

EBU

OPERATING EUROVISION AND EURORADIO

TR 018

FREQUENCY BANDS ALLOCATED TO BROADCASTING

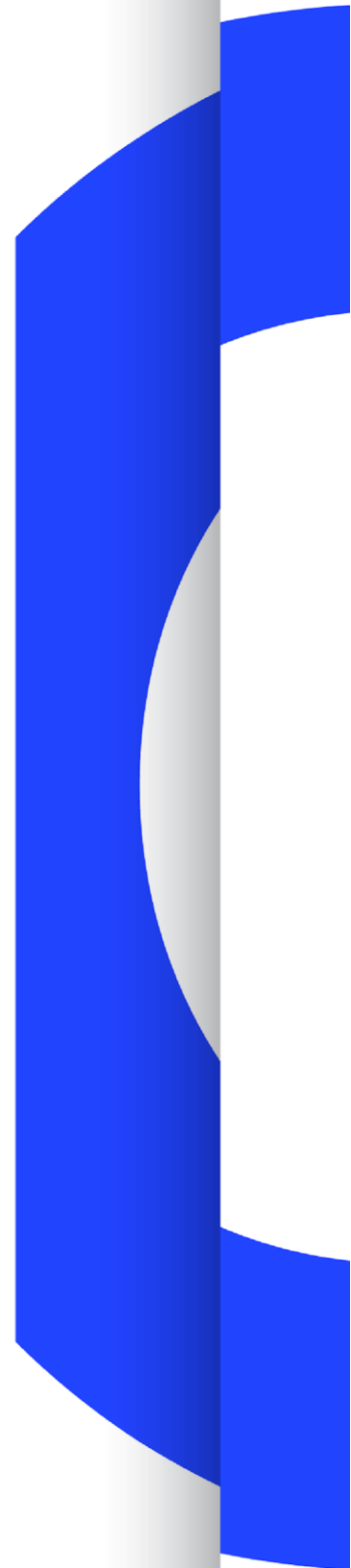
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Frequency Bands Allocated to Broadcasting

<i>EBU Committee</i>	<i>First Issued</i>	<i>Revised</i>	<i>Re-issued</i>
SM-RAP	(2002) 2013*	(See history)	

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This document is intended to give an overview of the associated regulation and applications of the different frequency bands allocated to broadcasting. For each frequency band, it includes:

- the references of the ITU Radio Regulations (RR) in Region 1 and relevant footnotes for countries in Region 1, as defined by the RR,
- the European Common Allocation which refers to allocations of major use or major interest in CEPT countries and the footnotes from the RR affecting 10 or more CEPT countries,
- the application which refers to when:
 - a) An ECC/ERC Decision, EC Decision or ECC/ERC Recommendation exists which harmonises or designates frequency bands, or
 - b) At least 10 CEPT administrations have made available the relevant frequency band for a radio application according to EFIS, or
 - c) WGFm has decided to do so (based on other aspects).
- The European footnotes (EU) relevant to the particular utilisation.

Further details can be found in the European table of frequency allocations and applications in the frequency range 8.3 kHz - 3000 GHz (ECA TABLE) at:

<http://www.erodocdb.dk/Docs/doc98/official/pdf/ercrep025.pdf>,

or in the ECO Frequency Information System [EFIS](#).

This version of TR 018 includes references to the Radio Regulations edition of 2016 and to the European table of frequency allocations approved in June 2016.

This document has been compiled as a convenient reference guide. It does not replace the official ITU/CEPT documents on the subject, which should be quoted when any definitive references are required.

* This report was originally published as EBU BPN 045 (between 2002 - 2009, 13 updates), available only to EBU Members. The EBU Technical Committee agreed in March 2013 that the content of BPN 045 could be made available to the public. This has been done by publishing the present EBU Technical Report. For reasons of editorial practicality, BPN 045 has been withdrawn.

Revision History

Revision	Date	Description
BPN 045 Issue 1	10.12.2002	First issue of the BPN as per 7 th SMI meeting.
BPN 045 Issue 2	6.05.2002	Update as per 8 th SMI meeting.
BPN 045 Issue 3	23.01.2003	Update as per 9 th SMI meeting. Clarification of EBU position for Band II. Update of DAB issues as per Maastricht 02 Agreement.
BPN 045 Issue 4	26.05.2003	Update as per 10 th SMI meeting.
BPN 045 Issue 5	18.11.2003	Update as per 11 th SMI meeting, as per "EBU Guidelines for the RRC", as per WRC-03 results and as per latest DRM developments.
BPN 045 Issue 6	7.06.2004	Update as per 12 th SMI meeting: revision of Band I and Band II issues; inclusion of related WRC-07 agenda items (high priority issues).
BPN 045 Issue 7	14.01.2005	Update as per 13 th SMI meeting. Update of Band I and Band II issues, of Band III and Bands IV/V as per output from RRC-04. New potential broadcasting bands included.
BPN 045 Issue 8	29.04.2005	Update as per 14 th SMI meeting.
BPN 045 Issue 9	5.01.2006	Update as per 15 th SMI meeting. Update of L-Band and TFTS bands.
BPN 045 Issue 10	20.06.2006	Update as per 16 th SMI meeting.
BPN 045 Issue 11	1.02.2007	Update as per 17 th SMI meeting. Update of Band III and Bands IV/V as per results of RRC-06.
BPN 045 Issue 12	01.04.2008	Update as per 20 th SMI meeting. New format of table of frequency allocations. EBU positions transferred to EBU Guidelines on future use of broadcasting spectrum.
BPN 045 Issue 13	21.10.2009	Update as per ITU-R Radio Regulations of 2008.
TR 018 Issue 1.0	09.04.2013	Content updated (would have been BPN 045 Issue 14) as per ITU-R Radio Regulations edition of 2012 and the European Common Allocation table approved February 2013. Published as EBU Technical Report TR 018 Issue 1.0 (to enable public access to the content).
TR 018 Issue 2.0	21.07.2017	Content updated as per ITU R Radio Regulations edition of 2016 and the European Common Allocation table approved June 2016.

Frequency bands allocation¹

Frequency Band	RR Region 1 allocation and relevant footnotes	European Common Allocation	ECC/ERC harmonisation measure	Utilisation	European Footnotes	Notes relevant to BS (including standards)
LF 30 - 300 kHz						
148.5 - 255 kHz	BROADCASTING 5.68, 5.69, 5.70	BROADCASTING	ERC/REC 70-03 ERC/REC 70-03	Analogue sound broadcasting Inductive applications Active medical implants		Assignment Plan GE75 Introduction of DRM EN 302 245 EN 302 017
255 - 283.5 kHz	BROADCASTING AERONAUTICAL RADIONAVIGATION 5.70, 5.71	AERONAUTICAL RADIONAVIGATION BROADCASTING	- ERC/REC 70-03 ERC/REC 70-03	Analogue sound broadcasting Inductive applications Active medical implants Beacons (Aeronautical) Defence systems		Assignment Plan GE75 Introduction of DRM EN 302 245 EN 302 017
MF 300 - 3000 kHz						
526.5 - 1606.5 kHz	BROADCASTING 5.87, 5.87A	BROADCASTING	ERC/REC 70-03 ERC/REC 70-03	Analogue sound broadcasting Inductive applications Active medical implants		Assignment Plan GE75 Introduction of DRM EN 302 245 EN 302 017
2300 - 2498 kHz	FIXED MOBILE except aeronautical mobile (R) BROADCASTING (TROPICAL BAND) 5.113 5.103	FIXED MOBILE except aeronautical mobile (R) 5.103	ERC/REC 70-03	Defence systems Inductive applications Maritime communications	ECA36	
HF 3000 kHz - 30 MHz						
3200 - 3230 kHz	FIXED MOBILE except aeronautical mobile (R) BROADCASTING (TROPICAL BAND) 5.113 5.116	FIXED MOBILE except aeronautical mobile (R) 5.116	ERC/REC 70-03	Defence systems Inductive applications Maritime communications		

¹ This version of TR 018 includes references to the Radio Regulations of 2016 and to the European table of frequency allocations approved 2016.

