.451 S5.453 S5.454 S5.455	RADIOLOCATION Amateur S5.282	Weapon system radars. Shipborne and VTS Radar. Ground based and airborne weather radar. Tactical Radar. Position Fixing.	EU22, EU17,23 Amateur Satellite Service (Earth to space), 5650 - 5670 MHz from RR S5.282.
5725 - 5830 MHz	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur S5.150 S5.451 S5.453 S5.455 S5.456	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Mobile S5.150	Non civil radiolocation. Ground based and airborne weather radar. ISM 5725 - 5875 MHz. 5795 - 5805 MHz Road Transport and Traffic Telematic Systems (RTTT). SRDs in 5725 – 5875 MHz.	EU22, EU23 ERC Decision ERC/DEC/(92)02. ERC Recommendation CEPT/ERC/REC 70-03. Amateur Satellite Service (space to Earth), 5830 - 5850 MHz from RR S5.282. RTTT in 5805-5815 MHz on a national basis.
5830 - 5850 MHz	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-Satellite (space-to-Earth) S5.150 S5.451 S5.453 S5.455 S5.456			
5850 - 5925 MHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.150	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.150	Telecommunications satellites from coordinated Earth stations. Priority for civil networks. ISM 5725 - 5875 MHz. SRDs in 5725 – 5875 MHz.	ERC Recommendation CEPT/ERC/REC 70-03.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
5925 - 6425 MHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.149 S5.440 S5.458	FIXED FIXED-SATELLITE (Earth-to-space)	Medium/High capacity fixed links. Telecommunications satellites from coordinated Earth stations. Priority for civil networks.	ERC Recommendation CEPT/ERC/REC 14-01.
6425 – 6700 MHz		FIXED FIXED-SATELLITE (Earth-to-space) S5.441 Earth Exploration-Satellite (passive) S5.149 S5.440 S5.458 S5.458A S5.458B S5.458C	Medium/High capacity fixed links. Telecommunications satellites from coordinated Earth stations. Priority for civil networks. Fixed Satellite Plan 6725 - 7025 MHz. Feeder links for the MSS in 6925 - 7075 MHz.	ERC Recommendation CEPT/ERC/REC 14-02. EESS sea surface temperature measurements.
6700 - 7075 MHz	FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.441 MOBILE S5.458 S5.458A S5.458B S5.458C			
7075 - 7125 MHz	FIXED MOBILE S5.458 S5.459 S5.460	FIXED Earth Exploration-Satellite (passive) S5.458	Medium/High capacity fixed links.	ERC Recommendation CEPT/ERC/REC 14-02. EESS sea surface temperature measurements.
7125 - 7250 MHz		FIXED MOBILE Earth Exploration-Satellite (Earth-to-space) Space Research (Earth-to-space) Space Operation (Earth-to-space) S5.458 S5.460	Fixed links based on Recommendation ITU-R F. 385.	EESS sea surface temperature measurements.
7250 - 7300 MHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE S5.461	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE S5.461	Fixed links based on Recommendation ITU-R F. 385. Mobile satellite 7250 - 7375 MHz. Defence systems.	EU2 EU27 This is a harmonised military band for satellite operation. FIXED and MOBILE services not to be implemented in most NATO countries.
7300 - 7450 MHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except Aeronautical Mobile S5.461	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except Aeronautical Mobile S5.461	Fixed links based on Recommendation ITU-R F. 385. Mobile satellite 7250 - 7375 MHz. Defence systems.	EU2 EU27 This is a harmonised military band for satellite operation.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
7450 - 7550 MHz	FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except Aeronautical Mobile S5.461A	FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except Aeronautical Mobile S5.461A	Fixed links based on Recommendation ITU-R F. 385. Defence systems.	EU2 EU27 This is a harmonised military band for satellite operation. Meteorological satellites limited to geostationary systems.
7550 - 7750 MHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except Aeronautical Mobile	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except Aeronautical Mobile	Fixed links based on Recommendation ITU-R F. 385. Defence systems.	EU2 EU27 This is a harmonised military band for satellite operation.
7750 - 7850 MHz	FIXED METEOROLOGICAL SATELLITE (space-to-Earth) S5.461B MOBILE except Aeronautical Mobile	FIXED METEOROLOGICAL SATELLITE (space-to-Earth) S5.461B MOBILE except Aeronautical Mobile	Fixed links based on Recommendation ITU-R F. 386. Defence systems.	EU2 Meteorological satellites limited to non-geostationary systems. Military use in some countries.
7850 – 7900 MHz	FIXED MOBILE except Aeronautical Mobile	FIXED MOBILE except Aeronautical Mobile	Fixed links based on Recommendation ITU-R F. 386. Defence systems.	Military use in some countries.
7900 - 8025 MHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.461	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.461	Fixed links based on Recommendation ITU-R F. 386. Mobile satellite 7900 - 8025 MHz. Defence systems.	EU2 EU27 This is a harmonised military band for satellite operation. FIXED and MOBILE services not to be implemented above 7975 MHz in NATO countries.
8025 - 8175 MHz	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.462A S5.463	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.462A S5.463	Fixed links based on Recommendation ITU-R F. 386. Mobile 8025 - 8200 MHz. Defence systems. Earth exploration satellite systems.	EU2 EU27 This is a harmonised military band for satellite operation.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
8175 - 8215 MHz	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE S5.462A S5.463	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE S5.462A S5.463	Fixed links based on Recommendation ITU-R F. 386. Mobile 8025 - 8200 MHz. Defence systems. Earth exploration satellite systems.	EU2 EU27 This is a harmonised military band for satellite operation.
8215 - 8400 MHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE EARTH EXPLORATION-SATELLITE (space-to-Earth) S5.462A S5.463	FIXED FIXED-SATELLITE (Earth-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) S5.462A S5.463	Fixed links based on Recommendation ITU-R F. 386. Defence systems. Earth exploration satellite systems.	EU2 EU27 This is a harmonised military band for satellite operation.
8400 - 8500 MHz	FIXED MOBILE except Aeronautical Mobile SPACE RESEARCH (space-to-Earth) S5.465 S5.466 S5.467	FIXED SPACE RESEARCH (space-to-Earth) S5.465, S5.466 Radiolocation	Fixed links based on Recommendation ITU-R F.386.	RA VLBI observations.
8500 - 8550 MHz	RADIOLOCATION S5.468 S5.469	RADIOLOCATION S5.469	Civil and non civil aeronautical radionavigation systems e.g. airfield approach. Shipborne, land and airborne surveillance and weapon system radars.	EU2 EU24
8550 – 8650 MHz	EARTH EXPLORATION SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.468 S5.469 S5.469A	RADIOLOCATION SPACE RESEARCH (active) EARTH EXPLORATION SATELLITE (active) S5.469 S5.469A	Civil and non civil aeronautical radionavigation systems e.g. airfield approach. Shipborne, land and airborne surveillance and weapon system radars. Space borne active sensors.	EU2