Frequency Bands Allocated to Broadcasting

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Frequency Band	RR Region 1 allocation and relevant footnotes	European Common Allocation	ECC/ERC harmonisation measure	Utilisation	European Footnotes	Notes relevant to BS (including standards)
3230 - 3400 kHz	FIXED MOBILE except aeronautical mobile BROADCASTING (TROPICAL BAND) 5.113 5.116	FIXED MOBILE except aeronautical mobile 5.116	ERC/REC 70-03	Defence systems Inductive applications Maritime communications	ECA36	
3950 - 4000 kHz	FIXED BROADCASTING	FIXED BROADCASTING	ERC/REC 70-03	Analogue sound broadcasting Defence systems Inductive applications	ECA36	Introduction of DRM EN 302 245 EN 302 017
4750 - 4850 kHz	FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING (TROPICAL BAND) 5.113	AERONAUTICAL MOBILE (OR) FIXED LAND MOBILE	ERC/REC 70-03	Aeronautical communications Defence systems Inductive applications	ECA36	
4850 - 4995 kHz	FIXED LAND MOBILE BROADCASTING (TROPICAL BAND) 5.113	FIXED LAND MOBILE	ERC/REC 70-03	Defence systems Inductive applications	ECA36	
5005 - 5060 kHz	FIXED BROADCASTING (TROPICAL BAND) 5.113	FIXED	ERC/REC 70-03	Defence systems Inductive applications	ECA36	
5900 - 5950 kHz	BROADCASTING 5.134 5.136	BROADCASTING 5.134 5.136	ERC/REC 70-03	Analogue sound broadcasting Inductive applications		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
5950 - 6200 kHz	BROADCASTING	BROADCASTING	ERC/REC 70-03	Analogue sound broadcasting Inductive applications		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
7200 - 7300 kHz	BROADCASTING	BROADCASTING	ERC/REC 70-03	Analogue sound broadcasting Inductive applications		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
7300 - 7400 kHz	BROADCASTING 5.134 5.143, 5.143B, 5.143C	BROADCASTING 5.134 5.143, 5.143B	ERC/REC 70-03	Analogue sound broadcasting Inductive applications		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017

Frequency Band	RR Region 1 allocation and relevant footnotes	European Common Allocation	ECC/ERC harmonisation measure	Utilisation	European Footnotes	Notes relevant to BS (including standards)
7400 - 7450 kHz	BROADCASTING 5.143B, 5.143C	BROADCASTING 5.143B	ERC/REC 70-03	Analogue sound broadcasting Inductive applications		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
9400 - 9500 kHz	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146	ERC/REC 70-03	Analogue sound broadcasting Inductive applications		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
9500 - 9900 kHz	BROADCASTING 5.147	BROADCASTING 5.147	ERC/REC 70-03	Analogue sound broadcasting Inductive applications		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
11.6 - 11.65 MHz	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146	ERC/REC 70-03 ERC/REC 70-03	Analogue sound broadcasting Inductive applications Railway applications		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
11.65 - 12.05 MHz	BROADCASTING 5.147	BROADCASTING 5.147	ERC/REC 70-03 ERC/REC 70-03	Analogue sound broadcasting Inductive applications Railway applications		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
12.05 - 12.1 MHz	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146	ERC/REC 70-03 ERC/REC 70-03	Analogue sound broadcasting Inductive applications Railway applications		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
13.57 - 13.6 MHz	BROADCASTING 5.134 5.151	BROADCASTING 5.134 5.151	ERC/REC 70-03 ERC/REC 70-03 ERC/REC 70 03	Analogue sound broadcasting Inductive applications Railway applications Active medical implants		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
13.6 - 13.8 MHz	BROADCASTING	BROADCASTING	ERC/REC 70-03 ERC/REC 70-03 ERC/REC 70 03	Analogue sound broadcasting Inductive applications Railway applications Active medical implants		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
13.8 - 13.87 MHz	BROADCASTING 5.134 5.151	BROADCASTING 5.134 5.151	ERC/REC 70-03 ERC/REC 70-03 ERC/REC 70 03	Analogue sound broadcasting Inductive applications Railway applications Active medical implants		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
15.1 - 15.6 MHz	BROADCASTING	BROADCASTING	ERC/REC 70-03 ERC/REC 70-03 ERC/REC 70 03	Analogue sound broadcasting Inductive applications Railway applications Active medical implants		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017

Frequency Bands Allocated to Broadcasting

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Frequency Band	RR Region 1 allocation and relevant footnotes	European Common Allocation	ECC/ERC harmonisation measure	Utilisation	European Footnotes	Notes relevant to BS (including standards)
15.6 - 15.8 MHz	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146	ERC/REC 70-03 ERC/REC 70-03 ERC/REC 70-03	Analogue sound broadcasting Inductive applications Railway applications Active medical implants		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
17.48 - 17.55 MHz	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146	ERC/REC 70-03 ERC/REC 70-03	Analogue sound broadcasting Inductive applications Active medical implants		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
17.55 - 17.9 MHz	BROADCASTING	BROADCASTING	ERC/REC 70-03 ERC/REC 70-03	Analogue sound broadcasting Inductive applications Active medical implants		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
18.9 - 19.02 MHz	BROADCASTING 5.134 5.146	BROADCASTING 5.134 5.146	ERC/REC 70-03 ERC/REC 70-03	Analogue sound broadcasting Inductive applications Active medical implants		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
21.45 - 21.85 MHz	BROADCASTING	BROADCASTING	ERC/REC 70-03	Analogue sound broadcasting Inductive applications		Article 12 planning procedure Introduction of DRM EN 302 245 EN 302 017
25.67 - 26.1 MHz	BROADCASTING	BROADCASTING	ERC/REC 70-03	Analogue sound broadcasting Inductive applications		Article 12 planning procedure Introduction of DRM for local services EN 302 245 EN 302 017
41 - 47 MHz	FIXED MOBILE Radiolocation 5.132A 5.160, 5.161, 5.161A, 5.161B, 5.162A	FIXED MOBILE Radiolocation 5.132A 5.161B, 5.162A	T/R 25-08 ERC/REC 70-03	Defence systems PMR Wind Profilers Radio Microphones	ECA36	Although this Band is not allocated to BS in the RR, it was planned for broadcasting in ST61. Maybe BS did not use the band and a relevant conference allocated the band to other services. Within the band 29.7 - 47.0 MHz. Narrow band audio systems including tour guide systems on a tuning range basis

Frequency Band	RR Region 1 allocation and relevant footnotes	European Common Allocation	ECC/ERC harmonisation measure	Utilisation	European Footnotes	Notes relevant to BS (including standards)
Band I						
47 - 61 MHz	BROADCASTING 5.162A, 5.163, 5.164, 5.165, 5.169, 5.171	LAND MOBILE Amateur 5.162A, 5.163, 5.164	T/R 25-08	Defence systems On-site paging PMR Wind profilers Space Research/EESS Amateur	ECA3, ECA36	ST61revGE06 Agreement WI95revCO07
61 - 68 MHz	BROADCASTING 5.162A, 5.164	LAND MOBILE 5.162A, 5.164	T/R 25-08	Defence systems Wind profilers PMR	ECA3, ECA36	ST61revGE06 Agreement WI95revCO07
68 - 74.8 MHz	FIXED MOBILE except aeronautical mobile 5.149, 5.175, 5.177, 5.179	MOBILE MOBILE except aeronautical mobile Amateur Radio Astronomy 5.149	ECC/DEC(06)06 T/R 25-08	Defence systems Amateur PMR/PAMR	ECA4, ECA9, ECA36	In certain countries, parts of the band used by broadcasting services as per relevant footnotes (5.175, 5.177).
75.2 - 87.5 MHz	FIXED MOBILE except aeronautical mobile 5.175, 5.179, 5.187	MOBILE		Defence systems PMR/PAMR	ECA36	In certain countries, parts of the band used by broadcasting services as per relevant footnotes (5.175, 5.187).
Band II						
87.5 - 100 MHz	BROADCASTING 5.190	BROADCASTING	ECC/REC/(16)04 ERC/REC 54-01 ERC/REC 70-03	FM sound broadcasting Wireless audio/multimedia		GE84 Agreement ST61revGE06 Agreement WI95revCO07 EN 302 018 EN 301 357
100 - 108 MHz	BROADCASTING 5.194	BROADCASTING	ECC/REC/(16)04 ERC/REC 54-01 ERC/REC 70-03	FM sound broadcasting Wireless audio/multimedia		GE84 Agreement WI95revCO07 EN 302 018 EN 301 357
Band III						
174 - 216 MHz	BROADCASTING 5.235, 5.237	BROADCASTING LAND MOBILE 5.235	ERC/REC 70-03	T-DAB, DVB-T/T2 Radio microphones and assistive listening devices		GE06 Agreement EN 302 077, EN 302 296, EN 302 297, EN 302 998 On a tuning range EN 300 422

Frequency Band	RR Region 1 allocation and relevant footnotes	European Common Allocation	ECC/ERC harmonisation measure	Utilisation	European Footnotes	Notes relevant to BS (including standards)
216 - 223 MHz	BROADCASTING 5.235, 5.237, 5.243	BROADCASTING LAND MOBILE 5.235	ERC/REC 70 03	T-DAB/DAB+, DVB-T/T2 Radio microphones and assistive listening devices		GE06 Agreement EN 302 077, EN 302 296, EN 302 297, EN 302 998 On a tuning range EN 300 422
223 - 225 MHz	BROADCASTING fixed mobile 5.243, 5.246, 5.247	BROADCASTING		T-DAB/DAB+ DVB-T/T2		GE06 Agreement EN 302 077, EN 302 296, EN 302 297, EN 302 998
225 - 230 MHz	BROADCASTING fixed mobile 5.246, 5.247	BROADCASTING Land mobile		T-DAB/DAB+ DVB-T/T2 Defence systems	ECA10 ECA36	GE06 Agreement EN 302 077, EN 302 296, EN 302 297, EN 302 998 Band within the military tuning range 225 - 400 MHz. Sharing with defence on a national basis
230 - 235 MHz	FIXED MOBILE 5.247, 5.251, 5.252	MOBILE		Defence systems T-DAB/DAB+	ECA10 ECA36	Harmonised military band W195revCO07 EN 302 077 T-DAB sharing with defence on a national basis
235 - 240 MHz	FIXED MOBILE 5.252, 5.254	MOBILE 5.254		Defence systems T-DAB/DAB+	ECA10 ECA36	Harmonised military band W195revCO07 EN 302 077 T-DAB sharing with defence on a national basis
Bands IV/V						
470 - 694 MHz	BROADCASTING 5.149, 5.291A, 5.294, 5.296, 5.300, 5.304, 5.306, 5.311A, 5.312	BROADCASTING 5.149, 5.291A, 5.296, 5.306, 5.311A	ERC/REC 70-03	DVB-T/T2 PMSE Radio microphones and assistive listening devices Wind profilers Radio astronomy	ECA13	GE06 Plan EN 302 296, EN 302 297 EN 302 298 Mobile applications restricted to PMSE including radio microphones

Frequency Band	RR Region 1 allocation and relevant footnotes	European Common Allocation	ECC/ERC harmonisation measure	Utilisation	European Footnotes	Notes relevant to BS (including standards)
694 - 790 MHz	MOBILE except aeronautical mobile 5.312A, 5.317A BROADCASTING 5.300, 5.311A, 5.312	MOBILE except aeronautical mobile 5.312A, 5.317A BROADCASTING 5.300, 5.311A, 5.312	ECC/DEC/(15)01 ECC/REC/(15)01	DVB-T/T2	ECA13	GE06 Plan EN 302 296, EN 302 297, EN 302 298
				MFCN EN 301 908		
				PMSE		
				ECC/DEC/(16)02 ECC/REC/(16)03		
790 - 862 MHz	FIXED MOBILE except aeronautical mobile 5.316B, 5.317A BROADCASTING 5.312, 5.319	BROADCASTING MOBILE except aeronautical mobile 5.312	□ ERC/REC 70-03	DVB-T/T2	ECA13	GE06 Plan EN 302 296
				MFCN		
				PMSE		
				ERC/REC 70-03		
862 - 890 MHz	FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.319, 5.323	MOBILE 5.317A 5.323	ECC/REC/(05)08 ECC/REC/(08)02 ERC/DEC/(97)02 ECC/DEC/(02)05 ECC/REC/(05)08	GSM	ECA13 ECA29 ECA32 ECA36	Within the band 880 - 890 MHz paired with 925 - 935 MHz
				GSM-R		
				ECC/DEC/(06)13 ECC/REC/(08)02		
				IMT		
				Others		Within the band 876 - 880 MHz paired with 921 - 925 MHz. Railway systems This band is identified for IMT in the RRs, but within CEPT this band is not planned for the harmonised introduction of IMT

Frequency Band	RR Region 1 allocation and relevant footnotes	European Common Allocation	ECC/ERC harmonisation measure	Utilisation	European Footnotes	Notes relevant to BS (including standards)
890 - 942 MHz	FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 radiolocation 5.323	MOBILE Radiolocation 5.317A 5.323	ECC/REC/(05)08 ECC/REC/(08)02 ERC/DEC/(94)01 ERC/DEC/(97)02 [□]	GSM	ECA13 ECA14 ECA29 ECA30 ECA32 ECA36 [□]	Within the band 890 - 915 MHz paired with 935 - 960 MHz [□]
			ECC/DEC/(02)05 ECC/REC/(05)08	GSM-R		Within the bands 876 - 880 MHz paired with 921 - 925 MHz
			ECC/DEC/(06)13 ECC/REC/(08)02	IMT Others		The band 915 - 925 MHz is identified for IMT in the RRs, but within CEPT this band is not planned for the harmonised introduction of IMT
942 - 960 MHz	FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.323	MOBILE 5.317A 5.323	ECC/REC/(05)08 ECC/REC/(08)02 ERC/DEC/(94)01	GSM	ECA13 ECA29 ECA32	FB paired with 897 - 915 MHz [□]
			ECC/DEC/(06)13 ECC/REC/(08)02	IMT		
L-Band				MCV		
1452 - 1492 MHz	FIXED MOBILE except aeronautical mobile 5.346 BROADCASTING BROADCASTING SATELLITE 5.208B 5.341, 5.342, 5.345	BROADCASTING Fixed MOBILE except aeronautical mobile 5.341,5.342, 5.345	ECC/DEC/(13)03 ECC/REC/(15)01	MFCN T-DAB/DAB+		Supplemental downlink EN 301 908 MA02revCO07 Special Arrangement within the band 1452.0 - 1479.5 MHz EN 302 077
BSS						
2520 - 2655 MHz	FIXED 5.410 MOBILE except aeronautical mobile 5.384A, BROADCASTING-SATELLITE 5.413, 5.416 5.339, 5.412, 5.418B, 5.418C	FIXED MOBILE except aeronautical mobile 5.384A 5.339, 5.418B, 5.418C	ECC/DEC/(08)08	MCV	ECA16	Within the bands 2500 - 2570 MHz and 2620 - 2690 MHz EN 301 908
			ECC/DEC/(05)05 ECC/REC/(11)05	MFCN		
			ERC/REC 25-10	PMSE		PMSE on a tuning range basis

Frequency Band	RR Region 1 allocation and relevant footnotes	European Common Allocation	ECC/ERC harmonisation measure	Utilisation	European Footnotes	Notes relevant to BS (including standards)
2655 - 2670 MHz	FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.208B, 5.413, 5.416 Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive) 5.149, 5.412	FIXED MOBILE except aeronautical mobile 5.384A Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive) 5.149 5.208B	ECC/DEC/(08)08	MCV	ECA16	Within the bands 2500 - 2570 MHz and 2620 - 2690 MHz EN 301 908
			ECC/DEC/(05)05 ECC/REC/(11)05	MFCN		
			ERC/REC 25-10	PMSE		
				Radio astronomy		Continuum observations, VLBI
11.7 - 12.5 GHz	FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492 5.487, 5.487A	BROADCASTING-SATELLITE 5.492 FIXED MOBILE except aeronautical mobile 5.487, 5.487A	ERC/DEC/(00)08	Broadcasting (Satellite)	ECA28	EN 302 977 Vehicle-mounted Earth stations In accordance with App 30 of RR. SIT within the band 12.4 - 12.5 GHz, EN 302 340, EN 302 448
			ECC/DEC/(06)03	HEST		
			ECC/DEC/(06)02	LEST		
21.4 - 22 GHz	FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A, 5.530B, 5.530D	BROADCASTING-SATELLITE 5.208B 5.530A, 5.530B, 5.530D	ERC/REC 25 10	Broadcasting (Satellite)		Wideband High Definition Television Fixed service envisaged in some countries
			ECC/DEC/(04)10	PMSE		
				SRR		
40.5 - 42.5 GHz	FIXED FIXED SATELLITE (S/E) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547, 5.551H, 5.551I	BROADCASTING BROADCASTING-SATELLITE FIXED 5.547,5.551H, 5.551I	ECC/DEC/(02)04	FSS Earth Stations		Point-to-point and terrestrial multipoint systems
			ECC/REC/(01)04 ERC/DEC/(99)15	MWS		
			ECC/REC/(01)04 ERC/DEC/(99)15	Fixed		

List of frequency bands that can be used by PMSE services

Programme Making and Special Events services (PMSE) generally operate under the Mobile Service allocations as given in the ITU-R Radio Regulations (RR). These services do not need to be taken into account when primary services are planned, however on a national basis these services could be of great importance.

In particular, PMSE services are of increasing importance because an increase in the number of broadcasting programmes means also an increase in the need for facilities to produce broadcasting programmes. This is in contrast to the fact that the existing use of PMSE in certain bands is becoming more restricted since the bands are more densely planned for DVB-T/T2 leaving less room for PMSE transmissions. In addition, DVB-T/T2 bands are being reduced to release spectrum to be allocated to Mobile Services for IMT applications.

EBU members support the extension of tuning ranges to give more flexibility to PMSE services to find frequencies.

In many European countries, the demand for frequencies to be used for PMSE is ever increasing. Reasons for this increased demand are, amongst others:

- Forthcoming large sports events (World Football Championships, European Football Championships, Olympic Games, Cycling tours, etc.)
- HDTV and UHDTV, which need a larger bandwidth for their transmission than standard TV resolution
- Private security companies using wireless transmissions of video and sound for site surveillance
- Broadcasters needing exclusively assigned channels for PMSE

Many Administrations, for quite some time, have been encountering great difficulty to assign (even temporary) channels for upcoming sports events and have used a “creative” and flexible approach to fulfil the demand of the content contributors (e.g. Olympic Games, Football World Cup, etc.).

This solution is unsatisfactory in the longer term and therefore there is a need for a more permanent solution.

The following table summarises the list of frequency ranges for the use of PMSE services. It should be noted that experience shows that the frequency range 2 - 4 GHz is the most suitable for mobile applications. This is also the range where there is the largest demand for PMSE video links and naturally, it is the most crowded one with other Primary Services.