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
8650 – 8750 MHz	RADIOLOCATION S5.468 S5.469	RADIOLOCATION S5.469	Civil and non civil aeronautical radionavigation systems e.g. airfield approach. Shipborne, land and airborne surveillance and weapon system radars.	EU2
8750 - 8850 MHz	RADIOLOCATION AERONAUTICAL RADIONAVIGATION S5.470 S5.471	RADIOLOCATION AERONAUTICAL RADIONAVIGATION S5.470 Space Research	Civil and non civil aeronautical radionavigation systems e.g. airfield approach. Shipborne, land and airborne surveillance and weapon system radars.	EU2 EU24
8850 - 9000 MHz	RADIOLOCATION MARITIME RADIONAVIGATION S5.472 S5.473	RADIOLOCATION MARITIME RADIONAVIGATION S5.472 Space Research S5.473	Civil and non civil aeronautical radionavigation systems e.g. airfield approach. Shipborne, land and airborne surveillance and weapon system radars.	EU2 EU24
9000 - 9200 MHz	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation S5.471	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation Space Research	Civil and non civil aeronautical radionavigation systems e.g. airfield approach. Shipborne, land and airborne surveillance and weapon system radars.	EU2 EU24
9200 - 9300 MHz	RADIOLOCATION MARITIME RADIONAVIGATION S5.472 S5.473 S5.474	RADIOLOCATION MARITIME RADIONAVIGATION S5.472 Space Research S5.473 S5.474	Motion sensors. Civil and non civil aeronautical radionavigation systems e.g. airfield approach. Shipborne, land and airborne surveillance and weapon system radars.	EU2 EU24 ERC Recommendation CEPT/ERC/REC 70-03.
9300 - 9500 MHz	RADIONAVIGATION S5.476 Radiolocation S5.427 S5.474 S5.475	RADIONAVIGATION S5.476 Radiolocation Space Research S5.427 S5.474 S5.475	Motion sensors. Civil and non civil aeronautical radionavigation systems e.g. airfield approach. Shipborne, land and airborne surveillance and weapon system radars.	EU2 EU24 ERC Recommendation CEPT/ERC/REC 70-03.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
9500 - 9800 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) S5.476A	RADIOLOCATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) S5.476A	Motion sensors. Civil and non civil aeronautical radionavigation systems e.g. airfield approach. Shipborne, land and airborne surveillance and weapon system radars. Space borne active sensors in bands 9500 - 9800 MHz.	EU2 EU24 ERC Recommendation CEPT/ERC/REC 70-03.
9800 - 10000 MHz	RADIOLOCATION Fixed S5.477 S5.478 S5.479	RADIOLOCATION Space Research S5.479	Motion sensors. Civil and non civil aeronautical radionavigation systems e.g. airfield approach. Shipborne, land and airborne surveillance and weapon system radars.	EU2 EU24 ERC Recommendation CEPT/ERC/REC 70-03.
10 - 10.15 GHz	FIXED MOBILE RADIOLOCATION Amateur S5.479	FIXED MOBILE RADIOLOCATION Amateur S5.479	Non civil radar. ENG/OB is envisaged.	EU2 EU17A
10.15 - 10.30 GHz		FIXED MOBILE RADIOLOCATION Amateur	Fixed includes point to multipoint. ENG/OB is envisaged. Civil and non civil radar (low power) in certain sub bands.	EU2 EU17A ERC Recommendation CEPT/ERC/REC 12-05.
10.30 - 10.45 GHz		FIXED RADIOLOCATION Amateur Mobile	Civil and non civil radar (low power) in certain sub bands. ENG/OB is envisaged.	EU2 EU17 EU17A
10.45 - 10.50 GHz	RADIOLOCATION Amateur Amateur-Satellite S5.481	FIXED RADIOLOCATION MOBILE Amateur Amateur-Satellite	Fixed includes point to multipoint. ENG/OB is envisaged. Civil and non civil radar. Motion sensors.	EU2 EU17 EU23 EU17A ERC Recommendation CEPT/ERC/REC 70-03.
10.50 - 10.55 GHz	FIXED MOBILE Radiolocation	FIXED MOBILE Radiolocation	Fixed includes point to multipoint. ENG/OB is envisaged. Motion sensors.	EU17A ERC Recommendations CEPT/ERC/REC 12-05 & CEPT/ERC/REC 70-03.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
10.55 - 10.60 GHz	FIXED MOBILE except Aeronautical Mobile Radiolocation	FIXED MOBILE except Aeronautical Mobile Radiolocation	Fixed includes point to multipoint. ENG/OB is envisaged. Motion sensors.	EU17A ERC Recommendations CEPT/ERC/REC 12-05 & CEPT/ERC/REC 70-03.
10.60 - 10.65 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except Aeronautical Mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation S5.149 S5.482	FIXED MOBILE except Aeronautical Mobile RADIO ASTRONOMY EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) Radiolocation S5.149 S5.482	Fixed includes point to multipoint. ENG/OB is envisaged. Passive applications.	EU17A ERC Recommendation CEPT/ERC/REC 12-05. RA Continuum measurements and VLBI. Surface emissivity and precipitation measurements.
10.65 - 10.68 GHz		EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except Aeronautical Mobile RADIO ASTRONOMY SPACE RESEARCH (passive) S5.149 S5.482	Fixed includes point to multipoint. ENG/OB is envisaged. Passive applications.	EU17A ERC Recommendation CEPT/ERC/REC 12-05. RA Continuum measurements and VLBI. Surface emissivity and precipitation measurements.
10.68 - 10.70 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.483	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	Passive applications.	RA Continuum measurements and VLBI. Surface emissivity and precipitation.
10.70 - 11.70 GHz	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.441 S5.484 MOBILE except Aeronautical Mobile	FIXED FIXED-SATELLITE (space-to-Earth) S5.441 S5.484 Land Mobile-Satellite (space-to-Earth) Mobile except Aeronautical Mobile	Fixed links. Fixed Satellite Plan 10.7 - 10.95 / 11.2 - 11.45 GHz in accordance with App. 30B.	ERC Recommendation CEPT/ERC/REC 12-06.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
11.70 - 12.50 GHz	FIXED BROADCASTING BROADCASTING-SATELLITE Mobile except Aeronautical Mobile S5.487 S5.487A S5.492	FIXED BROADCASTING-SATELLITE Mobile except Aeronautical Mobile S5.487 S5.487A S5.492	Satellite broadcasting in accordance with Appendix S30.	Future use of this band for point to multipoint radio links for cable TV distribution depends on the replanning of RR Appendices S30 & S30A.
12.50 - 12.75 GHz	FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.484A S5.494 S5.495 S5.496	FIXED-SATELLITE (space-to-Earth) S5.484A S5.495	Fixed satellite applications.	Priority for civil networks. Low density carriers, including VSATs and digital SNG are encouraged to use this band.
12.75 - 13.25 GHz	FIXED FIXED-SATELLITE (Earth-to-space) S5.441 MOBILE Space Research (deep space)(space-to-Earth)	FIXED FIXED-SATELLITE (Earth-to-space) S5.441	Fixed links based on Recommendation ITU-R F.497. Telecommunications satellites from coordinated Earth stations. Priority for civil networks. Fixed satellite Plan.	ERC Recommendation CEPT/ERC/REC 12-02.
13.25 - 13.40 GHz	EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION S5.497 SPACE RESEARCH (active) S5.498A	AERONAUTICAL RADIONAVIGATION S5.497 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) S5.498A	Doppler Navigation aids. Ship berthing radars. Earth exploration observations.	EU26
13.40 - 13.75 GHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH Standard Frequency and Time Signal-Satellite (Earth-to-space) S5.499 S5.500 S5.501 S5.501A S5.501B	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH S5.501A S5.501B	Doppler Navigation aids. Motion sensors in 13.4 - 14.0 GHz. Ship berthing radars. Military land, airborne and naval radars.	EU2 EU26 ERC Recommendation CEPT/ERC/REC 70-03.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
13.75 - 14 GHz	FIXED-SATELLITE (Earth-to-space) S5.484A RADIOLOCATION Standard Frequency and Time Signal-Satellite (Earth-to-space) Space Research S5.499 S5.500 S5.501 S5.502 S5.503 S5.503A	RADIOLOCATION FIXED-SATELLITE (Earth-to-space) S5.484A Space Research S5.502 S5.503	Telecommunications satellites for fixed applications. Priority for civil networks. Motion sensors in 13.4 - 14.0 GHz. Ship berthing radar. Future VLBI observations. Military land, airborne and naval radars. Navigation radars.	EU2 EU26 ERC Recommendation CEPT/ERC/REC 70-03.
14 - 14.25 GHz	FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 RADIONAVIGATION S5.504 Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Space Research S5.505	FIXED-SATELLITE (Earth-to-space) S5.484A Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Space Research S5.504	Telecommunications satellites for fixed and mobile applications. Priority for civil networks. VSAT/SNG applications.	ERC Recommendation CEPT/ERC/REC 13-03. Low density carriers, including VSATs and digital SNG, are encouraged to use this band.
14.25 - 14.30 GHz	FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 RADIONAVIGATION S5.504 Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Space Research S5.505 S5.508	FIXED-SATELLITE (Earth-to-space) S5.484A Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Space Research S5.504 S5.508	Telecommunications satellites for fixed and mobile applications. Priority for civil networks. VSAT/SNG applications.	ERC Recommendation CEPT/ERC/REC 13-03. Fixed links to be coordinated with fixed satellite service on a national basis.
14.30 - 14.40 GHz	FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 MOBILE except Aeronautical Mobile Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Radionavigation-Satellite	FIXED-SATELLITE (Earth-to-space) S5.484A Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite	Telecommunications satellites for fixed and mobile applications. Priority for civil networks. VSAT/SNG applications.	ERC Recommendation CEPT/ERC/REC 13-03. Fixed links to be coordinated with fixed satellite service on a national basis.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
14.40 - 14.47 GHz	FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 MOBILE except Aeronautical Mobile Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Space Research (space-to-Earth)	FIXED-SATELLITE (Earth-to-space) S5.484A Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite	Telecommunications satellites for fixed and mobile applications. Priority for civil networks. VSAT/SNG applications.	ERC Recommendation CEPT/ERC/REC 13-03. Fixed links to be coordinated with fixed satellite service on a national basis.
14.47 - 14.50 GHz	FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.506 MOBILE except Aeronautical Mobile Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Radio Astronomy S5.149	FIXED-SATELLITE (Earth-to-space) S5.484A Mobile-Satellite (Earth-to-space) except aeronautical mobile-satellite Radio Astronomy S5.149	Telecommunications satellites for fixed and mobile applications. Priority for civil networks. VSAT/SNG applications.	ERC Recommendation CEPT/ERC/REC 13-03. Fixed links to be coordinated with fixed satellite service on a national basis. RA spectral line observations and future VLBI.
14.50 - 14.80 GHz	FIXED FIXED-SATELLITE (Earth-to-space) S5.510 MOBILE Space Research	FIXED MOBILE Radio Astronomy	Defence systems. Civil and non-civil fixed links.	EU20 EU27 ERC Recommendation CEPT/ERC/REC 12-07 The band 14.62 - 15.23 GHz is a harmonised military band for fixed and mobile services. Future VLBI observations compatible with primary use.
14.80 - 15.35 GHz	FIXED MOBILE Space Research S5.339	FIXED MOBILE Radio Astronomy S5.339	Defence systems. Civil and non-civil fixed links	EU20 EU27 ERC Recommendation CEPT/ERC/REC 12-07 The band 14.62 - 15.23 GHz is a harmonised military band for fixed and mobile services. Future VLBI observations compatible with primary use.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
15.35 - 15.40 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.511	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	Passive applications.	RA continuum measurements and future VLBI.
15.40 - 15.43 GHz	AERONAUTICAL RADIONAVIGATION S5.511D	AERONAUTICAL RADIONAVIGATION S5.511D	Doppler radar low power sensing. Ground movement radars.	
15.43 – 15.63 GHz	FIXED-SATELLITE (space to Earth)(Earth to space) S5.511A AERONAUTICAL RADIONAVIGATION S5.511C	FIXED-SATELLITE (space to Earth)(Earth to space) S5.511A AERONAUTICAL RADIONAVIGATION S5.511C	Fixed satellite applications for MSS feeder links. Doppler radar low power sensing. Ground movement radars.	
15.63 – 15.7 GHz	AERONAUTICAL RADIONAVIGATION S5.511D	AERONAUTICAL RADIONAVIGATION S5.511D	Doppler radar low power sensing. Ground movement radars.	
15.70 - 16.60 GHz	RADIOLOCATION S5.512 S5.513	RADIOLOCATION	Defence systems.	EU27 This is a harmonised military band for land, airborne and naval radars.
16.60 - 17.10 GHz	RADIOLOCATION Space Research (deep space)(Earth-to-space) S5.512 S5.513	RADIOLOCATION Space Research (Earth-to-space)	Defence systems.	EU27 This is a harmonised military band for land, airborne and naval radars.
17.10 - 17.20 GHz	RADIOLOCATION S5.512 S5.513	RADIOLOCATION Mobile	Defence systems. HIPERLAN.	EU2 ERC Recommendation CEPT/ERC/REC 70-03. Military radar applications.
17.20 - 17.30 GHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.512 S5.513 S5.513A	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE S5.513A	Defence systems. Missile systems radars. Airborne terrain following radars. HIPERLAN.	EU2 Military radar applications Recommendation CEPT/ERC/REC 70-03. Mobile allocation for HIPERLANs which have priority over space services. HIPERLANs cannot claim protection from radiolocation service.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
17.30 - 17.70 GHz	FIXED-SATELLITE (Earth-to-space) S5.516 Radiolocation S5.514	FIXED-SATELLITE (Earth-to-space) S5.516 FIXED Radiolocation	Point to multipoint systems. Appendix S30A of Radio Regulations. Feeder link plan for 11.7 - 12.5 GHz.	EU2 Missile systems radars.
17.70 - 18.10 GHz	FIXED FIXED-SATELLITE (space-to-Earth) S5.484A (Earth-to-space) S5.516 MOBILE	FIXED FIXED-SATELLITE (space-to-Earth) S5.484A (Earth-to-space) S5.516	Fixed links. Telecommunications satellites to coordinated Earth stations. Priority for civil networks. Feeder link plan 17.7 - 18.1 GHz.	ERC Recommendation CEPT/ERC/REC 12-03.
18.10 - 18.30 GHz	FIXED FIXED-SATELLITE (space-to-Earth) S5.484A (Earth-to-space) S5.520 MOBILE S5.519 S5.521	FIXED FIXED-SATELLITE (space-to-Earth) S5.484A S5.520 METEOROLOGICAL-SATELLITE (space-to-Earth) S5.519	Fixed links. Telecommunications satellites to coordinated Earth stations. Priority for civil networks. Feeder link band 18.1 - 18.4 GHz for BSS (WARC 92).	ERC Recommendation CEPT/ERC/REC 12-03.
18.30 - 18.40 GHz		FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.484A S5.520	Fixed links. Telecommunications satellites to coordinated Earth stations. Priority for civil networks. Feeder link band 18.1 - 18.4 GHz for BSS (WARC 92).	ERC Recommendation CEPT/ERC/REC 12-03.
18.40 - 18.60 GHz	FIXED FIXED-SATELLITE (space-to-Earth) S5.484A MOBILE	FIXED FIXED-SATELLITE (space-to-Earth) S5.484A	Fixed links. Telecommunications satellites to coordinated Earth stations. Priority for civil networks.	ERC Recommendation CEPT/ERC/REC 12-03.
18.60 - 18.80 GHz	FIXED FIXED-SATELLITE (space-to-Earth) S5.523 MOBILE except Aeronautical Mobile Earth Exploration-Satellite (passive) Space Research (passive) S5.522	FIXED FIXED-SATELLITE (space-to-Earth) S5.523 Earth Exploration-Satellite (passive) S5.522	Fixed links. Telecommunications satellites to coordinated Earth stations. Priority for civil networks.	ERC Recommendation CEPT/ERC/REC 12-03. Earth Exploration Satellite is included, but is subject to further studies in ITU-R. EESS surface emissivity, snow, sea ice and precipitation.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
18.80 - 19.30 GHz	FIXED FIXED-SATELLITE (space-to-Earth) S5.523A MOBILE	FIXED FIXED-SATELLITE (space-to-Earth) S5.523A S5.523B S5.523C S5.523D S5.523E	Fixed links. Telecommunications satellites to coordinated Earth stations. Priority for civil networks.	ERC Recommendation CEPT/ERC/REC 12-03.
19.30 - 19.70 GHz	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.523B S5.523C S5.523D S5.523E MOBILE			
19.70 - 20.10 GHz	FIXED-SATELLITE (space-to-Earth) S5.484A Mobile-Satellite (space-to-Earth) S5.524	FIXED-SATELLITE (space-to-Earth) S5.484A Mobile-Satellite (space-to-Earth)	Fixed and mobile satellites to uncoordinated Earth stations	
20.10 - 20.20 GHz	FIXED-SATELLITE (space-to-Earth) S5.484A MOBILE-SATELLITE (space-to-Earth) S5.524 S5.525 S5.526 S5.527 S5.528	FIXED-SATELLITE (space-to-Earth) S5.484A MOBILE-SATELLITE (space-to-Earth) S5.525 S5.526 S5.527 S5.528	Fixed and mobile satellites to uncoordinated Earth stations.	
20.20 - 21.20 GHz	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard Frequency and Time Signal-Satellite (space-to-Earth) S5.524	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth)	Fixed and mobile satellites to uncoordinated Earth stations.	EU2 EU27 The band 20.2 - 21.2 GHz is a harmonised military band for satellite downlinks.
21.20 - 21.40 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	Unidirectional, temporary fixed or mobile links, including ENG/OB.	Passive systems will be phased out by 2015.
21.40 - 22 GHz	FIXED MOBILE BROADCASTING-SATELLITE S5.530	BROADCASTING-SATELLITE S5.530	Wide band high definition television.	Fixed service envisaged in some countries.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
22 - 22.21 GHz	FIXED MOBILE except Aeronautical Mobile S5.149	FIXED MOBILE except Aeronautical Mobile RADIO ASTRONOMY SPACE RESEARCH (passive) S5.149	Fixed links. Passive applications. ENG/OB is envisaged.	EU17A ERC Recommendation T/R 13-02. RA spectral line observations (water line and redshifted water line under 22.5 GHz).
22.21 - 22.50 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except Aeronautical Mobile RADIO ASTRONOMY SPACE RESEARCH (passive) S5.149 S5.532	FIXED MOBILE except Aeronautical Mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Earth Exploration-Satellite (passive) S5.149 S5.532	Fixed links. RA applications. ENG/OB is envisaged.	EU17A ERC Recommendation T/R 13-02. EESS systems will be phased out by 2015. RA spectral line observations (water line and redshifted water line under 22.5 GHz) also VLBI.
22.50 - 22.55 GHz	FIXED MOBILE	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive)	Fixed links. RA applications ENG/OB is envisaged.	EU17A ERC Recommendation T/R 13-02.
22.55 - 22.60 GHz	FIXED INTER-SATELLITE MOBILE S5.149	FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) S5.149	Fixed links. RA applications ENG/OB is envisaged.	EU17A ERC Recommendation T/R 13-02.
22.60 - 23 GHz		FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) S5.149	ENG/OB is envisaged. RA applications. Methyl Formate and Ammonia lines 22.81 - 22.86 GHz.	EU17A RA spectral line observations (Methyl Formate and Ammonia lines 22.81 - 22.86 GHz).
23 - 23.55 GHz	FIXED INTER-SATELLITE MOBILE S5.149	FIXED INTER-SATELLITE MOBILE S5.149	Fixed links. ENG/OB is envisaged.	ERC Recommendation T/R 13-02. RA spectral line observations.
23.55 - 23.60 GHz	FIXED MOBILE	FIXED INTER-SATELLITE MOBILE	Fixed links. ENG/OB is envisaged.	ERC Recommendation T/R 13-02.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
23.60 - 24 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	Passive applications.	Continuum observations. Ammonia line. Water vapour measurements.
24 - 24.05 GHz	AMATEUR AMATEUR-SATELLITE S5.150	AMATEUR AMATEUR-SATELLITE S5.150	ISM 24 - 24.25 GHz SRD. ENG/OB is envisaged.	ERC Recommendation CEPT/ERC/REC 70-03.
24.05 - 24.25 GHz	RADIOLOCATION Amateur Earth Exploration-Satellite (active) S5.150	RADIOLOCATION Amateur Earth Exploration-Satellite (active) Fixed Mobile S5.150	Defence radars. Rain radar from satellites. ISM 24.05 - 24.25 GHz. SRD. Motion sensors. ENG/OB is envisaged.	EU2 ERC Recommendation CEPT/ERC/REC 70-03.
24.25 - 24.45 GHz	FIXED	FIXED MOBILE	Unidirectional, temporary fixed links. ENG/OB.	EU17A
24.45 - 24.50 GHz	FIXED INTER-SATELLITE	FIXED MOBILE	Unidirectional, temporary fixed links. ENG/OB.	EU17A
24.50 - 24.65 GHz		FIXED	Fixed links.	ERC Recommendation T/R 13-02.
24.65 - 24.75 GHz	FIXED INTER-SATELLITE	FIXED	Fixed links.	ERC Recommendation T/R 13-02.
24.75 - 25.25 GHz	FIXED	FIXED	Fixed links.	ERC Recommendation T/R 13-02.
25.25 - 25.50 GHz	FIXED INTER-SATELLITE S5.536 MOBILE Standard Frequency and Time Signal-Satellite (Earth-to-space)	FIXED MOBILE INTER-SATELLITE S5.536	Fixed links.	ERC Recommendation T/R 13-02.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
25.50 - 26.50 GHz	EARTH EXPLORATION-SATELLITE (space-to-Earth) S5.536A S5.536B FIXED INTER-SATELLITE S5.536 MOBILE Standard Frequency and Time Signal-Satellite (Earth-to-space)	FIXED MOBILE INTER-SATELLITE S5.536 Earth Exploration-Satellite (space-to-Earth) S5.536A S5.536B	Fixed links.	ERC Recommendation T/R 13-02.
26.50 - 27 GHz		FIXED MOBILE INTER-SATELLITE S5.536 Earth Exploration-Satellite (space-space) S5.536A S5.536B	Defence systems.	EU27 This is a harmonised military band for fixed and mobile systems.
27 - 27.50 GHz	FIXED INTER-SATELLITE S5.536 MOBILE	FIXED MOBILE INTER-SATELLITE S5.536 Earth Exploration-Satellite (space-space)	Defence systems.	EU27 This is a harmonised military band for fixed and mobile systems.
27.50 - 28.50 GHz	FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 MOBILE S5.538 S5.540	FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.484A S5.539 S5.538 S5.540	Fixed links. Fixed Satellite Service (space to Earth) use limited to beacons for uplink power control 27.5 - 27.501 GHz. Feeder links to broadcasting satellites (HDTV) 27.5 - 29.5 GHz. Telecommunications satellites from coordinated Earth stations. Priority for civil networks.	ERC Recommendation T/R 13-02.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
28.50 - 29.10 GHz	FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.523A S5.539 MOBILE Earth Exploration-Satellite (Earth-to-space) S5.540 S5.541	FIXED FIXED-SATELLITE (Earth-to-space) S5.484A S5.523A S5.539 Earth Exploration-Satellite (Earth-to-space) S5.540 S5.541	Fixed links. Feeder links to broadcasting satellites (HDTV) 27.5 - 29.5 GHz. Telecommunications satellites from coordinated Earth stations. Priority for civil networks.	ERC Recommendation T/R 13-02.
29.1 – 29.50 GHz	FIXED FIXED-SATELLITE (Earth-to-space) S5.523C S5.523E S5.535A S5.539 S5.541A MOBILE Earth Exploration-Satellite (Earth-to-space) S5.541 S5.540	FIXED FIXED-SATELLITE (Earth-to-space) S5.523C S5.523E S5.535A S5.539 S5.541A Earth Exploration-Satellite (Earth-to-space) S5.541 S5.540		
29.50 - 29.90 GHz	FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 Earth Exploration-Satellite (Earth-to-space) S5.541 Mobile-Satellite (Earth-to-space) S5.540 S5.542	FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 Earth Exploration-Satellite (Earth-to-space) S5.541 Mobile-Satellite (Earth-to-space) S5.540	Fixed and mobile satellites from uncoordinated Earth stations.	
29.90 - 30 GHz	FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 MOBILE-SATELLITE (Earth-to-space) Earth Exploration-Satellite (Earth-to-space) S5.541 S5.525 S5.526 S5.527 S5.538 S5.540 S5.542 S5.543	FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.484A S5.539 MOBILE-SATELLITE (Earth-to-space) Earth Exploration-Satellite (Earth-to-space) S5.541 S5.540 S5.525 S5.526 S5.527 S5.538 S5.543	Fixed and mobile satellites from uncoordinated Earth stations. FSS Space to Earth use limited to beacons for uplink power control 29.999 - 30 GHz.	
30 - 31 GHz	FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard Frequency and Time Signal-Satellite (space-to-Earth) S5.542	FIXED-SATELLITE (Earth-to-space) (space-to-Earth) MOBILE-SATELLITE (Earth-to-space)	Fixed and mobile satellites from uncoordinated Earth stations.	This is a harmonised military band for satellite uplinks.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
31 - 31.30 GHz	FIXED MOBILE Standard Frequency and Time Signal-Satellite (space-to-Earth) Space Research S5.544 S5.149 S5.545	FIXED MOBILE S5.149	Fixed links.	Fixed includes point to multipoint. RA continuum measurements.
31.30 - 31.50 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	Passive applications. Surface temperature and emissivity, atmospheric attenuation.	RA continuum measurements.
31.50 - 31.80 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except Aeronautical Mobile S5.149 S5.546	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except Aeronautical Mobile S5.149 S5.546	Passive applications. Surface temperature and emissivity, atmospheric attenuation.	Fixed includes point to multipoint. RA continuum measurements.
31.80 - 32 GHz	FIXED S5.547A RADIONAVIGATION SPACE RESEARCH (deep space)(space-to-Earth) S5.547 S5.548	FIXED S5.547A RADIONAVIGATION SPACE RESEARCH (space-to-Earth) S5.547 S5.548	High density fixed links.	FIXED to be reviewed at WRC-99. Space research (deep space) in some countries.
32 - 32.30 GHz	FIXED S5.547A INTER-SATELLITE RADIONAVIGATION SPACE RESEARCH (deep space)(space-to-Earth) S5.547 S5.548	FIXED S5.547A RADIONAVIGATION INTER-SATELLITE SPACE RESEARCH (space-to-Earth) S5.547 S5.548	High density fixed links.	FIXED to be reviewed at WRC-99. Space research (deep space) in some countries.
32.30 - 33 GHz	FIXED S5.547A INTER-SATELLITE RADIONAVIGATION S5.547 S5.548	FIXED S5.547A INTER-SATELLITE RADIONAVIGATION S5.547 S5.548	High density fixed links.	FIXED to be reviewed at WRC-99.
33 - 33.40 GHz	FIXED S5.547A RADIONAVIGATION S5.547	FIXED S5.547A RADIONAVIGATION INTER-SATELLITE	High density fixed links.	FIXED to be reviewed at WRC-99.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
		S5.547		
33.40 - 34.20 GHz	RADIOLOCATION S5.549	RADIOLOCATION	Motion sensors. Short range radar. Surveying and measurement. Defence systems.	EU2 EU27 This is a harmonised military band for radiolocation systems.
34.20 - 34.70 GHz	RADIOLOCATION SPACE RESEARCH (deep space)(Earth-to-space) S5.549	RADIOLOCATION SPACE RESEARCH (Earth-to-space)	Motion sensors. Short range radar. Surveying and measurement. Defence systems.	EU2 EU27 This is a harmonised military band for radiolocation systems.
34.70 - 35.20 GHz	RADIOLOCATION Space Research S5.549 S5.550	RADIOLOCATION Space Research	Surveying and measurement. Short range radar. Motion sensors. Defence systems.	EU2 EU27 This is a harmonised military band for radiolocation systems.
35.20 – 35.5 GHz	METEOROLOGICAL AIDS RADIOLOCATION S5.549	METEOROLOGICAL AIDS RADIOLOCATION	Short range radar. Defence systems.	EU2 EU27 This is a harmonised military band for radiolocation systems.
35.5 –36 GHz	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.549 S5.551A	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.551A	Satellite rain radars. Defence systems.	EU2 EU27 This is a harmonised military band for radiolocation systems.
36 - 37 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.149	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) Radio Astronomy S5.149	Snow, ice and precipitation measurements. Future non civil fixed and mobile systems. Defence systems.	EU27 This is a harmonised military band for fixed and mobile systems. Hydrogen cyanide and Hydroxil lines 36.43 - 36.5 GHz.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
37 - 37.50 GHz	FIXED MOBILE SPACE RESEARCH (space-to-Earth)	FIXED SPACE RESEARCH (space-to-Earth)	Low and medium capacity fixed links for civil and non civil applications. Sub bands 37 - 37.142 GHz paired with 38.26 - 38.402 GHz for unplanned, uncoordinated use, subject to national decisions.	EU2 ERC Recommendation T/R 12-01.
37.50 - 38 GHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (space-to-Earth) Earth Exploration-Satellite (space-to-Earth)	FIXED FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Earth Exploration-Satellite (space-to-Earth)	Low and medium capacity fixed links for civil and non civil applications. Telecommunications satellites for fixed applications. Priority for civil networks.	EU2 ERC Recommendation T/R 12-01.
38 - 39.50 GHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth Exploration-Satellite (space-to-Earth)	FIXED FIXED-SATELLITE (space-to-Earth) Earth Exploration-Satellite (space-to-Earth)	Low and medium capacity fixed links for civil and non civil applications. Sub bands 37 - 37.142 GHz paired with 38.26 - 38.402 GHz for unplanned, uncoordinated use, subject to national decisions. Telecommunications satellites for fixed applications. Priority for civil networks.	EU2 ERC Recommendation T/R 12-01.
39.50 - 40 GHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite (space-to-Earth)	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite (space-to-Earth)	Possible band for broadband mobile systems. Shared civil and non civil allocation for future satellite and terrestrial systems.	EU2