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation and footnotes relevant to PMSE	Broadcast use
174 - 223 MHz	BROADCASTING 5.235, 5.237	BROADCASTING LAND MOBILE 5.235, 5.237	T-DAB/DAB+ DVB-T/T2 Radio microphones on a tuning range basis
470 - 694 MHz	BROADCASTING 5.149, 5.291A, 5.294, 5.296, 5.300, 5.304, 5.306, 5.311A, 5.312	BROADCASTING 5.296 ECA13	DVB-T/T2 PMSE (Mobile applications restricted to SAB/SAP including radio microphones) (GE06)
694 - 790 MHz	BROADCASTING MOBILE except aeronautical mobile 5.312A 5.317A 5.300, 5.311A, 5.312	BROADCASTING MOBILE except aeronautical mobile 5.312A 5.317A ECA13	Broadcasting TV use to be migrated from this band PMSE (SAB/SAP including radio microphones [□]) only in duplex gap of mobile use
790 - 862 MHz	FIXED MOBILE except aeronautical mobile 5.316B 5.317A BROADCASTING 5.312, 5.319	BROADCASTING MOBILE except aeronautical mobile 5.316B 5.317A ECA13	Broadcasting TV use to be migrated from this band PMSE (SAB/SAP radio microphones [□]) only in duplex gap of mobile use
1785 - 1800 MHz	FIXED MOBILE 5.384A 5.386, 5.387	FIXED MOBILE ECA36	Radio microphones and assistive listening devices EN 300422 ERC/REC 70-03
2025 - 2110 MHz	EARTH EXPLORATION-SATELLITE (E/S) (S/S) FIXED MOBILE 5.391 SPACE OPERATION (E/S) (S/S) SPACE RESEARCH (E/S) (S/S) 5.392	EARTH EXPLORATION-SATELLITE (E/S)(S/S) FIXED MOBILE 5.391 SPACE OPERATION (E/S) (S/S) SPACE RESEARCH (E/S) (S/S) ECA16A, ECA36	PMSE (Video links) (on a tuning range basis) ERC/REC 25-10 EN 302 064
2200 - 2290 MHz	EARTH EXPLORATION-SATELLITE (S/E)(S/S) FIXED MOBILE 5.391 SPACE OPERATION (S/E) (S/S) SPACE RESEARCH (S/E) (S/S) 5.392	EARTH EXPLORATION-SATELLITE (S/E)(S/S) FIXED MOBILE 5.391 SPACE OPERATION (S/E) (S/S) SPACE RESEARCH (S/E) (S/S) ECA16A, ECA36	PMSE (Video links) (on a tuning range basis) ERC/REC 25-10 EN 302 064
2300 - 2400 MHz	FIXED MOBILE 5.384A Amateur Radiolocation 5.395	FIXED MOBILE 5.384A Amateur Radiolocation ECA36	PMSE (Video links) ERC/REC 25-10 EN 302 064
2483.5 - 2500 MHz	FIXED MOBILE MOBILE-SATELLITE (S/E) 5.351A RADIODETERMINATION SATELLITE (S/E) 5.398 Radiolocation 5.398A 5.150, 5.399, 5.401, 5.402	FIXED MOBILE MOBILE-SATELLITE (S/E)	PMSE (Video links) ERC/REC 25-10 EN 302 064
2520 - 2670 MHz	BROADCASTING-SATELLITE 5.208B, 5.413, 5.416 FIXED 5.410 MOBILE except aeronautical mobile 5.384A Earth Exploration Satellite (passive) Radio Astronomy Space Research (passive) 5.149, 5.339, 5.403, 5.412, 5.418B, 5.418C, 5.420	FIXED MOBILE except aeronautical mobile 5.384A Earth exploration satellite (passive) Radio Astronomy Space research (passive) ECA16	PMSE (Video links) (on a tuning range basis) ERC/REC 25-10 EN 302 064

Frequency band	RR Region 1 allocation and relevant footnotes	European Common Allocation and footnotes relevant to PMSE	Broadcast use
3400 - 3600 MHz	FIXED FIXED-SATELLITE (S/E) MOBILE except aeronautical mobile 5.430A Radiolocation 5.431	FIXED FIXED-SATELLITE (S/E) MOBILE except aeronautical mobile 5.430A Amateur Radiolocation ECA17, ECA36	For coordinated PMSE applications for occasional use (Video links). In some countries the mobile service may be on secondary basis. EN 302 064
4400 - 5000 MHz	FIXED MOBILE 5.441A, 5.441B, 5.442 MOBILE except aeronautical mobile FIXED-SATELLITE (S/E) 5.441 Radio Astronomy/RADIOASTRONOMY Space Research (passive) 5.149, 5.339, 5.443	FIXED FIXED SATELLITE (S/E) MOBILE 5.441A, 5.441B, 5.442 MOBILE except aeronautical mobile RADIOASTRONOMY Radio Astronomy ECA20, ECA36	Mobile applications for coordinated PMSE applications for occasional use (Video links). EN 302 064
10.00 - 10.60 GHz	EARTH EXPLORATION SATELLITE (active) 5.474A, 5.474B, 5.474C FIXED MOBILE MOBILE except aeronautical mobile RADIOLOCATION Amateur Amateur-satellite Radiolocation 5.474, 5.474D, 5.479, 5.481	FIXED MOBILE MOBILE except aeronautical mobile RADIOLOCATION Amateur Amateur-satellite Radiolocation Mobile ECA17, ECA17A, ECA23, ECA36	PMSE (Video links) ERC/REC 25-10
10.60 - 10.68 GHz	EARTH EXPLORATION SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149, 5.482, 5.482A	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149, 5.482, 5.482A ECA17A	PMSE (Video links) ERC/REC 25-10
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 PMSE ERC/REC 25-10
22.00 - 23.60 GHz	FIXED MOBILE MOBILE except aeronautical mobile INTER-SATELLITE 5.338A EARTH EXPLORATION SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (E/S) (passive) 5.149, 5.532	FIXED MOBILE MOBILE except aeronautical mobile INTER-SATELLITE RADIO ASTRONOMY SPACE RESEARCH (passive) Earth exploration satellite (passive) Mobile ECA17A	PMSE (Video links) ERC/REC 25-10
24.00 - 24.50 GHz	AMATEUR AMATEUR-SATELLITE RADIOLOCATION FIXED INTER-SATELLITE Amateur Earth Exploration-Satellite (active) 5.150	AMATEUR AMATEUR-SATELLITE RADIOLOCATION FIXED MOBILE Amateur Earth Exploration-Satellite (active) Mobile Fixed ECA17A, ECA36	PMSE (Video links) ERC/REC 25-10
47.20 - 50.20 GHz	FIXED FIXED SATELLITE (E/S) (S/E) 5.338A, 5.516B, 5.552, 5.554A, 5.555B MOBILE 5.149, 5.340 5.552A, 5.555	FIXED FIXED SATELLITE (E/S) (S/E) MOBILE RADIOASTRONOMY ECA17A	PMSE (Video links) ERC/REC 25-10

Related documents

ERC Report 25	The European table of frequency allocations and utilisations in the frequency range 8.3 kHz - 3000 GHz. European Common Allocation Table (ECA), approved June 2016.
ERC Report 38	Handbook on radio equipment and systems video links for ENG/OB use. Stockholm, May 1995.
ERC Report 42	Handbook on radio equipment and systems radio microphones and simple wideband audio links. Rome, October 1996.
ERC Recommendation 25-10	Frequency ranges for the use of terrestrial audio and video Programme Making and Special Events (PMSE) applications, October 2016.
ECC Recommendation (02) 09	Protection of aeronautical Radio Navigation Service in the band 2700 - 2900 MHz from interference caused by the operation of digital cordless cameras. Recommendation adopted by WGFM, Edition of 12 June 2003.
ECC Report 02	SAB/SAP (including ENG/OB) spectrum use and future requirements. Lisbon, February 2002.
ECC Report 105	Protection of the Services Ancillary to Programme Making/Services Ancillary to Broadcasting (SAP/SAB) from the Broadcasting Satellite Service (BSS) transmissions in the band 620 - 790 MHz, June 2007.
ECC Report 204	Spectrum use and future requirements for PMSE, February 2014
ECC Report 219	Characteristics of PMSE digital video links to be used in compatibility and sharing studies, October 2014
CEPT Report 32	“Recommendation on the best approach to ensure the continuation of existing Program Making and Special Events (PMSE) services operating in the UHF (470 - 862 MHz), including the assessment of the advantage of an EU-level approach”, October 2009
CEPT Report 50	Technical conditions for the use of the bands 821 - 832 MHz and 1785 - 1805 MHz for wireless radio microphones in the EU, March 2013
Addendum to CEPT Report 50	addressing the usability of the bands 821 - 832 MHz and 1785 - 1805 MHz for wireless radio microphones, March 2013, November 2013
CEPT Report 51	Technical conditions for ensuring the sustainable operation of cordless video-cameras, November 2013
CEPT Report 61	Harmonised compatibility and sharing conditions for video PMSE in the 2.7 - 2.9 GHz frequency band, taking into account radar use, June 2016
Report ITU-R BT.2069-6 (2015)	“Spectrum usage and operational characteristics of terrestrial electronic news gathering (ENG) television outside broadcasts (TVOB) and electronic field production (EFP) systems”.
Report ITU-R BT.2338-0 (2014)	Services ancillary to broadcasting/services ancillary to programme making spectrum use in Region 1 and the implication of a co-primary allocation for the mobile service in the frequency band 694 - 790 MHz
Report ITU-R BT.2344-1 (2016)	Information on technical parameters, operational characteristics and deployment scenarios of SAB/SAP as utilized in broadcasting

List of frequency bands allocated to the Fixed Satellite Service (FSS)

Note: As per ECA.

Note: Certain frequency bands allocated to the Fixed Satellite Service (FSS) are used for feeder links for the Broadcasting Satellite service (BSS).

FSS frequency bands
3.4 - 4.2 GHz
4.5 - 4.8 GHz
5.091 - 5.25 GHz
5.725 - 7.075 GHz
7.25 - 7.75 GHz
7.9 - 8.4 GHz
10.7 - 11.7 GHz
12.5 - 13.25 GHz
13.4 - 13.65 GHz
13.75 - 14.5 GHz
15.43 - 15.63 GHz
17.3 - 21.2 GHz
24.65 - 25.25 GHz
27.5 - 31 GHz
37.5 - 40.5 GHz
40.5 - 42.5 GHz*
42.5 - 43.5 GHz
43.5 - 45.5 GHz (in CEPT countries and on a secondary basis)
47.2 - 50.2 GHz
50.4 - 51.4 GHz
71 - 76 GHz
81 - 86 GHz
123 - 130 GHz
158.5 - 164 GHz
167 - 174.5 GHz
209 - 226 GHz
232 - 240 GHz
265 - 275 GHz

* Frequency band identified for FSS in the RR but not in the ECA. The band is also allocated to the BSS on a primary basis and identified in the ECA table for BSS.

List of abbreviations used in this document

Article 5	RR Article entitled <i>Frequency allocations</i>
Article 12	RR Article entitled <i>Seasonal planning of the HF bands allocated to the broadcasting service between 5900 kHz and 26100 kHz</i>
BS	Broadcasting Service
BSS	Broadcasting Satellite Service
CEPT	European Conference of Postal and Telecommunications Administrations
DRM	Digital Radio Mondiale
DVB-T/T2	Digital Video Broadcasting Terrestrial
ECA	European Common Allocation table

EESS	Earth Exploration-Satellite Service
EISCAT	European Incoherent SCATter facility [□]
FM	Frequency Modulation
FSS	Fixed Satellite Service
GE75	Geneva 1975 Agreement, Final Acts of the Regional Administrative LF/MF Broadcasting Conference (Regions 1 and 3)
GE84	Geneva 1984 Agreement, Final Acts of the Regional Administrative Radio Conference for the Planning of the VHF Sound Broadcasting (Region 1 and part of Region 3)
GE06	Geneva 2006 Agreement, Final Acts of the Regional Radiocommunications Conference for planning of the digital terrestrial broadcasting service in parts of Regions 1 and 3, in the frequency bands 174 - 230 MHz and 470 - 862 MHz (RRC-06)
HDTV	High Definition Television
HEST	High EIRP Satellite Terminal
HF	High Frequency
IMT	International Mobile Telecommunications
ITU	International Telecommunications Union
LEST	Low EIRP Satellite Terminal
LF	Low Frequency
MA02revCO07	CEPT T-DAB Special Arrangement for T-DAB in the frequency bands 1452 - 1479.5 MHz, Constanța 2007
MCV	Mobile Communication Services on Board Vessels
MF	Medium Frequency
MWS	Multimedia Wireless System
(OR)	Off-route
PMR	Professional Mobile Radio, Private Mobile Radio
PMSE	Programme Making and Special Events
(R)	Route
RR	ITU Radio Regulations. Version 2016
RRC	Regional Radiocommunications Conference
SAB	Services Ancillary to Broadcasting
SAP	Services Ancillary to Programme making
SIT	Satellite Interactive Terminal
E/S	Earth-to-Space
S/E	Space-to-Earth
S/S	Space-to-Space
SRR	Short Range Radar
ST61	Final Acts of European VHF/UHF Broadcasting Conference, Stockholm 1961
ST61revGE06	Final Acts of the Regional Radiocommunications Conference for the revision of the Stockholm 1961 Agreement (RRC-06-Rev.ST61)
T-DAB/DAB+	Terrestrial Digital Audio Broadcasting
TFTS	Terrestrial Flight Telecommunications System
WI95revCO07	CEPT T-DAB Special Arrangement for T-DAB in the bands 47 - 68, 87.5 - 108, 230 - 240 MHz, Constanța 2007
WRC	World Radiocommunications Conference

Annex 1: European Footnotes included in the European Common Allocation Table (ERC Report 25 Annex 1)

European Footnote No.	European footnote text
ECA3	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.
ECA4	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.
ECA9	CEPT administrations may authorise all or parts of the band 69.9 - 70.5 MHz to the amateur service on a secondary basis.□
ECA10	The range 225 - 399.9 MHz is essential to NATO and is in military use for land mobile, mobile-satellite, Air/Ground/Air and specific maritime and terrestrial communications, including ITU Region 2. This NATO UHF band 225 - 400 MHz is the only harmonised and commonly available resource managed by NATO on a daily basis in and for NATO nations. It is recognised that 380 - 385 MHz and 390 - 395 MHz are currently shared with narrowband Public Protection and Disaster Relief (PPDR) applications.
ECA13	CEPT Administrations are urged to take all practical steps to clear the band 645 - 960 MHz of the assignments to the aeronautical radionavigation service.
ECA14	Radiolocation limited to military requirements for naval ship borne radars.
ECA16	On the introduction of IMT, the fixed service will become secondary in appropriate parts of the band.
ECA16A	Use of the band by the mobile service is limited to tactical radio relay and SAP/SAB applications.
ECA17	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.
ECA17A	Use of the band by the mobile service is limited to SAP/SAB applications.
ECA20	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.
ECA23	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.
ECA28	CEPT administrations shall not deploy new fixed service systems in the band 11.7 - 12.5 GHz (ERC/DEC (00) 08).
ECA29	The frequency bands 890 - 915 / 935 - 960 MHz, 880 - 890 / 925 - 935 MHz, 1710 - 1785 / 1805 - 1880 MHz, 1920 - 1980 MHz and 2110 - 2170 MHz are reserved for public cellular mobile use only. Other services such as the fixed service should only be allowed in the above bands where coexistence with public mobile systems is possible i.e. in sparsely populated or rural areas where the frequency band is not needed for mobile cellular systems.□
ECA30	National administrations should consider co-ordination zones around the EISCAT sites when using the band 925 - 935 MHz for mobile services including international planning for military services. Short Range Devices should not use this band.□
ECA32	The bands 880 - 915 MHz and 925 - 960 MHz are currently used for GSM (2 nd generation terrestrial mobile system) in most CEPT member countries and by IMT, depending on the market demands and national licensing schemes.
ECA36	A frequency band, which has been harmonised by NATO and NATO member nations for military use as defined in the NATO Joint Civil/Military Frequency Agreement (NJFA) 2014. Note: A public version of the NJFA 2014 is expected to be provided by NATO to ECO by the end of 2016