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
40 - 40.50 GHz	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth Exploration-Satellite (space-to-Earth)	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE ((space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth Exploration-Satellite (space-to-Earth)	Possible band for broadband mobile systems. Shared civil and non civil allocation for future satellite and terrestrial systems.	EU2
40.50 - 42.50 GHz	FIXED BROADCASTING BROADCASTING-SATELLITE Mobile S5.551B S5.551D	BROADCASTING BROADCASTING-SATELLITE FIXED S5.551B	Multipoint video distribution systems.	ERC Decision ERC/DEC/(96)05. ERC Recommendation T/R 52-01.
42.50 - 43.50 GHz	FIXED FIXED-SATELLITE (Earth-to-space) S5.552 MOBILE except Aeronautical Mobile RADIO ASTRONOMY S5.149	FIXED FIXED-SATELLITE (Earth-to-space) S5.552 MOBILE except Aeronautical Mobile RADIO ASTRONOMY S5.149	Future civil fixed and mobile systems. Possible band for broadband mobile system. RA applications. Telecommunications satellites for fixed applications. Priority for civil networks.	Silicon monoxide lines and many other spectral lines in this band.
43.50 - 45.50 GHz	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.554	MOBILE S5.553 MOBILE-SATELLITE Fixed-Satellite S5.554	Defence systems.	EU27 This is a harmonised military band for satellite uplinks and mobile systems. Radionavigation envisaged in some countries.
45.50 - 47 GHz		MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.554		

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
47 - 47.20 GHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE		
47.20 - 48.50 GHz	FIXED FIXED-SATELLITE (Earth-to-space) S5.552 MOBILE S5.149 S5.340 S5.552A S5.555	FIXED FIXED-SATELLITE (Earth-to-space) S5.552 MOBILE Amateur S5.552A S5.555	Telecommunications satellites for fixed applications. Priority for civil networks. Feeder links for 40 GHz broadcasting satellites. ENG/OB is envisaged.	High altitude platform stations in the bands 47.2-47.5 GHz and 47.9-48.2 GHz.
48.50 - 50.20 GHz		FIXED FIXED-SATELLITE (Earth-to-space) S5.552 MOBILE RADIO ASTRONOMY S5.149 S5.340 S5.555	Low and medium capacity fixed links. Telecommunications satellites for fixed applications. Priority for civil networks. Feeder links for broadcasting satellites 48.5 - 49.2 GHz. RA applications. ENG/OB is envisaged.	EU17A Carbon monosulphide line 48.94 - 49.04 GHz.
50.20 - 50.40 GHz	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.340 S5.555A	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.340	Passive applications.	
50.40 - 51.40 GHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Mobile-Satellite (Earth-to-space)	FIXED FIXED-SATELLITE (Earth-to-space) Mobile-Satellite (Earth-to-space)	Shared civil and non civil allocation for future satellite and terrestrial systems.	EU2
51.40 - 52.6 GHz	FIXED MOBILE S5.547 S5.556	FIXED MOBILE RADIO ASTRONOMY S5.547 S5.556	High density fixed links.	
52.6 – 54.25 GHz	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.340 S5.556	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.340 S5.556	Passive applications.	Atmospheric temperature sounding