Annex 2: RR¹ Article 5 Footnotes for Region 1 countries

No.	Footnote text
5.68	<i>Alternative allocation:</i> in Congo (Rep. of the), the Dem. Rep. of the Congo and South Africa, the frequency band 160 - 200 kHz is allocated to the fixed service on a primary basis. (WRC-15)
5.69	<i>Additional allocation:</i> in Somalia, the band 200 - 255 kHz is also allocated to the aeronautical radionavigation service on a primary basis.
5.70	<i>Alternative allocation:</i> in Angola, Botswana, Burundi, the Central African Rep., Congo (Rep. of the), Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, the Dem. Rep. of the Congo, South Africa, Swaziland, Tanzania, Chad, Zambia and Zimbabwe, the band 200 - 283.5 kHz is allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)
5.71	<i>Alternative allocation:</i> in Tunisia, the band 255 - 283.5 kHz is allocated to the broadcasting service on a primary basis.
5.87	<i>Additional allocation:</i> in Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, Niger and Swaziland, the band 526.5 - 535 kHz is also allocated to the mobile service on a secondary basis. (WRC-12)
5.87A	<i>Additional allocation:</i> in Uzbekistan, the band 526.5 - 1606.5 kHz is also allocated to the radionavigation service on a primary basis. Such use is subject to agreement obtained under No. 9.21 with administrations concerned and limited to ground-based radio beacons in operation on 27 October 1997 until the end of their lifetime. (WRC-97)
5.103	In Region 1, in making assignments to stations in the fixed and mobile services in the bands 1850 - 2045 kHz, 2194 - 2498 kHz, 2502 - 2625 kHz and 2650 - 2850 kHz, administrations should bear in mind the special requirements of the maritime mobile service.
5.113	For the conditions for the use of the bands 2300 - 2495 kHz (2498 kHz in Region 1), 3200 - 3400 kHz, 4750 - 4995 kHz and 5005 - 5060 kHz by the broadcasting service, see Nos. 5.16 to 5.20, 5.21 and 23.3 to 23.10.
5.116	Administrations are urged to authorize the use of the band 3155 - 3195 kHz to provide a common worldwide channel for low-power wireless hearing aids. Additional channels for these devices may be assigned by administrations in the bands between 3155 kHz and 3400 kHz to suit local needs.
5.132A	Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution 612 (Rev.WRC-12). (WRC-12)
5.134	The use of the bands 5900 - 5950 kHz, 7300 - 7350 kHz, 9400 - 9500 kHz, 11600 - 11650 kHz, 12050 - 12100 kHz, 13570 - 13600 kHz, 13800 - 13870 kHz, 15600 - 15800 kHz, 17480 - 17550 kHz and 18900 - 19020 kHz by the broadcasting service is subject to the application of the procedure of Article 12. Administrations are encouraged to use these bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution 517 (Rev.WRC-07) (<i>Note by the Secretariat:</i> This Resolution was revised by WRC-15). (WRC-07)
5.136	<i>Additional allocation:</i> Frequencies in the band 5900 - 5950 kHz may be used by stations in the following services, communicating only within the boundary of the country in which they are located: fixed service (in all three Regions), land mobile service (in Region 1), mobile except Aeronautical Mobile (R) service (in Regions 2 and 3), on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the radio regulations. (WRC-07)
5.143	<i>Additional allocation:</i> Frequencies in the band 7300 - 7350 kHz may be used by stations in the fixed service and in the land mobile service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)
5.143B	In Region 1, frequencies in the band 7350 - 7450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located on condition that harmful interference is not caused to the broadcasting service. The total radiated power of each station shall not exceed 24 dBW. (WRC-12)

¹ This version of TR 018 includes references to the Radio Regulations of 2016 and to the European table of frequency allocations approved 2016.

No.	Footnote text			
5.143C	<i>Additional allocation:</i> in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), Jordan, Kuwait, Libya, Morocco, Mauritania, Niger, Oman, Qatar, the Syrian Arab Republic, Sudan, South Sudan, Tunisia and Yemen, the bands 7350 - 7400 kHz and 7400 - 7450 kHz are also allocated to the fixed service on a primary basis. (WRC-12)			
5.146	<i>Additional allocation:</i> Frequencies in the bands 9400 - 9500 kHz, 11600 - 11650 kHz, 12050 - 12100 kHz, 15600 - 15800 kHz, 17480 - 17550 kHz and 18900 - 19020 kHz may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)			
5.147	On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9775 - 9900 kHz, 11650 - 11700 kHz and 11975 - 12050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.			
5.149	<p>In making assignments to stations of other services to which the bands:</p> <table border="0" data-bbox="288 663 1326 1155"> <tr> <td data-bbox="288 663 632 1155">13360 - 13410 kHz, 25550 - 25670 kHz, 37.5 - 38.25 MHz, 73 - 74.6 MHz in Regions 1 & 3, 150.05 - 153 MHz in Region 1, 322 - 328.6 MHz, 406.1 - 410 MHz, 608 - 614 MHz in Regions 1 & 3, 1330 - 1400 MHz, 1610.6 - 1613.8 MHz, 1660 - 1670 MHz, 1718.8 - 1722.2 MHz, 2655 - 2690 MHz, 3260 - 3267 MHz, 3332 - 3339 MHz, 3345.8 - 3352.5 MHz, 4825 - 4835 MHz, 4950 - 4990 MHz,</td> <td data-bbox="660 663 1019 1043">4990 - 5000 MHz, 6650 - 6675.2 MHz, 10.6 - 10.68 GHz, 14.47 - 14.5 GHz, 22.01 - 22.21 GHz, 22.21 - 22.5 GHz, 22.81 - 22.86 GHz, 23.07 - 23.12 GHz, 31.2 - 31.3 GHz, 31.5 - 31.8 GHz in Regions 1 & 3, 36.43 - 36.5 GHz, 42.5 - 43.5 GHz, 48.94 - 49.04 GHz, 76 - 86 GHz,</td> <td data-bbox="1094 663 1326 1133">92 - 94 GHz, 94.1 - 100 GHz, 102 - 109.5 GHz, 111.8 - 114.25 GHz, 128.33 - 128.59 GHz, 129.23 - 129.49 GHz, 130 - 134 GHz, 136 - 148.5 GHz, 151.5 - 158.5 GHz, 168.59 - 168.93 GHz, 171.11 - 171.45 GHz, 172.31 - 172.65 GHz, 173.52 - 173.85 GHz, 195.75 - 196.15 GHz, 209 - 226 GHz, 241 - 250 GHz, 252 - 275 GHz</td> </tr> </table> <p>are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space borne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 4.5 and 4.6 and Article 29). (WRC-07)</p>	13360 - 13410 kHz, 25550 - 25670 kHz, 37.5 - 38.25 MHz, 73 - 74.6 MHz in Regions 1 & 3, 150.05 - 153 MHz in Region 1, 322 - 328.6 MHz, 406.1 - 410 MHz, 608 - 614 MHz in Regions 1 & 3, 1330 - 1400 MHz, 1610.6 - 1613.8 MHz, 1660 - 1670 MHz, 1718.8 - 1722.2 MHz, 2655 - 2690 MHz, 3260 - 3267 MHz, 3332 - 3339 MHz, 3345.8 - 3352.5 MHz, 4825 - 4835 MHz, 4950 - 4990 MHz,	4990 - 5000 MHz, 6650 - 6675.2 MHz, 10.6 - 10.68 GHz, 14.47 - 14.5 GHz, 22.01 - 22.21 GHz, 22.21 - 22.5 GHz, 22.81 - 22.86 GHz, 23.07 - 23.12 GHz, 31.2 - 31.3 GHz, 31.5 - 31.8 GHz in Regions 1 & 3, 36.43 - 36.5 GHz, 42.5 - 43.5 GHz, 48.94 - 49.04 GHz, 76 - 86 GHz,	92 - 94 GHz, 94.1 - 100 GHz, 102 - 109.5 GHz, 111.8 - 114.25 GHz, 128.33 - 128.59 GHz, 129.23 - 129.49 GHz, 130 - 134 GHz, 136 - 148.5 GHz, 151.5 - 158.5 GHz, 168.59 - 168.93 GHz, 171.11 - 171.45 GHz, 172.31 - 172.65 GHz, 173.52 - 173.85 GHz, 195.75 - 196.15 GHz, 209 - 226 GHz, 241 - 250 GHz, 252 - 275 GHz
13360 - 13410 kHz, 25550 - 25670 kHz, 37.5 - 38.25 MHz, 73 - 74.6 MHz in Regions 1 & 3, 150.05 - 153 MHz in Region 1, 322 - 328.6 MHz, 406.1 - 410 MHz, 608 - 614 MHz in Regions 1 & 3, 1330 - 1400 MHz, 1610.6 - 1613.8 MHz, 1660 - 1670 MHz, 1718.8 - 1722.2 MHz, 2655 - 2690 MHz, 3260 - 3267 MHz, 3332 - 3339 MHz, 3345.8 - 3352.5 MHz, 4825 - 4835 MHz, 4950 - 4990 MHz,	4990 - 5000 MHz, 6650 - 6675.2 MHz, 10.6 - 10.68 GHz, 14.47 - 14.5 GHz, 22.01 - 22.21 GHz, 22.21 - 22.5 GHz, 22.81 - 22.86 GHz, 23.07 - 23.12 GHz, 31.2 - 31.3 GHz, 31.5 - 31.8 GHz in Regions 1 & 3, 36.43 - 36.5 GHz, 42.5 - 43.5 GHz, 48.94 - 49.04 GHz, 76 - 86 GHz,	92 - 94 GHz, 94.1 - 100 GHz, 102 - 109.5 GHz, 111.8 - 114.25 GHz, 128.33 - 128.59 GHz, 129.23 - 129.49 GHz, 130 - 134 GHz, 136 - 148.5 GHz, 151.5 - 158.5 GHz, 168.59 - 168.93 GHz, 171.11 - 171.45 GHz, 172.31 - 172.65 GHz, 173.52 - 173.85 GHz, 195.75 - 196.15 GHz, 209 - 226 GHz, 241 - 250 GHz, 252 - 275 GHz		
5.150	<p>The following bands:</p> <table border="0" data-bbox="288 1312 1222 1503"> <tr> <td data-bbox="288 1312 568 1503">13553 - 13567 kHz 26957 - 27283 kHz 40.66 - 40.70 MHz 902 - 928 MHz in Region 2 2400 - 2500 MHz 5725 - 5875 MHz 24 - 24.25 GHz</td> <td data-bbox="884 1312 1222 1503">(centre frequency 13560 kHz), (centre frequency 27120 kHz), (centre frequency 40.68 MHz), (centre frequency 915 MHz), (centre frequency 2450 MHz), (centre frequency 5 800 MHz) (centre frequency 24.125 GHz)</td> </tr> </table> <p>are also designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within these bands must accept harmful interference which may be caused by these applications. ISM equipment operating in these bands is subject to the provisions of No. 15.13.</p>	13553 - 13567 kHz 26957 - 27283 kHz 40.66 - 40.70 MHz 902 - 928 MHz in Region 2 2400 - 2500 MHz 5725 - 5875 MHz 24 - 24.25 GHz	(centre frequency 13560 kHz), (centre frequency 27120 kHz), (centre frequency 40.68 MHz), (centre frequency 915 MHz), (centre frequency 2450 MHz), (centre frequency 5 800 MHz) (centre frequency 24.125 GHz)	
13553 - 13567 kHz 26957 - 27283 kHz 40.66 - 40.70 MHz 902 - 928 MHz in Region 2 2400 - 2500 MHz 5725 - 5875 MHz 24 - 24.25 GHz	(centre frequency 13560 kHz), (centre frequency 27120 kHz), (centre frequency 40.68 MHz), (centre frequency 915 MHz), (centre frequency 2450 MHz), (centre frequency 5 800 MHz) (centre frequency 24.125 GHz)			
5.151	<i>Additional allocation:</i> Frequencies in the bands 13570 - 13600 kHz and 13800 - 13870 kHz may be used by stations in the fixed service and in the mobile except Aeronautical Mobile (R) service, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)			
5.160	<i>Additional allocation:</i> in Botswana, Burundi, Dem. Rep. of the Congo and Rwanda, the band 41 - 44 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)			
5.161	<i>Additional allocation:</i> in Iran (Islamic Republic of) and Japan, the band 41 - 44 MHz is also allocated to the radiolocation service on a secondary basis.			
5.161A	<i>Additional allocation:</i> in Korea (Rep. of) and the United States, the frequency bands 41.015 - 41.665 MHz and 43.35 - 44 MHz are also allocated to the radiolocation service on a primary basis. Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution 612 (Rev.WRC-12). (WRC-12)			

No.	Footnote text
5.161B	<i>Alternative allocation:</i> in Albania, Germany, Armenia, Austria, Belarus, Belgium, Bosnia and Herzegovina, Cyprus, Vatican, Croatia, Denmark, Spain, Estonia, Finland, France, Greece, Hungary, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Rep. of Macedonia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Montenegro, Norway, Uzbekistan, Netherlands, Portugal, Kyrgyzstan, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Slovenia, Sweden, Switzerland, Turkey and Ukraine, the frequency band 42 - 42.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-15)
5.162A	<i>Additional allocation:</i> in Germany, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Denmark, Spain, Estonia, the Russian Federation, Finland, France, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Luxembourg, Monaco, Montenegro, Norway, the Netherlands, Poland, Portugal, the Czech Rep., the United Kingdom, Serbia, Slovenia, Sweden and Switzerland the band 46 - 68 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution 217 (WRC-97). (WRC-12)
5.163	<i>Additional allocation:</i> in Armenia, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Moldova, Uzbekistan, Kyrgyzstan, 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. (WRC-12)
5.164	<i>Additional allocation:</i> in Albania, Algeria, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Croatia, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Slovakia, Czech Rep., Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the frequency band 47 - 68 MHz, in South Africa the frequency band 47 - 50 MHz, and in Latvia the frequency band 48.5 - 56.5 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band. (WRC-15)
5.165	<i>Additional allocation:</i> in Angola, Cameroon, Congo (Rep. of the), Madagascar, Mozambique, Niger, Somalia, Sudan, South 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. (WRC-12)
5.169	<i>Alternative allocation:</i> in Botswana, Lesotho, Malawi, Namibia, the Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Zambia and Zimbabwe, the band 50 - 54 MHz is allocated to the amateur service on a primary basis. In Senegal, the band 50 - 51 MHz is allocated to the amateur service on a primary basis. (WRC-12)
5.171	<i>Additional allocation:</i> in Botswana, Lesotho, Malawi, Mali, Namibia, Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Zambia and Zimbabwe, the band 54 - 68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
5.175	<i>Alternative allocation:</i> in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the bands 68 - 73 MHz and 76 - 87.5 MHz are allocated to the broadcasting service on a primary basis. In Latvia and Lithuania, the bands 68 - 73 MHz and 76 - 87.5 MHz are allocated to the broadcasting and mobile, except Aeronautical Mobile, services 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. (WRC-07)
5.177	<i>Additional allocation:</i> in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, 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. 9.21. (WRC-07)
5.179	<i>Additional allocation:</i> in Armenia, Azerbaijan, Belarus, China, the Russian Federation, Georgia, Kazakhstan, Lithuania, Mongolia, Kyrgyzstan, 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. (WRC-12)
5.187	<i>Alternative allocation:</i> 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).
5.190	<i>Additional allocation:</i> 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. 9.21. (WRC-97)
5.194	<i>Additional allocation:</i> in Azerbaijan, Kyrgyzstan, Somalia and Turkmenistan, the band 104 - 108 MHz is also allocated to the mobile, except Aeronautical Mobile (R), service on a secondary basis. (WRC-07)

No.	Footnote text
5.208B ¹	<p>In the bands: 137 - 138 MHz, 387 - 390 MHz, 400.15 - 401 MHz, 1452 - 1492 MHz, 1525 - 1610 MHz, 1613.8 - 1626.5 MHz, 2655 - 2690 MHz, 21.4 - 22 GHz, Resolution 739 (Rev.WRC-15) applies. (WRC-15)</p>
5.235	<p><i>Additional allocation:</i> 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.</p>
5.237	<p><i>Additional allocation:</i> in Congo (Rep. of the), Egypt, Eritrea, Ethiopia, Gambia, Guinea, Libya, Mali, Sierra Leone, Somalia and Chad, the band 174 - 223 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-12)</p>
5.243	<p><i>Additional allocation:</i> 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.</p>
5.246	<p><i>Alternative allocation:</i> 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. 5.33) 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.</p>
5.247	<p><i>Additional allocation:</i> in Saudi Arabia, Bahrain, the United Arab Emirates, Jordan, Oman, Qatar and Syrian Arab Republic, the band 223 - 235 MHz is also allocated to the aeronautical radionavigation service on a primary basis.</p>
5.251	<p><i>Additional allocation:</i> 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. 9.21.</p>
5.252	<p><i>Alternative allocation:</i> 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. 9.21.</p>
5.254	<p>The bands 235 - 322 MHz and 335.4 - 399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. 9.21, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations except for the additional allocation made in footnote No. 5.256A. (WRC-03)</p>
5.291A	<p><i>Additional allocation:</i> in Germany, Austria, Denmark, Estonia, Liechtenstein, the Czech Rep., Serbia and Switzerland, the frequency band 470 - 494 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution 217 (WRC-97). (WRC-15)</p>
5.294	<p><i>Additional allocation:</i> in Saudi Arabia, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Israel, Kenya, Libya, the Syrian Arab Republic, Chad and Yemen, the band 470 - 582 MHz is also allocated to the fixed service on a secondary basis. (WRC-15)</p>

¹ This provision was previously numbered No. 5.347A. It was renumbered -to preserve the sequential order.