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
54.25 - 55.78 GHz	EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE S5.556A SPACE RESEARCH (passive)	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive)	Passive applications.	Atmospheric temperature sounding.
55.78 - 56.9 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.556A MOBILE S5.558 SPACE RESEARCH (passive) S5.547	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.556A SPACE RESEARCH (passive) S5.547 S5.558	Passive applications. Low and medium capacity fixed links (1.47 GHz forward/ return separation): intended for support infrastructure for large scale mobile networks.	EU21 ERC Recommendation T/R 22-03. Atmospheric temperature sounding.
56.9 - 57.0 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.558A MOBILE S5.558 SPACE RESEARCH (passive) S5.547	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE S5.558 SPACE RESEARCH (passive) S5.547 S5.558A	Passive applications. Low power short range fixed and mobile systems (frequency planning not required).	EU21 ERC Recommendation T/R 22-03. Atmospheric temperature sounding.
57 – 58.2 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.556A MOBILE S5.558 SPACE RESEARCH (passive) S5.547	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.556A MOBILE S5.558 SPACE RESEARCH (passive) S5.547	Passive applications.	Atmospheric temperature sounding.
58.20 - 59 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.547 S5.556	EARTH EXPLORATION-SATELLITE (passive) FIXED RADIO ASTRONOMY SPACE RESEARCH (passive) S5.547 S5.556	Passive applications. High density fixed links.	EU6 EU19 Atmospheric temperature sounding.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
59 – 59.3 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.556A MOBILE S5.558 RADIOLOCATION S5.559 SPACE RESEARCH (passive)	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE S5.556A MOBILE S5.558 RADIOLOCATION S5.559 SPACE RESEARCH (passive)	Passive applications. Defence systems.	EU2 EU27 Atmospheric temperature sounding. The band 59-61 GHz is a harmonised military band for fixed, mobile and radiolocation systems.
59.3 - 62 GHz	FIXED INTER-SATELLITE MOBILE S5.558 RADIOLOCATION S5.559 S5.138	FIXED INTER-SATELLITE RADIOLOCATION S.5.559 S5.558	Defence systems. Cordless local area networks. ISM 61 - 61.5 GHz. SRD Low and medium capacity fixed links (1.47 GHz forward/return separation based on plan for 54.25 - 57.2 GHz).	EU2 EU27 ERC Recommendations CEPT/ERC/REC 70-03 & T/R 22-03. The band 59-61 GHz is a harmonised military band for fixed, mobile and radiolocation systems.
62 - 63 GHz		INTER-SATELLITE MOBILE S5.558 RADIOLOCATION S5.559	Short range non civil radiolocation. Broadband mobile systems for connection to IBCN paired with 65 - 66 GHz.	EU2 ERC Recommendation T/R 22-03.
63 - 64 GHz		INTER-SATELLITE MOBILE S5.558 RADIOLOCATION S5.559	Short range non civil radiolocation. Road transport and traffic telematics (RTTT vehicle to road/vehicle to vehicle).	Decision ERC/DEC/(92)02 ERC Recommendations CEPT/ERC/REC 70-03 & T/R 22-03.
64 - 65 GHz	FIXED INTER-SATELLITE MOBILE except aeronautical mobile S5.547 S5.556	FIXED INTER-SATELLITE MOBILE except aeronautical mobile S5.547 S5.556	High density fixed links.	
65 - 66 GHz	EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH S5.547	EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH S5.547	High density fixed links. Broadband mobile systems for connection to IBCN paired with 62 - 63 GHz.	ERC Recommendation T/R 22-03.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
66 - 71 GHz	INTER-SATELLITE MOBILE S5.553 S5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.554	INTER-SATELLITE MOBILE S5.553 S5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.554	Future civil systems.	
71 - 74 GHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) S5.149 S5.556	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY S5.149 S5.556	Defence systems. RA applications.	EU27 This is a harmonised military band. Pairing of this band with 81 - 84 GHz is envisaged in military systems. RA: Formaldehyde line 72.77 - 72.91 GHz.
74 - 75.50 GHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Space Research (space-to-Earth)	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Space Research (space-to-Earth)	Future civil systems.	
75.50 - 76 GHz	AMATEUR AMATEUR-SATELLITE Space Research (space-to-Earth)	AMATEUR AMATEUR-SATELLITE Space Research (space-to-Earth)		
76 - 78 GHz	RADIOLOCATION Amateur Amateur-Satellite Space Research (space-to-Earth)	RADIOLOCATION Amateur Amateur-Satellite Space Research (space-to-Earth)	Civil radiolocation. 76 - 77 GHz RTTT (Radar).	EU2 Decision ERC/DEC/(92)02 ERC Recommendation CEPT/ERC/REC 70-03.
78 - 81 GHz	S5.560	RADIOLOCATION Amateur Amateur-Satellite Earth Exploration-Satellite (active) Space Research (space-to-Earth) S5.560	Civil and non civil radiolocation.	EU2

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
81 - 84 GHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Space Research (space-to-Earth)	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Space Research (space-to-Earth)	Defence systems.	EU27 This is a harmonised military band. Pairing of this band with 71 - 74 GHz is envisaged in military systems.
84 - 86 GHz	FIXED MOBILE BROADCASTING BROADCASTING-SATELLITE S5.561	FIXED MOBILE BROADCASTING BROADCASTING-SATELLITE S5.561		
86 - 92 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	Passive applications.	RA: Continuum and spectral line measurements.
92 - 94 GHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIOLOCATION S5.149 S5.556	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIOLOCATION Radio Astronomy S5.149 S5.556	Short range radar.	EU2 RA: Diazenylium line and numerous other spectral lines.
94 – 94.1 GHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.562	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) S5.562	Short range radar. Cloud profiler radar.	EU2
94.1 –95 GHz	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIOLOCATION S5.556	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIOLOCATION S5.556	Short range radar.	EU2

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation	Major Utilisation	Notes
95 - 100 GHz	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation S5.149 S5.554 S5.555	MOBILE S5.553 MOBILE-SATELLITE RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation S5.149 S5.554 S5.555	RA applications.	EU2 RA: Multiple line Observations. Continuum observations.
100 - 102 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.341	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.341		
102 - 105 GHz	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE S5.341	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE S5.341		

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ANNEX 2

EU FOOTNOTES

EU1 Within the frequency band 20-108 MHz the common military tuning range is 30-87.5 MHz, however, some equipment types use the lower (20 MHz) and upper (108 MHz) limits, regulated on a national basis. The harmonised military bands are:- 30.30-30.50 MHz; 32.15-32.45 MHz; 41.00-47.00 MHz; 73.30-74.10 MHz; 79.0-79.70 MHz. When providing for additional requirements, further blocks of frequencies should be spread out over the whole common military tuning range in order to supply frequencies for frequency hopping equipment and to support a larger force (corps size, three divisions). This should be done by the national frequency management organisation(s) concerned.

EU2 Civil - military sharing

EU3 CEPT administrations are urged to take all practical steps to clear the band 47 - 68 MHz of assignments to the broadcasting service. The broadcasting assignments according to Stockholm Agreement 1961 shall be protected.

EU4 CEPT administrations are urged to take all practical steps to clear the band 68 - 73 MHz of assignments to the broadcasting service. The broadcasting assignments according to the Final Acts of the Special Regional Conference, Geneva, 1961 shall be protected.

EU5 In parts of this band aeronautical stations and aircraft stations may utilise 8.33 kHz channel spacing for non secure communications requirements.

EU6 The mobile-satellite service is limited to low earth orbiting satellites.

EU7 This band can also be used by low capacity fixed links in rural areas on a national basis. These links need to be coordinated with mobile service and require full protection.

EU8 Any use of low capacity fixed links shall be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.

EU9 This band in most CEPT countries will not be available to the mobile service on a primary basis before the year 2020 and in any event will be subject to a review. Until that time, in those countries utilising this band for the broadcasting service, the mobile service is available on a secondary basis.

EU10 The mobile service in the harmonised military band 225 - 400 MHz generally comprises land, air maritime and satellite mobile applications.

EU11 This Meteorological Aids service band shall be subject to further study to ascertain future requirements of this service. The study shall also consider the sharing possibilities between Meteorological Aids Service and Short Range Devices (SRDs) and Mobile Satellite Service taking into account the latest developments in the international forum. Possible segmentation of the band shall also be studied.

EU12 The applicable RR S5 footnotes remain in force. Administrations are however urged to aim for the fullest possible harmonisation with the ITU Table of Allocations and ECA.

EU13 CEPT Administrations are urged to take all practical steps to clear the band 645-960 MHz of the assignments to the aeronautical radionavigation service by the year 2008.

EU14 Radiolocation limited to military requirements for naval ship borne radars.

EU15 In the frequency band 1350-2690 MHz tactical radio relay systems should be capable of tuning over the full range of this band. Requirements for tactical radio relay should be met from the following sub-bands: 1350–1400 MHz; 1427–1452 MHz; 1492–1525 MHz; 1660–1670 MHz; 1675–1710 MHz; 1785–1800 MHz; 2025–2110 MHz; 2200–2290 MHz; 2520–2575 MHz; 2615–2670 MHz.

EU15A Use of the band by the mobile service is limited to tactical radio relay applications.

EU16 On the introduction of IMT-2000, the fixed service will become secondary in appropriate parts of the band.

EU16A Use of the band by the mobile service is limited to tactical radio relay and ENG/OB applications.

EU17 In the sub-bands 3400 - 3410 MHz, 5660 - 5670 MHz, 10.36 - 10.37 GHz, 10.45 - 10.46 GHz the amateur service operates on a secondary basis. In making assignments to other services, CEPT administrations are requested wherever possible to maintain these sub-bands in such a way as to facilitate the reception of amateur emissions with minimal power flux densities.

EU17A Use of the band by the mobile service is limited to ENG/OB applications.

EU18 This aeronautical radionavigation band shall be subject to further study to ascertain future requirements and developments.

EU19 This band is allocated to the radio astronomy service. CEPT administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations in this and adjacent bands can cause serious harmful interference.

EU20 This fixed service band is designated for common use by civil and non civil users. Any user priorities in respect of preferred channels or sub-bands are to be determined after discussions between interested parties.

EU21 Not used.

EU22 The band 5250 - 5850 MHz is utilised for a variety of radiodetermination applications falling within the radionavigation and radiolocation services. This band will be subject to further detailed consideration in particular to identify a secondary allocation for the fixed service to accommodate transportable ENG and remote camera applications.

EU23 In the sub-bands 5660 - 5670 MHz (earth to space), 5830 - 5850 MHz (space to earth) and 10.45 - 10.50 GHz the amateur-satellite additionally operates on a secondary and non interference basis to other services. In making assignments to other services, CEPT administrations are requested wherever possible to maintain these allocations in such a way as to facilitate the reception of amateur emissions with minimal power flux densities.

EU24 The band 8500 - 10000 MHz is utilised for a variety of radiodetermination applications falling within the radionavigation and radiolocation services. This band will be subject to further detailed consideration in conjunction with the band 5250 - 5850 MHz (see EU20).

EU25 Not used.

EU26 The band 13.25 - 14.0 GHz is utilised for a variety of radiodetermination applications falling within the radionavigation and radiolocation services. This band will be subject to further detailed consideration.

EU27 A frequency band that is in general military use in Europe and identified for major military utilisation in the ECA. Such a frequency band forms a basis for military use and planning. The band can be shared between civil and military users according to national requirements and legislation.

ANNEX 3

RELEVANT RR ARTICLE S5 FOOTNOTES

S5.111 The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article **S31** and in Appendix **S13**.
The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of ± 3 kHz about the frequency.

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

S5.138 The following bands:

6 765 - 6 795 kHz	(centre frequency 6 780 kHz),
433.05 - 434.79 MHz	(centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. **S5.280**,
61 - 61.5 GHz	(centre frequency 61.25 GHz),
122 - 123 GHz	(centre frequency 122.5 GHz), and
244 - 246 GHz	(centre frequency 245 GHz)

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

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

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

are allocated (* indicates radio astronomy use for spectral line observations), administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **S4.5** and **S4.6** and Article **S29**).

S5.150 The following bands:

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

are also designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within these bands must accept harmful interference which may be caused by these applications. ISM equipment operating in these bands is subject to the provisions of No. **S15.13**.

S5.160 *Additional allocation:* in Botswana, Burundi, Lesotho, Malawi, Namibia, Rwanda, Swaziland and Zaire, the band 41 - 44 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

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

S5.162A *Additional allocation:* in Germany, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Denmark, Spain, Estonia, Finland, France, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Luxembourg, Moldova, Monaco, Norway, the Netherlands, Poland, Portugal, Slovakia, the Czech Republic, the United Kingdom, Russia, Sweden, Switzerland and Turkey, the band 46-68 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (WRC-97)**.

S5.163 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Estonia, Georgia, Hungary, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Russia, Tajikistan, Turkmenistan and Ukraine, the bands 47 - 48.5 MHz and 56.5 - 58 MHz are also allocated to the fixed and land mobile services on a secondary basis.

S5.164 *Additional allocation:* in Albania, Germany, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Côte d'Ivoire, Denmark, Spain, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Nigeria, Norway, the Netherlands, Poland, Syria, the United Kingdom, Senegal, Slovenia, Sweden, Switzerland, Swaziland, Togo, Tunisia, Turkey and Yugoslavia the band 47 - 68 MHz, in Romania the band 47 - 58 MHz and in the Czech Republic the band 66 - 68 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band.

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

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

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

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

S5.169 *Alternative allocation:* in Botswana, Burundi, Lesotho, Malawi, Namibia, Rwanda, South Africa, Swaziland, Zaire, Zambia and Zimbabwe, the band 50 - 54 MHz is allocated to the amateur service on a primary basis.

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

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

S5.172 *Different category of service:* in the French Overseas Departments in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 54 - 68 MHz to the fixed and mobile services is on a primary basis (see No. **S5.33**).

S5.173 *Different category of service:* in the French Overseas Departments in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 68 - 72 MHz to the fixed and mobile services is on a primary basis (see No. **S5.33**).

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

S5.175 *Alternative allocation:* in Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the bands 68 - 73 MHz and 76 - 87.5 MHz are allocated to the broadcasting service on a primary basis. The services to which these bands are allocated in other countries and the broadcasting service in the countries listed above are subject to agreements with the neighbouring countries concerned.

S5.177 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the band 73-74 MHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **S9.21**.

S5.179 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, China, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Kyrgyzstan, Slovakia, the Czech Republic, Russia, Tajikistan, Turkmenistan and Ukraine, the bands 74.6 - 74.8 MHz and 75.2 - 75.4 MHz are also allocated to the aeronautical radionavigation service, on a primary basis, for ground-based transmitters only.

S5.180 The frequency 75 MHz is assigned to marker beacons. Administrations shall refrain from assigning frequencies close to the limits of the guardband to stations of other services which, because of their power or geographical position, might cause harmful interference or otherwise place a constraint on marker beacons. Every effort should be made to improve further the characteristics of airborne receivers and to limit the power of transmitting stations close to the limits 74.8 MHz and 75.2 MHz.

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

S5.184 *Additional allocation:* in Bulgaria and Romania, the band 76 - 87.5 MHz is also allocated to the broadcasting service on a primary basis and used in accordance with the decisions contained in the Final Acts of the Special Regional Conference (Geneva, 1960).

S5.187 *Alternative allocation:* in Albania, the band 81 - 87.5 MHz is allocated to the broadcasting service on a primary basis and used in accordance with the decisions contained in the Final Acts of the Special Regional Conference (Geneva, 1960).

S5.190 *Additional allocation:* in Monaco, the band 87.5 - 88 MHz is also allocated to the land mobile service on a primary basis, subject to agreement obtained under No. **S9.21**.

S5.194 *Additional allocation:* in Azerbaijan, Lebanon, Syria, Kyrgyzstan, Somalia and Turkmenistan, the band 104-108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a secondary basis.

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

S5.198 *Additional allocation:* the band 117.975 - 136 MHz is also allocated to the aeronautical mobile-satellite (R) service on a secondary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

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

S5.200 In the band 117.975 - 136 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Article **S31** and Appendix **S13** for distress and safety purposes with stations of the aeronautical mobile service.

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

S5.202 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, United Arab Emirates, Georgia, Islamic Republic of Iran, Jordan, Kazakstan, Latvia, Moldova, Oman, Uzbekistan, Poland, Syria, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan, Turkey and Ukraine, the band 136 - 137 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service.

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

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

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

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

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

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

S5.208 The use of the band 137-138 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-97)/**No. **S9.11A**.

S5.208A In making assignments to space stations in the mobile-satellite service in the bands 137 - 138 MHz, 387 - 390 MHz and 400.15 - 401 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05 - 153 MHz, 322 - 328.6 MHz, 406.1 - 410 MHz and 608 - 614 MHz from harmful interference from unwanted emissions. The threshold levels of interference detrimental to the radio astronomy service are shown in Table 1 of Recommendation ITU-R RA.769-1.

S5.209 The use of the bands 137-138 MHz, 148-150.05 MHz, 399.9-400.05 MHz, 400.15-401 MHz, 454-456 MHz and 459-460 MHz by the mobile-satellite service is limited to non-geostationary-satellite systems.

S5.210 *Additional allocation:* in Austria, France, Italy, Liechtenstein, Slovakia, the Czech Republic, the United Kingdom and Switzerland, the bands 138-143.6 MHz and 143.65-144 MHz are also allocated to the space research service (space-to-Earth) on a secondary basis.

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

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

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

S5.218 *Additional allocation:* the band 148 - 149.9 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **S9.21**. The bandwidth of any individual transmission shall not exceed ± 25 kHz.

S5.219 The use of the band 148 - 149.9 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-97)**/No. **S9.11A**. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the band 148 - 149.9 MHz.

S5.220 The use of the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-97)**/No. **S9.11A**. The mobile-satellite service shall not constrain the development and use of the radionavigation-satellite service in the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz.

S5.221 Stations of the mobile-satellite service in the band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo, the Republic of Korea, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, the Islamic Republic of Iran, Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakstan, Kenya, Kuwait, Latvia, The Former Yugoslav Republic of Macedonia, Lebanon, Libya, Liechtenstein, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, Philippines, Poland, Portugal, Qatar, Syria, Kyrgyzstan, Slovakia, Romania, the United Kingdom, Russia, Senegal, Sierra Leone, Singapore, Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Yugoslavia, Zambia, and Zimbabwe.

S5.222 Emissions of the radionavigation-satellite service in the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz may also be used by receiving earth stations of the space research service.

S5.223 Recognising 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 authorise such use in application of No. **S4.4**.

S5.224A The use of the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz by the mobile-satellite service (Earth-to-space) is limited to the land mobile-satellite service (Earth-to-space) until 1 January 2015.

S5.224B The allocation of the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz to the radionavigation-satellite service shall be effective until 1 January 2015.

S5.226 The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency are contained in Article **S31** and Appendix **S13**. In the bands 156 - 156.7625 MHz, 156.8375 - 157.45 MHz, 160.6 - 160.975 MHz and 161.475 - 162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles **S31** and **S52**, and Appendix **S13**).
Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.
However, the frequency 156.8 MHz and the frequency bands in which priority is given to the maritime mobile service may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations and taking into account current frequency usage and existing agreements.

S5.227 In the maritime mobile VHF service the frequency 156.525 MHz is to be used exclusively for digital selective calling for distress, safety and calling (see Resolution **323 (Mob-87)**). The conditions for the use of this frequency are prescribed in Articles **S31** and **S52**, and Appendices **S13** and **S18**.

S5.229 *Alternative allocation:* in Morocco, the band 162 - 174 MHz is allocated to the broadcasting service on a primary basis. The use of this band shall be subject to agreement with administrations having services, operating or planned, in accordance with the Table which are likely to be affected. Stations in existence on 1 January 1981, with their technical characteristics as of that date, are not affected by such agreement.

S5.235 *Additional allocation:* in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein, Malta, Monaco, Norway, the Netherlands, the United Kingdom, Sweden and Switzerland, the band 174 - 223 MHz is also allocated to the land mobile service on a primary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.

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

S5.243 *Additional allocation:* in Somalia, the band 216 - 225 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to not causing harmful interference to existing or planned broadcasting services in other countries.

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

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

S5.251 *Additional allocation:* in Nigeria, the band 230 - 235 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to agreement obtained under No. **S9.21**.

S5.252 *Alternative allocation:* in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the bands 230 - 238 MHz and 246 - 254 MHz are allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **S9.21**.

S5.254 The bands 235 - 322 MHz and 335.4 - 399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **S9.21**, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations.

S5.255 The bands 312 - 315 MHz (Earth-to-space) and 387 - 390 MHz (space-to-Earth) in the mobile-satellite service may also be used by non-geostationary-satellite systems. Such use is subject to coordination under Resolution **46 (Rev.WRC-97)/**No. **S9.11A.**

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

S5.257 The band 267 - 272 MHz may be used by administrations for space telemetry in their countries on a primary basis, subject to agreement obtained under No. **S9.21**.

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

S5.259 *Additional allocation:* in Germany, Austria, Cyprus, the Republic of Korea, Denmark, Egypt, Spain, France, Greece, Israel, Italy, Japan, Jordan, Malta, Morocco, Monaco, Norway, the Netherlands, Syria and Sweden, the band 328.6-335.4 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **S9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. **S9.21**.

S5.260 Recognising 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 authorise such use in application of No. **S4.4**.

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

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

S5.263 The band 400.15 - 401 MHz is also allocated to the space research service in the space-to-space direction for communications with manned space vehicles. In this application, the space research service will not be regarded as a safety service.

S5.264 The use of the band 400.15 - 401 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-97)**/No. **S9.11A**. The power flux-density limit indicated in Annex 2 of Resolution **46 (Rev. WRC-95)**/Annex 1 of Appendix **S5** shall apply until such time as a competent world radiocommunication conference revises it.

S5.266 The use of the band 406 - 406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radiobeacons (see also Article **S31** and Appendix **S13**).

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

S5.268 Use of the band 410-420 MHz by the space research service is limited to communications within 5 km of an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from extra-vehicular activities shall not exceed -153 dB(W/m^2) for $0° \leq \delta \leq 5°$, $-153 + 0.077 (\delta - 5)$ dB(W/m^2) for $5° \leq \delta \leq 70°$ and -148 dB(W/m^2) for $70° \leq \delta \leq 90°$, where δ is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. No. **S4.10** does not apply to extra-vehicular activities. In this frequency band the space research (space-to-space) service shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services.

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

S5.271 *Additional allocation:* in Azerbaijan, Belarus, China, Estonia, India, Latvia, Lithuania, Kyrgyzstan, Turkmenistan and Ukraine, the band 420-460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis.

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

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

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

S5.275 *Additional allocation:* in Bosnia and Herzegovina, Croatia, Estonia, Finland, Latvia, The Former Yugoslav Republic of Macedonia, Libya, Slovenia and Yugoslavia, the bands 430-432 MHz and 438-440 MHz are also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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

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

S5.280 In Germany, Austria, Bosnia and Herzegovina, Croatia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Portugal, Slovenia, Switzerland and Yugoslavia, the band 433.05 - 434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services of these countries operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. **S15.13**.

S5.281 *Additional allocation:* in the French Overseas Departments in Region 2 and India, the band 433.75 - 434.25 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis. In France and in Brazil, the band is allocated to the same service on a secondary basis.

S5.282 In the bands 435 - 438 MHz, 1 260 - 1 270 MHz, 2 400 - 2 450 MHz, 3 400 - 3 410 MHz (in Regions 2 and 3 only) and 5 650 - 5 670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. **S5.43**). Administrations authorising such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. **S25.11**. The use of the bands 1 260 - 1 270 MHz and 5 650 - 5 670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.

S5.283 *Additional allocation:* in Austria, the band 438 - 440 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

S5.286 The band 449.75 - 450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), subject to agreement obtained under No. **S9.21**.

S5.286A The use of the bands 454 - 456 MHz and 459 - 460 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-97)**/No. **S9.11A**.

S5.286B The use of the band 454-455 MHz in the countries listed in No. **S5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **S5.286E**, by stations in the mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations.

S5.286C The use of the band 454-455 MHz in the countries listed in No. **S5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **S5.286E**, by stations in the mobile-satellite service, shall not constrain the development and use of the fixed and mobile services operating in accordance with the Table of Frequency Allocations.

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

S5.286E *Additional allocation:* in Cape Verde, Indonesia, Nepal, Nigeria and Papua New Guinea, the bands 454-456 MHz and 459-460 MHz are also allocated to the mobile-satellite (Earth-to-space) service on a primary basis.

S5.287 In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. Where needed, equipment designed for 12.5 kHz channel spacing using also the additional frequencies 457.5375 MHz, 457.5625 MHz, 467.5375 MHz and 467.5625 MHz may be introduced for on-board communications. The use of these frequencies in territorial waters may be subject to the national regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174 (see Resolution **341 (WRC-97)**).

S5.289 Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460 - 470 MHz and 1 690 - 1 710 MHz for space-to-Earth transmissions subject to not causing harmful interference to stations operating in accordance with the Table.

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

S5.291A *Additional allocation:* in Germany, Austria, Denmark, Estonia, Finland, Liechtenstein, Norway, Netherlands, the Czech Republic and Switzerland, the band 470-494 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (WRC-97)**.

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

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

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

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

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

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

S5.311 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 and 507). 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.

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

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

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

S5.316 *Additional allocation:* in Germany, Bosnia and Herzegovina, Burkina Faso, Cameroon, Côte d'Ivoire, Croatia, Denmark, Egypt, Finland, Israel, Kenya, The Former Yugoslav Republic of Macedonia, Libya, Liechtenstein, Monaco, Norway, the Netherlands, Portugal, Syria, Sweden, Switzerland and Yugoslavia, the band 790 - 830 MHz, and in these same countries and in Spain, France, Gabon, and Malta, the band 830 - 862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band.

S5.319 *Additional allocation:* in Belarus, Russia and Ukraine, the bands 806 - 840 MHz (Earth-to-space) and 856 - 890 MHz (space-to-Earth) are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service. The use of these bands by this service shall not cause harmful interference to, or claim protection from, services in other countries operating in accordance with the Table of Frequency Allocations and is subject to special agreements between the administrations concerned.

S5.321 *Alternative allocation:* in Italy, the band 838 - 854 MHz is allocated to the broadcasting service on a primary basis as from 1 January 1995.

S5.322 In Region 1, in the band 862 - 960 MHz, stations of the broadcasting service shall be operated only in the African Broadcasting Area (see Nos. **S5.10** to **S5.13**) excluding Algeria, Egypt, Spain, Libya, Morocco, Nigeria, South Africa, Tanzania and Zimbabwe subject to agreement obtained under No. **S9.21**.

S5.323 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Hungary, Kazakstan, Latvia, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 862-960 MHz is also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. **S9.21** with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime.

S5.328 The band 960 - 1 215 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based facilities.

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

S5.330 *Additional allocation:* in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Libya, Morocco, Mozambique, Nepal, Nigeria, Pakistan, the Philippines, Qatar, Syria, Somalia, Sudan, Sri Lanka, Chad, Togo and Yemen, the band 1 215-1 300 MHz is also allocated to the fixed and mobile services on a primary basis.

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

S5.332 In the band 1 215 - 1 300 MHz, active spaceborne sensors in the earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the radionavigation-satellite service and other services allocated on a primary basis.

S5.337 The use of the bands 1 300 - 1 350 MHz, 2 700 - 2 900 MHz and 9 000 - 9 200 MHz by the aeronautical radionavigation service is restricted to ground-based radars and to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.

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

S5.339 The bands 1 370 - 1 400 MHz, 2 640 - 2 655 MHz, 4 950 - 4 990 MHz and 15.20 - 15.35 GHz are also allocated to the space research (passive) and earth exploration-satellite (passive) services on a secondary basis.

S5.340 All emissions are prohibited in the following bands:
1 400-1 427 MHz,
2 690-2 700 MHz except those provided for by Nos. **S5.421** and **S5.422**,
10.68-10.7 GHz except those provided for by No. **S5.483**,
15.35-15.4 GHz except those provided for by No. **S5.511**,
23.6-24 GHz,
31.3-31.5 GHz,
31.5-31.8 GHz in Region 2,
48.94-49.04 GHz from airborne stations,
50.2-50.4 GHz [1] except those provided for by No. **S5.555A**,
52.6-54.25 GHz,
86-92 GHz,
105-116 GHz,
140.69-140.98 GHz from airborne stations and from space stations in the space-to-Earth direction,
182-185 GHz except those provided for by No. **S5.563**,
217-231 GHz.

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

S5.341 In the bands 1 400 - 1 727 MHz, 101 - 120 GHz and 197 - 220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.

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

S5.345 Use of the band 1 452 - 1 492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (WARC-92).**

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

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

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

S5.351 The bands 1 525 - 1 544 MHz, 1 545 - 1 559 MHz, 1 626.5 - 1 645.5 MHz and 1 646.5 - 1 660.5 MHz shall not be used for feeder links of any service. In exceptional circumstances, however, an earth station at a specified fixed point in any of the mobile-satellite services may be authorised by an administration to communicate via space stations using these bands.

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

S5.353A In applying the procedures of No. **S9.11A** to the mobile-satellite service in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS). Maritime mobile-satellite distress, urgency and safety communications shall have priority access and immediate availability over all other mobile satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (See Resolution **218 (WRC-97)**.)

S5.354 The use of the bands 1 525 - 1 559 MHz and 1 626.5 - 1 660.5 MHz by the mobile-satellite services is subject to coordination under Resolution **46 (Rev. WRC-97)**/No. **S9.11A**.

S5.355 *Additional allocation:* in Bahrain, Bangladesh, the Congo, Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Malta, Morocco, Oman, Qatar, Syria, Somalia, Sudan, Sri Lanka, Chad, Togo, Yemen and Zambia, the bands 1 540-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a secondary basis.

S5.356 The use of the band 1 544 - 1 545 MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications (see Article **S31**).

S5.357 Transmissions in the band 1 545 - 1 555 MHz from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorised when such transmissions are used to extend or supplement the satellite-to-aircraft links.

S5.357A In applying the procedures of No. **S9.11A** to the mobile-satellite service in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **S44**. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44** shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (See Resolution **218 (WRC-97)**.)

S5.359 *Additional allocation:* in Germany, Saudi Arabia, Armenia, Austria, Azerbaijan, Belarus, Benin, Bulgaria, Cameroon, Spain, France, Gabon, Georgia, Greece, Guinea, Guinea-Bissau, Hungary, Jordan, Kazakstan, Kuwait, Latvia, Libya, Mali, Mauritania, Moldova, Mongolia, Nigeria, Uganda, Uzbekistan, Pakistan, Poland, Syria, Kyrgyzstan, the Democratic People's Republic of Korea, Romania, Russia, Senegal, Swaziland, Tajikistan, Tanzania, Turkmenistan, Ukraine, Zambia and Zimbabwe the bands 1 550 - 1 645.5 MHz and 1 646.5 - 1 660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in the bands 1 550 - 1 555 MHz, 1 610 - 1 645.5 MHz and 1 646.5 - 1 660 MHz.

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

S5.364 The use of the band 1 610 - 1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under Resolution **46 (Rev.WRC-97)/**No. **S9.11A**. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of -15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. **S5.366** (to which No. **S4.10** applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed -3 dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. **S5.366** and stations in the fixed service operating in accordance with the provisions of No. **S5.359**. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. **S5.366**.

S5.365 The use of the band 1 613.8 - 1 626.5 MHz by the mobile-satellite service (space-to-Earth) is subject to coordination under Resolution **46 (Rev.WRC-97)/**No. **S9.11A**.

S5.366 The band 1 610 - 1 626.5 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is subject to agreement obtained under No. **S9.21**.

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

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

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

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

S5.372 Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6 - 1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. **S29.13** applies).

S5.374 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 the stations in the fixed service operating in the countries listed in No. **S5.359.**

S5.375 The use of the band 1 645.5 - 1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article **S31**).

S5.376 Transmissions in the band 1 646.5 - 1 656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorised when such transmissions are used to extend or supplement the aircraft-to-satellite links.

S5.376A Mobile earth stations operating in the band 1 660-1 660.5 MHz shall not cause harmful interference to stations in the radio astronomy service.

S5.379A Administrations are urged to give all practicable protection in the band 1 660.5 - 1 668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1 664.4 - 1 668.4 MHz as soon as practicable.

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

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

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

S5.387 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Georgia, Kazakstan, Mali, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 1 770-1 790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under No. **S9.21**.

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

S5.389A The use of the bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-97)**/No. **S9.11A** and to the provisions of Resolution **716 (WRC-95).** The use of these bands shall not commence before 1 January 2000; however the use of the band 1 980 - 1 990 MHz in Region 2 shall not commence before 1 January 2005.

S5.389B The use of the band 1 980 - 1 990 MHz by the mobile-satellite service shall not cause harmful interference to or constrain the development of the fixed and mobile services in Argentina, Brazil, Canada, Chile, Ecuador, the United States, Honduras, Jamaica, Mexico, Peru, Suriname, Trinidad and Tobago, Uruguay and Venezuela.

S5.389F In Algeria, Benin, Cape Verde, Egypt, Mali, Syria and Tunisia, the use of the bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz by the mobile-satellite service shall neither cause harmful interference to the fixed and mobile services, nor hamper the development of those services prior to 1 January 2005, nor shall the former service request protection from the latter services.

S5.391 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.

S5.392 Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2 025 - 2 110 MHz and 2 200 - 2 290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.

S5.392A *Additional allocation:* in Russia, the band 2 160 - 2 200 MHz is also allocated to the space research service (space-to-Earth) on a primary basis until 1 January 2005. Stations in the space research service shall not cause harmful interference to, or claim protection from, stations in the fixed and mobile services operating in this frequency band.

S5.395 In France, the use of the band 2 310 - 2 360 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.

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

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

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

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

S5.402 The use of the band 2 483.5 - 2 500 MHz by the mobile-satellite and the radiodetermination-satellite services is subject to the coordination under Resolution **46 (Rev.WRC-97)/**No. **S9.11A**. Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2 483.5 - 2 500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4 990 -5 000 MHz band allocated to the radio astronomy service worldwide.

S5.403 Subject to agreement obtained under No. **S9.21**, the band 2 520 - 2 535 MHz (until 1 January 2005 the band 2 500 - 2 535 MHz) may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The provisions of Resolution **46 (Rev.WRC-97)/**No. **S9.11A** apply.

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

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

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

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

S5.411 When planning new tropospheric scatter radio-relay links in the band 2 500 - 2 690 MHz, all possible

measures shall be taken to avoid directing the antennae of these links towards the geostationary-satellite orbit.

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

S5.413 In the design of systems in the broadcasting-satellite service in the bands between 2 500 MHz and 2 690 MHz, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2 690 - 2 700 MHz.

S5.414 The allocation of the frequency band 2 500 - 2 520 MHz to the mobile-satellite service (space-to-Earth) shall be effective on 1 January 2005 and is subject to coordination under Resolution **46 (Rev.WRC-97)**/No. **S9.11A**.

S5.416 The use of the band 2 520 - 2 670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. **S9.21**. The power flux-density at the Earth's surface shall not exceed the values given in Article **S21**, Table S21-4.

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

S5.418 *Additional allocation:* in Bangladesh, Belarus, China, Rep. of Korea, India, Japan, Pakistan, Russia, Singapore, Sri Lanka, Thailand and Ukraine the band 2 535 - 2 655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to provisions of Resolution **528 (WARC-92).** The provisions of No. **S5.416** and Article **S21**, Table S21-4, do not apply to this additional allocation.

S5.419 The allocation of the frequency band 2 670 - 2 690 MHz to the mobile-satellite service shall be effective from 1 January 2005. When introducing systems of the mobile-satellite service in this band, administrations shall take all necessary steps to protect the satellite systems operating in this band prior to 3 March 1992. The coordination of mobile-satellite systems in the band shall be in accordance with Resolution **46 (Rev.WRC-97)/**No. **S9.11A**.

S5.420 The band 2 655 - 2 670 MHz (until 1 January 2005 the band 2 655 - 2 690 MHz) may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite, service for operation limited to within national boundaries, subject to agreement obtained under No. **S9.21**. The coordination under Resolution **46 (Rev.WRC-97)**/No. **S9.11A** applies.

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

S5.422 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Brunei Darussalam, the Central African Republic, the Congo, Côte d'Ivoire, Cuba, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kazakstan, Lebanon, Malaysia, Mali, Morocco, Mauritania, Moldova, Mongolia, Nigeria, Oman, Uzbekistan, Pakistan, the Philippines, Qatar, Syria, Kyrgyzstan, Romania, Russia, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine, Yemen, Yugoslavia, Zaire and Zambia, the band 2 690-2 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

S5.423 In the band 2 700 - 2 900 MHz, ground-based radars used for meteorological purposes are authorised to operate on a basis of equality with stations of the aeronautical radionavigation service.

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

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

S5.427 In the bands 2 900 - 3 100 MHz and 9 300 - 9 500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. **S4.9** of these Regulations.

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

S5.429 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, the Congo, the Republic of Korea, the United Arab Emirates, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Libya, Malaysia, Oman, Pakistan, Qatar, Syria, Democratic People's Republic of Korea and Yemen, the band 3 300-3 400 MHz is also allocated to the fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service.

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

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

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

S5.438 Use of the band 4 200 - 4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. However, passive sensing in the earth exploration-satellite and space research services may be authorised in this band on a secondary basis (no protection is provided by the radio altimeters).

S5.440 The standard frequency and time signal-satellite service may be authorised to use the frequency 4 202 MHz for space-to-Earth transmissions and the frequency 6 427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of 2 MHz of these frequencies, subject to agreement obtained under **No. S9.21**.

S5.441 The use of the bands 4 500-4 800 MHz (space-to-Earth), 6 725-7 025 MHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix **S30B**. The use of the bands 10.7-10.95 GHz (space-to-Earth), 11.2-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by geostationary-satellite systems in the fixed-satellite service shall be in accordance with the provisions of Appendix **S30B**. The use of the bands 10.7-10.95 GHz (space-to-Earth), 11.2-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by non-geostationary-satellite systems in the fixed-satellite service shall be in accordance with the provisions of Resolution **130 (WRC-97)**.

S5.442 In the bands 4 825 - 4 835 MHz and 4 950 - 4 990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service.

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

S5.444A *Additional allocation:* the band 5 091 - 5 150 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. This allocation is limited to feeder links of non-geostationary mobile-satellite systems and is subject to coordination under Resolution **46 (Rev.WRC-97)**/No. **S9.11A**.

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

- prior to 1 January 2010, the use of the band 5 091 - 5 150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution **114 (WRC-95);**
- prior to 1 January 2010, the requirements of existing and planned international standard systems for the aeronautical radionavigation service which cannot be met in the 5 000 - 5 091 MHz band, shall take precedence over other uses of this band;
- after 1 January 2008, no new assignments shall be made to stations providing feeder links of non-geostationary mobile-satellite systems;
- after 1 January 2010, the fixed-satellite service will become secondary to the aeronautical radionavigation service.

S5.446 *Additional allocation:* in the countries listed in Nos. **S5.369** and **S5.400**, the band 5 150 - 5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **S9.21**. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. **S5.369** and **S5.400**, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1 610 - 1 626.5 MHz and/or 2 483.5 -2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed
-159 dB(W/m²) in any 4 kHz band for all angles of arrival.

S5.447 *Additional allocation:* in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Israel, Italy, Japan, Jordan, Lebanon, Liechtenstein, Luxembourg, Malta, Morocco, Norway, Pakistan, the Netherlands, Portugal, Syria, the United Kingdom, Sweden, Switzerland and Tunisia, the band 5 150 - 5 250 MHz is also allocated to the mobile service, on a primary basis, subject to agreement obtained under No. **S9.21**.

S5.447A The allocation to the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to coordination under Resolution **46 (Rev.WRC-97)**/ No. **S9.11A**.

S5.447B *Additional allocation:* the band 5 150 - 5 216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to provisions of Resolution **46 (Rev.WRC-97)/** No. **S9.11A.** The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5 150 - 5 216 MHz shall in no case exceed
-164 dB(W/m²) in any 4 kHz band for all angles of arrival.

S5.447C Administrations responsible for fixed-satellite service networks in the band 5 150 - 5 250 MHz operated under Nos. **S5.447A** and **S5.447B** shall coordinate on an equal basis in accordance with Resolution **46 (Rev.WRC-97)/**No. **S9.11A** with administrations responsible for non-geostationary-satellite networks operated under No. **S5.446** and brought into use prior to 17 November 1995. Satellite networks operated under No. **S5.446** brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. **S5.447A** and **S5.447B.**

S5.447D The allocation of the band 5 250 - 5 255 MHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis.

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

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

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

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

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

S5.451 *Additional allocation:* in the United Kingdom, the band 5 470 - 5 850 MHz is also allocated to the land mobile service on a secondary basis. The power limits specified in Nos. **S21.2, S21.3, S21.4** and **S21.5** shall apply in the band 5 725 - 5 850 MHz.

S5.452 Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are authorised to operate on a basis of equality with stations of the maritime radionavigation service.

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

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

S5.455 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Cuba, Hungary, Kazakstan, Latvia, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Russia, Tajikistan, Turkmenistan and Ukraine, the band 5 670 - 5 850 MHz is also allocated to the fixed service on a primary basis.

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

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

S5.458A In making assignments in the band 6 700 - 7 075 MHz to space stations of the fixed-satellite service, administrations are urged to take all practicable steps to protect spectral line observations of the radio astronomy service in the band 6 650 - 6 675.2 MHz from harmful interference from unwanted emissions.

S5.458B The space-to-Earth allocation to the fixed-satellite service in the band 6 700 - 7 075 MHz is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service and is subject to coordination under Resolution **46 (Rev.WRC-97)**/No. **S9.11A**. The use of the band 6 700 - 7 075 MHz (space-to-Earth) by feeder links for non-geostationary satellite systems in the mobile-satellite service is not subject to No. **S22.2.**

S5.458C Administrations making submissions in the band 7 025 - 7 075 MHz (Earth-to-space) for geostationary-satellite systems in the fixed-satellite service after 17 November 1995 shall consult on the

basis of relevant ITU-R Recommendations with the administrations that have notified and brought into use non-geostationary-satellite systems in this frequency band before 18 November 1995 upon request of the latter administrations. This consultation shall be with a view to facilitating shared operation of both geostationary-satellite systems in the fixed-satellite service and non-geostationary-satellite systems in this band.

S5.459 *Additional allocation:* in Russia, the frequency bands 7 100 - 7 155 MHz and 7 190 - 7 235 MHz are also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **S9.21**.

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

S5.461 *Additional allocation:* the bands 7 250 - 7 375 MHz (space-to-Earth) and 7 900 - 8 025 MHz (Earth-to-space) are also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. **S9.21**.

S5.461A The use of the band 7 450-7 550 MHz by the meteorological-satellite service (space-to-Earth) is limited to geostationary-satellite systems. Non-geostationary meteorological-satellite systems in this band notified before 30 November 1997 may continue to operate on a primary basis until the end of their lifetime.

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

S5.462A In Regions 1 and 3 (except for Japan), in the band 8 025-8 400 MHz, the earth exploration-satellite service using geostationary satellites shall not produce a power flux-density in excess of the following provisional values for angles of arrival (θ), without the consent of the affected administration:
-174 dB(W/m 2) in a 4 kHz band for $0° \le \theta < 5°$
$-174 + 0.5\ (q - 5)$ dB(W/m 2) in a 4 kHz band for $5° \le \theta < 25°$
-164 dB(W/m 2) in a 4 kHz band for $25° \le \theta \le 90°$
These values are subject to study under Resolution **124 (WRC-97)**.

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

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

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

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

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

S5.469 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 8 500 - 8 750 MHz is also allocated to the land mobile and radionavigation services on a primary basis.

S5.469A In the band 8 550-8 650 MHz, stations in the earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radiolocation service.

S5.470 The use of the band 8 750 - 8 850 MHz by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8 800 MHz.

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

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

S5.473 *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Cuba, Georgia, Hungary, Kazakstan, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan. Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the bands 8 850 - 9 000 MHz and 9 200 - 9 300 MHz are also allocated to the radionavigation service on a primary basis.

S5.474 In the band 9 200 - 9 500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article **S31**).

S5.475 The use of the band 9 300 - 9 500 MHz by the aeronautical radionavigation service is limited to airborne weather radars and ground-based radars. In addition, ground-based radar beacons in the aeronautical radionavigation service are permitted in the band 9 300 - 9 320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. In the band 9 300 - 9 500 MHz, ground-based radars used for meteorological purposes have priority over other radiolocation devices.

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

S5.476A In the band 9 500-9 800 MHz, stations in the earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radio-navigation and radiolocation services.

S5.477 *Different category of service:* in Algeria, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, the Republic of Korea, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, the Islamic Republic of Iran, Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Pakistan, Qatar, Democratic People’s Republic of Korea, Singapore, Somalia, Sudan, Sweden, Trinidad and Tobago, and Yemen, the allocation of the band 9 800-10 000 MHz to the fixed service is on a primary basis (see No. **S5.33**).

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

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

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

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

S5.483 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, China, Colombia, the Republic of Korea, Costa Rica, Egypt, the United Arab Emirates, Georgia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kazakstan, Kuwait, Latvia, Lebanon, Moldova, Mongolia, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Democratic People's Republic of Korea, Romania, Russia, Tajikistan, Turkmenistan, Ukraine, Yemen and Yugoslavia, the band 10.68-10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

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

S5.487 In the band 11.7 - 12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to broadcasting-satellite stations operating in accordance with the provisions of Appendix **S30**.

S5.487A *Additional allocation:* in Region 1, the band 11.7-12.5 GHz, in Region 2, the band 12.2-12.7 GHz and, in Region 3, the band 11.7-12.2 GHz, are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-geostationary systems and subject to the provisions of Resolution **538 (WRC-97)**.

S5.492 Assignments to stations of the broadcasting-satellite service in conformity with the appropriate regional Plan in Appendix **S30** may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference or require more protection from interference than the broadcasting-satellite service transmissions operating in conformity with this Plan. With respect to the space services, this band shall be used principally for the broadcasting-satellite service.

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

S5.495 *Additional allocation:* in Bosnia and Herzegovina, Croatia, Denmark, France, Greece, Liechtenstein, Monaco, Norway, Uganda, Portugal, Romania, Slovenia, Switzerland, Tanzania, Tunisia and Yugoslavia, the band 12.5 - 12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis.

S5.496 *Additional allocation:* in Austria, Azerbaijan, Kyrgyzstan, Turkmenistan and Ukraine, the band 12.5-12.75 GHz is also allocated to the fixed service and the mobile, except aeronautical mobile, service on a primary basis. However, stations in these services shall not cause harmful interference to fixed-satellite service earth stations of countries in Region 1 other than those listed in this footnote. Coordination of these earth stations is not required with stations of the fixed and mobile services of the countries listed in this footnote. The power flux-density limit at the Earth's surface given in Article **S21**, Table **S21-4**, for the fixed-satellite service shall apply on the territory of the countries listed in this footnote.

S5.497 The use of the band 13.25 - 13.4 GHz by the aeronautical radionavigation service is limited to Doppler navigation aids.

S5.498A 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.

S5.500 *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, the Republic of Korea, Egypt, the United Arab Emirates, Gabon, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Malta, Morocco, Mauritania, Nigeria, Pakistan, Qatar, Syria, Senegal, Singapore, Sudan, Chad and Tunisia, the band 13.4-14 GHz is also allocated to the fixed and mobile services on a primary basis.

S5.501 *Additional allocation:* in Austria, Azerbaijan, Bulgaria, Hungary, Japan, Mongolia, Kyrgyzstan, Romania, the United Kingdom, Turkmenistan and Ukraine, the band 13.4 - 14 GHz is also allocated to the radionavigation service on a primary basis.

S5.501A 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.

S5.501B In the band 13.4-13.75 GHz, the earth exploration-satellite (active) and space research (active) services shall not cause harmful interference to, or constrain the use and development of, the radiolocation service.

S5.502 In the band 13.75 - 14 GHz, the e.i.r.p. of any emission from an earth station in the fixed-satellite service shall be at least 68 dBW, and should not exceed 85 dBW, with a minimum antenna diameter of 4.5 metres. In addition the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services towards the geostationary-satellite orbit shall not exceed 59 dBW.

S5.503 In the band 13.75 - 14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. The e.i.r.p. density of emissions from any earth station in the fixed-satellite service shall not exceed 71 dBW in any 6 MHz band in the frequency range 13.772 - 13.778 GHz until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band. Automatic power control may be used to increase the e.i.r.p. density above 71 dBW in any 6 MHz band in this frequency range to compensate for rain attenuation, to the extent that the power-flux density at the fixed-satellite service space station does not exceed the value resulting from use of an e.i.r.p. of 71 dBW in any 6 MHz band in clear sky conditions.

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

S5.504 The use of the band 14 - 14.3 GHz by the radionavigation service shall be such as to provide sufficient protection to space stations of the fixed-satellite service (see Recommendation **708**).

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

S5.506 The band 14 - 14.5 GHz may be used, within the fixed-satellite service (Earth-to-space), for feeder links for the broadcasting-satellite service, subject to coordination with other networks in the fixed-satellite service. Such use of feeder links is reserved for countries outside Europe.

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

S5.510 The use of the band 14.5 - 14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe.

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

S5.511A Use of the band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth (see Resolution **123 (WRC-97)**) and Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under Resolution **46 (Rev.WRC-97)**/No. **S9.11A**. In the space-to-Earth direction, the minimum earth station elevation angle above and gain towards the local horizontal plane and the minimum coordination distances to protect an earth station from harmful interference shall be in accordance with Recommendation ITU-R S.1341. Also in the space-to-Earth direction, harmful interference shall not be caused to stations of the radio astronomy service using the band 15.35-15.4 GHz.

S5.511C Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R S.1340. The minimum coordination distance required to protect the aeronautical radionavigation stations (No. **S4.10** applies) from harmful interference from feeder link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder link earth station shall be in accordance with Recommendation ITU-R S.1340.

S5.511D Fixed-satellite service systems for which complete information for advance publication has been received by the Bureau by 21 November 1997 may operate in the bands 15.4-15.43 GHz and 15.63-15.7 GHz in the space-to-Earth direction and 15.63-15.65 GHz in the Earth-to-space direction. In the bands 15.4-15.43 GHz and 15.65-15.7 GHz, emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of –146 dB(W/m^2/MHz) for any angle of arrival. In the band 15.63-15.65 GHz, where an administration plans emissions from a non-geostationary space station that exceed –146 dB(W/m^2/MHz) for any angle of arrival, it shall coordinate under Resolution **46 (Rev.WRC-97)**/No. **S9.11A** with the affected administrations. Stations in the fixed-satellite service operating in the band 15.63-15.65 GHz in the Earth-to-space direction shall not cause harmful interference to stations in the aeronautical radionavigation service (No. **S4.10** applies).

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

S5.513 *Additional allocation:* in Israel, the band 15.7 - 17.3 GHz is also allocated to the fixed and mobile services on a primary basis. These services shall not claim protection from or cause harmful interference to services operating in accordance with the Table in countries other than those included in No. **S5.512**.

S5.513A Spaceborne active sensors operating in the band 17.2-17.3 GHz shall not cause harmful interference to, or constrain the development of, the radiolocation and other services allocated on a primary basis.

S5.514 *Additional allocation:* in Algeria, Germany, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Finland, Guatemala, Honduras, India, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Libya, Nepal, Nicaragua, Oman, Pakistan, Qatar, Slovenia, Sudan, Sweden, and Yugoslavia, the band 17.3 - 17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. **S21.3** and **S21.5** shall apply.

S5.516 The use of the band 17.3-18.1 GHz by geostationary-satellite systems in the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. For the use of the band 17.3-17.8 GHz in Region 2 by feeder links for the broadcasting-satellite service in the band 12.2-12.7 GHz, see Article **S11**. The use of the bands 17.3-18.1 GHz (Earth-to-space) in Regions 1 and 3 and 17.8-18.1 GHz (Earth-to-space) in Region 2 by non-geostationary-satellite systems in the fixed-satellite service is subject to the provisions of Resolution **538 (WRC-97)**.

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

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

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

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

S5.523A The use of the bands 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) by geostationary and non-geostationary fixed-satellite service networks is subject to the application of the provisions of No. **S9.11A**/Resolution **46 (Rev.WRC-97)** and No. **S22.2** does not apply. Administrations having geostationary-satellite networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. **S9.11A**/Resolution **46** (**Rev.WRC-97**) with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-geostationary-satellite networks shall not cause unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix **S4** notification information is considered as having been received by the Bureau prior to 18 November 1995.

S5.523B The use of the band 19.3 - 19.6 GHz (Earth-to-space) by the FSS is limited to feeder links for non-GSO systems in the MSS. Such use is subject to the application of the provisions of Resolution **46 (Rev.WRC-97)**/No. **S9.11A**, and No. **S22.2** does not apply.

S5.523C No. **S22.2** of the Radio Regulations shall continue to apply in the bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **S4** coordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995.

S5.523D The use of the band 19.3-19.7 GHz (space-to-Earth) by geostationary fixed-satellite service systems and by feeder links for non-geostationary-satellite systems in the mobile-satellite service is subject to the application of the provisions of Resolution **46 (Rev.WRC-97)/** No. **S9.11A**, but not subject to the provisions of No. **S22.2**. The use of this band for other non-geostationary fixed-satellite service systems, or for the cases indicated in Nos. **S5.523C** and **S5.523E**, is not subject to the provisions of Resolution **46 (Rev.WRC-97)/**No. **S9.11A** and shall continue to be subject to Articles **S9** (except No. **S9.11A**) and **S11** procedures, and to the provisions of No. **S22.2**.

S5.523E No. **S22.2** of the Radio Regulations shall continue to apply in the bands 19.6-19.7 GHz and 29.4-29.5 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **S4** coordination information, or notification information, is considered as having been received by the Bureau by 21 November 1997.

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

S5.526 In the bands 19.7 - 20.2 GHz and 29.5 - 30 GHz in Region 2, and in the bands 20.1 - 20.2 GHz and 29.9 - 30 GHz in Regions 1 and 3, networks which are both in the fixed-satellite service and in the mobile-satellite service may include links between earth stations at specified or unspecified points or while in motion, through one or more satellites for point-to-point and point-to-multipoint communications.

S5.528 The allocation to the mobile-satellite service is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Administrations operating systems in the mobile-satellite service in the band 19.7 - 20.1 GHz in Region 2 and in the band 20.1 - 20.2 GHz shall take all practicable steps to ensure the continued availability of these bands for administrations operating fixed and mobile systems in accordance with the provisions of No. **S5.524**.

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

S5.532 The use of the band 22.21 - 22.5 GHz by the earth exploration-satellite (passive) and space research (passive) services shall not impose constraints upon the fixed and mobile, except aeronautical mobile, services.

S5.535A 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 Resolution **46(Rev.WRC-97)/**No. **S9.11A**, but not subject to the provisions of No. **S22.2**, except as indicated in Nos. **S5.523C** and **S5.523E** where such use is not subject to the provisions of Resolution **46 (Rev.WRC-97)**/No. **S9.11A** and shall continue to be subject to Articles **S9** (except No. **S9.11A**) and **S11** procedures, and to the provisions of No. **S22.2**.

S5.536 Use of the 25.25 - 27.5 GHz band by the inter-satellite service is limited to space research and Earth exploration-satellite applications, and also transmissions of data originating from industrial and medical activities in space.

S5.536A Administrations installing earth exploration-satellite earth stations cannot claim protection from fixed and mobile stations operated by neighbouring administrations. In addition, earth stations operating in the earth exploration-satellite service should take into account Recommendation ITU-R SA.1278.

S5.536B In Germany, Saudi Arabia, Austria, Belgium, Brazil, Bulgaria, China, the Republic of Korea, Denmark, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Hungary, India, Islamic Republic of Iran, Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Liechtenstein, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, Syria, Slovakia, Czech Republic, Romania, the United Kingdom, Singapore, Sweden, Switzerland, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the earth exploration-satellite service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services.

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

S5.539 The band 27.5 - 30 GHz may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service.

S5.540 *Additional allocation:* the band 27.501 - 29.999 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control.

S5.541 In the band 28.5 - 30 GHz, the earth exploration-satellite service is limited to the transfer of data between stations and not to the primary collection of information by means of active or passive sensors.

S5.541A Feeder links of non-geostationary networks mobile-satellite service and geostationary networks fixed-satellite service operating in the band 29.1-29.5 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix **S4** coordination information is considered as having been received by the Bureau after 17 May 1996 and until they are changed by a future competent world radiocommunication conference. Administrations submitting Appendix **S4** information for coordination before this date are encouraged to utilize these techniques to the extent practicable. These methods are also subject to review by ITU-R (see Resolution **121 (Rev.WRC-97)**).

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

S5.543 The band 29.95 - 30 GHz may be used for space-to-space links in the earth exploration-satellite service for telemetry, tracking, and control purposes, on a secondary basis.

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

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

S5.546 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, Egypt, United Arab Emirates, Spain, Estonia, Finland, Georgia, Hungary, the Islamic Republic of Iran, Israel, Jordan, Kazakstan, Latvia, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Syria, Kyrgyz-stan, Romania, the United Kingdom, Russia, Tajikistan, Turkmenistan, Turkey and Ukraine, the allocation of the band 31.5-31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **S5.33**).

S5.547 The bands 31.8-33.4 GHz, 51.4-52.6 GHz, 55.78-59 GHz and 64-66 GHz are available for high-density

applications in the fixed service (see Resolution **726 (WRC-97)**).

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

S5.548 In designing systems for the inter-satellite and radionavigation services in the band 32 - 33 GHz, and for the space research service (deep space) in the band 31.8 - 32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation **707 (WARC-79)**).

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

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

S5.551A In the band 35.5 - 36.0 GHz, active spaceborne sensors in the earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, meteorological aids and other services allocated on a primary basis.

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

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

S5.552 The allocation of the spectrum for the fixed-satellite service in the bands 42.5 - 43.5 GHz and 47.2 - 50.2 GHz for Earth-to-space transmission is greater than that in the band 37.5 - 39.5 GHz for space-to-Earth transmission in order to accommodate feeder links to broadcasting satellites. Administrations are urged to take all practicable steps to reserve the band 47.2 - 49.2 GHz for feeder links for the broadcasting-satellite service operating in the band 40.5 - 42.5 GHz.

S5.552A The allocation to the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2-47.5 GHz and 47.9-48.2 GHz is subject to the provisions of Resolution **122 (WRC-97)**.

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

S5.554 In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 -100 GHz, 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz, satellite links connecting land stations at specified fixed points are also authorised when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.

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

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

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

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

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

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

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

S5.560 In the band 78 - 79 GHz radars located on space stations may be operated on a primary basis in the earth exploration-satellite service and in the space research service.

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

S5.562 The use of the band 94 - 94.1 GHz by the earth exploration-satellite (active) and space research (active) services is limited to spaceborne cloud radars.

ANNEX 4

RELEVANT CEPT ERC DECISIONS AND RECOMMENDATIONS

ERC Decisions:

- ERC/DEC(92)01 which designates the frequency bands 1670-1675 MHz / 1800-1805 MHz for the Terrestrial Flight Telephone System (TFTS);
- ERC/DEC/(92)02 on the frequency bands to be designated for the coordinated introduction of Road Transport Telematic Systems;
- ERC/DEC/(94)01 on the frequency bands to be designated for the coordinated introduction of the GSM Digital pan-European communications System;
- ERC/DEC/(94)02 on the frequency band to be designated for the coordinated introduction of the European Radio Messaging System (ERMES);
- ERC/DEC/(94)03 on the frequency band to be designated for the coordinated introduction of the Digital European Cordless Telecommunications system;
- ERC/DEC/(95)03 on the frequency bands to be designated for the introduction of DCS 1800;
- ERC/DEC/(96)01 on the harmonised frequency band to be designated for the introduction of the Digital Land Mobile System for the Emergency Services;
- ERC/DEC/(96)03 on the harmonised frequency band to be designated for the introduction of High Performance Radio Local Area Networks (HIPERLANs);
- ERC/DEC/(96)04 on the frequency bands for the introduction of the Trans European Trunked Radio System (TETRA);
- ERC/DEC/(96)05 and ERC Recommendation T/R 52-01 on the harmonised frequency band to be designated for the introduction of the Multipoint Video Distribution Systems (MVDS);
- ERC/DEC/(97)02 on the extended frequency bands to be used for the GSM Digital Pan-European Communications System;
- ERC/DEC/(97)03 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 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)06 on the harmonised frequency band to be designated for Social Alarm Systems;
- ERC/DEC/(97)07 on the frequency bands for the introduction of the Universal Mobile Telecommunications System (UMTS);

CEPT/ERC Recommendations:

- CEPT/ERC/REC 12-03 (Bonn 1994) on harmonised channel arrangements for digital fixed systems in the band 17.7-19.7 GHz;
- CEPT/ERC/REC 12-05 (Rome 1996) on harmonised channel arrangements for digital fixed systems in the band 10-10.68 GHz;
- CEPT/ERC/REC 12-06 (Rome 1996) on harmonised channel arrangements for digital fixed systems in the band 10.7-11.7 GHz;
- CEPT/ERC/REC 12-07 (Rome 1996) on harmonised channel arrangements for digital fixed systems in the band 15.23-15.35 GHz;
- CEPT/ERC/REC 12-08 (Podebrady 1997, Saariselkä 1998) on harmonised radio frequency channel arrangements and block allocations for low, medium and high capacity systems in the band 3600 MHz to 4200 MHz;
- CEPT/ERC/REC 13-03 (The Hague 1996) on use of the band 14-14.5 GHz for VSAT and SNG;
- CEPT/ERC/REC 14-03 (Turku 1996, Podebrady 1997) on harmonised radio frequency channel arrangements and block allocations for low and medium capacity systems in the band 3400 MHz to 3600 MHz;
- CEPT/ERC/REC 62-02 (Izmir 1997) on harmonised frequency bands for civil and military airborne telemetry applications;
- CEPT/ERC/REC 70-03 (Tromsø 1997) relating to the use of short range devices (SRD);
- T/R 02-02 (Bonn 1993, revised at Odense 1997) harmonised radio frequency channel arrangements for the emergency services operating in the band 380-400 MHz;
- T/R 12-01 (Helsinki 1991) which relates to the channel plan to be used by the Fixed Service in the band 37 - 39.5 GHz;
- T/R 13-01 (Montreux 1993) which relates to preferred channel arrangements for fixed services in the range 1-3 GHz.
- T/R 13-02 (Montreux 1993) which relates to channel plans to be used by the Fixed Service in the bands 22 - 23.6 GHz, 24.5 - 26.5 GHz and 27.5 - 29.5 GHz;
- T/R 22-03 (Athens 1990) which relates to the band 54.25 - 66 GHz and gives the preliminary use of this band (to be revised);
- T/R 22-05 (Madrid 1992) on frequencies for mobile digital trunked radio systems;
- T/R 22-07 (Montreux 1993) which provides for the introduction and development of Digital Communication Systems (DCS 1800) in the frequency bands 1710-1785 MHz /1805-1880 MHz on a national basis;
- T/R 25-05 (Nice 1985) which relates to planning and coordination of the Land Mobile Services operating in the Band 174-230 MHz (Television Band III);
- T/R 25-08 (Lecce 1989) which relates to coordination of frequencies in the Land Mobile Service in the range 29.7-960 MHz;
- T/R 42-01 (Helsinki 1991) Designation of frequency bands for the pan-European terrestrial flight telecommunications system (TFTS)
- T/R 52-02 (Bonn 1993, revised Montreux 1993 and Nicosia 1994) which provides for the introduction of Terrestrial Digital Audio Broadcasting (T-DAB) on a national basis in the frequency band 1452-1492 MHz;

ANNEX 5

LIST OF ABBREVIATIONS AS USED IN THIS DOCUMENT

BSS	- Broadcasting Satellite Service
CEPT	- European Conference of Postal and Telecommunications Administrations
DCS 1800	- Digital Communication System
DEC	- ERC Decision
DECT	- Digital European Cordless Telecommunication System
DME	- Distance Measuring Equipment
DSI	- Detailed Spectrum Investigation
DVB-T	- Terrestrial Digital Video Broadcasting
ECA	- European Common Allocation
ECP	- European Common Proposal
EESS	- Earth Exploration-Satellite Service
E-GSM	- Extended GSM
ENG	- Electronic News Gathering
EPIRB	- Emergency Position-Indicating Radiobeacon
ERC	- European Radiocommunications Committee
ERMES	- European Radio Messaging System
ERO	- European Radiocommunications Office
FB	- Base station (in a mobile radio system)
FM	- Frequency modulation
GMDSS	- Global Maritime Distress and Safety System
GNSS	-Global Navigation Satellite System
GSM	- Global System for Mobile Communications
HDTV	- High Definition Television
HIPERLAN	- High Performance Radio Local Area Network
IBCN	- Integrated Broadband Communications Network
ILS	- Instrument Landing System
IMT-2000	- International Mobile Telecommunications
ISM	- Industrial, Scientific and Medical applications
ITU	- International Telecommunication Union
JTIDS	- Joint Tactical Information Distribution System
MIDS	- Multifunctional Information Distribution System
ML	- Mobile station (in a mobile radio system)
MLS	- Microwave Landing System
NATO	- North Atlantic Treaty Organisation
NGSO	- Non-geostationary Satellite Orbit
OB	- Outside Broadcasting
OR	- Off-Route

PMR	- Professional Mobile Radio, Private Mobile Radio
RA	- Radio Astronomy
SAB	- Services Ancillary to Broadcasting
S-PCS	- Satellite Personal Communication System
TETRA	- Trans European Trunked Radio
RFID	- Radio Frequency Identification systems
RLAN	- Radio Local Area Network
RR	- Radio Regulations
RTTT	- Road Transport & Traffic Telematics
SNG	- Satellite News Gathering
SRD	- Short Range Devices
SSR	- Secondary Surveillance Radar
T-DAB	- Terrestrial Digital Audio Broadcasting
TACAN	- Tactical Air Navigation System
TFTS	- Terrestrial Flight Telecommunications System
VLBI	- Very Long Baseline Interferometry (Radio Astronomy)
VOR	- VHF Omni-directional Range
VTS	- Vessel Traffic System (radar)
VSAT	- Very Small Aperture Terminal
WARC-92	- World Administrative Radio Conference 1992
WRC(95)	- World Radiocommunication Conference 1995 (or other year)