No.	Footnote text
5.296	<i>Additional allocation:</i> in Albania, Germany, Angola, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Vatican, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Djibouti, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Gabon, Georgia, Ghana, Hungary, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kenya, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malawi, Mali, Malta, Morocco, Mauritius, Mauritania, Moldova, Monaco, Mozambique, Namibia, Niger, Nigeria, Norway, Oman, Uganda, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, the Czech Republic, the United Kingdom, Rwanda, San Marino, Serbia, Sudan, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe the frequency band 470 - 694 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting and programme-making. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote. (WRC-15)
5.300	<i>Additional allocation:</i> in Saudi Arabia, Cameroon, Egypt, United Arab Emirates, Israel, Jordan, Libya, Oman, Qatar, the Syrian Arab Republic and Sudan, the frequency band 582 - 790 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-15)
5.304	<i>Additional allocation:</i> in the African Broadcasting Area (see Nos. 5.10 to 5.13), the band 606 - 614 MHz is also allocated to the radio astronomy service on a primary basis.
5.306	<i>Additional allocation:</i> in Region 1, except in the African Broadcasting Area (see Nos. 5.10 to 5.13), and in Region 3, the band 608 - 614 MHz is also allocated to the radio astronomy service on a secondary basis.
5.311A	For the frequency band 620 - 790 MHz, see also Resolution 549 (WRC-07). (WRC-07)
5.312	<i>Additional allocation:</i> in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 645 - 862 MHz, in Bulgaria the frequency bands 646 - 686 MHz, 726 - 758 MHz, 766 - 814 MHz and 822 - 862 MHz, and in Poland, the frequency band 860 - 862 MHz until 31 December 2017, are also allocated to the aeronautical radionavigation service on a primary basis. (WRC-15)
5.312A	In Region 1, the use of the band 694 - 790 MHz by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution 760 (WRC-15). See also Resolution 224 (Rev.WRC-15). (WRC-15)
5.316B	In Region 1, the allocation to the mobile, except aeronautical mobile, service in the frequency band 790 - 862 MHz is subject to agreement obtained under No. 9.21 with respect to the aeronautical radionavigation service in countries mentioned in No. 5.312. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolutions 224 (Rev.WRC-15) and 749 (Rev.WRC-15) shall apply, as appropriate. (WRC-15)
5.317A	The parts of the frequency band 698 - 960 MHz in Region 2 and the frequency bands 694 - 790 MHz in Region 1 and 790 - 960 MHz in Region 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) - see Resolutions 224 (Rev.WRC-15) and 749 (Rev.WRC-15), where appropriate. This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)
5.319	<i>Additional allocation:</i> in Belarus, the Russian Federation 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.
5.322	In Region 1, in the band 862 - 960 MHz, stations of the broadcasting service shall be operated only in the African Broadcasting Area (see Nos. 5.10 to 5.13) excluding Algeria, Burundi, Egypt, Spain, Lesotho, Libya, Morocco, Malawi, Namibia, Nigeria, South Africa, Tanzania, Zimbabwe and Zambia, subject to agreement obtained under No. 9.21. (WRC-12)
5.323	<i>Additional allocation:</i> in Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 862 - 960 MHz, in Bulgaria the bands 862 - 890.2 MHz and 900 - 935.2 MHz, in Poland the band 862 - 876 MHz until 31 December 2017, and in Romania the bands 862 - 880 MHz and 915 - 925 MHz, are also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. 9.21 with administrations concerned and limited to ground-based radio beacons in operation on 27 October 1997 until the end of their lifetime. (WRC-12)
5.338A	In the frequency bands 1350 - 1400 MHz, 1427 - 1452 MHz, 22.55 - 23.55 GHz, 30 - 31.3 GHz, 49.7 - 50.2 GHz, 50.4 - 50.9 GHz, 51.4 - 52.6 GHz, 81 - 86 GHz and 92 - 94 GHz, Resolution 750 (Rev.WRC-15) applies. (WRC-15)
5.339	The bands 1370 - 1400 MHz, 2640 - 2655 MHz, 4950 - 4990 MHz and 15.20 - 15.35 GHz are also allocated to the space research (passive) and Earth exploration-satellite (passive) services on a secondary basis.

No.	Footnote text
5.340	All emissions are prohibited in the following bands: 1400 - 1427 MHz, 2690 - 2700 MHz, except those provided for by No. 5.422, 10.68 - 10.7 GHz, except those provided for by No. 5.483, 15.35 - 15.4 GHz, except those provided for by No. 5.511, 23.6 - 24 GHz, 31.3 - 31.5 GHz, 31.5 - 31.8 GHz, in Region 2, 48.94 - 49.04 GHz, from airborne stations 50.2 - 50.4 GHz, 52.6 - 54.25 GHz, 86 - 92 GHz, 100 - 102 GHz, 109.5 - 111.8 GHz, 114.25 - 116 GHz, 148.5 - 151.5 GHz, 164 - 167 GHz, 182 - 185 GHz, 190 - 191.8 GHz, 200 - 209 GHz, 226 - 231.5 GHz, 250 - 252 GHz. (WRC-03)
5.341	In the bands 1400 - 1727 MHz, 101 - 120 GHz and 197 - 220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.
5.342	<i>Additional allocation:</i> in Armenia, Azerbaijan, Belarus, the Russian Federation, Uzbekistan, Kyrgyzstan and Ukraine, the frequency band 1429 - 1535 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 frequency band 1452 - 1492 MHz is subject to agreement between the administrations concerned. (WRC-15)
5.345	Use of the band 1452 - 1492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (WARC-92). <i>Note by the Secretariat:</i> This Resolution was revised by WRC-03
5.346	In Algeria, Angola, Saudi Arabia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Kenya, Kuwait, Lesotho, Lebanon, Liberia, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Palestine**, Qatar, Dem. Rep. of the Congo, Rwanda, Senegal, Seychelles, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Tunisia, Zambia, and Zimbabwe, the frequency band 1 452 - 1 492 MHz is identified for use by administrations listed above wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC-15). This identification does not preclude the use of this frequency band by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained under No. 9.21 with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. 5.342. See also Resolution 761 (WRC-15). (WRC-15)
5.351A	For the use of the bands 1518 - 1544 MHz, 1545 - 1559 MHz, 1610 - 1626.5 MHz, 1626.5 - 1645.5 MHz, 1646.5 - 1660.5 MHz, 1668 - 1675 MHz, 1980 - 2010 MHz, 2170 - 2200 MHz, 2483.5 - 2500 MHz, 2500 - 2520 MHz and 2670 - 2690 MHz by the mobile-satellite service, see Resolutions 212 (Rev.WRC-07) and 225 (Rev.WRC-07) (<i>Note by the Secretariat:</i> This Resolution was revised by WRC-12). (WRC-07)
5.384A	The frequency bands 1710 - 1885 MHz, 2300 - 2400 MHz and 2500 - 2690 MHz, or portions thereof, are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC-15). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15).
5.386	<i>Additional allocation:</i> the frequency band 1750 - 1850 MHz is also allocated to the space operation (Earth-to-space) and space research (Earth-to-space) services in Region 2 (except in Mexico), in Australia, Guam, India, Indonesia and Japan on a primary basis, subject to agreement obtained under No. 9.21, having particular regard to troposcatter systems. (WRC-15)
5.387	<i>Additional allocation:</i> in Belarus, Georgia, Kazakhstan, Kyrgyzstan, Romania, Tajikistan and Turkmenistan, the band 1770 - 1790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under No. 9.21. (WRC-12)
5.391	In making assignments to the mobile service in the frequency bands 2025 - 2110 MHz and 2200 - 2290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154-0, and shall take that Recommendation into account for the introduction of any other type of mobile system. (WRC-15)

No.	Footnote text
5.392	Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration satellite services in the bands 2025 - 2110 MHz and 2200 - 2290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.
5.395	In France and Turkey, the use of the band 2310 - 2360 MHz by the Aeronautical Mobile service for telemetry has priority over other uses by the mobile service. (WRC-03)
5.398	In respect of the radiodetermination-satellite service in the band 2483.5 - 2500 MHz, the provisions of No. 4.10 do not apply.
5.398A	Different category of service: In Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Ukraine, the band 2483.5 - 2500 MHz is allocated on a primary basis to the radiolocation service. The radiolocation stations in these countries shall not cause harmful interference to, or claim protection from, stations of the fixed, mobile and mobile-satellite services operating in accordance with the Radio Regulations in the frequency band 2483.5 - 2500 MHz. (WRC-12)
5.399	Except for cases referred to in No. 5.401, stations of the radiodetermination-satellite service operating in the frequency band 2483.5 - 2500 MHz for which notification information is received by the Bureau after 17 February 2012, and the service area of which includes Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Ukraine, shall not cause harmful interference to, and shall not claim protection from stations of the radiolocation service operating in these countries in accordance with No. 5.398A. (WRC-12)
5.401	In Angola, Australia, Bangladesh, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, Dem. Rep. of the Congo, Sudan, Swaziland, Togo and Zambia, the frequency band 2483.5 - 2500 MHz was already allocated on a primary basis to the radiodetermination-satellite service before WRC-12, subject to agreement obtained under No. 9.21 from countries not listed in this provision. Systems in the radiodetermination-satellite service for which complete coordination information has been received by the Radiocommunication Bureau before 18 February 2012 will retain their regulatory status, as of the date of receipt of the coordination request information. (WRC-15)
5.402	The use of the band 2483.5 - 2500 MHz by the mobile-satellite and the radiodetermination-satellite services is subject to the coordination under No. 9.11A. Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2483.5 - 2500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4990 - 5000 MHz band allocated to the radio astronomy service worldwide.
5.403	Subject to agreement obtained under No. 9.21, the band 2520 - 2535 MHz may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The provisions of No. 9.11A apply. (WRC-07)
5.410	The band 2500 - 2690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. 9.21. No. 9.21 does not apply to tropospheric scatter links situated entirely outside Region 1. Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in this band. When planning new tropospheric scatter radio-relay links in this band, all possible measures shall be taken to avoid directing the antennas of these links towards the geostationary-satellite orbit. (WRC-12)
5.412	<i>Alternative allocation:</i> in Kyrgyzstan and Turkmenistan, the band 2500 - 2690 MHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
5.413	In the design of systems in the broadcasting-satellite service in the bands between 2 500 MHz and 2 690 MHz, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2690 - 2700 MHz.
5.416	The use of the band 2520 - 2670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. 9.21. The provisions of No. 9.19 shall be applied by administrations in this band in their bilateral and multilateral negotiations. (WRC-07)
5.418B	Use of the band 2630 - 2655 MHz by non geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418, for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. 9.12. (WRC-03)
5.418C	Use of the band 2630 - 2655 MHz by geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000 is subject to the application of the provisions of No. 9.13 with respect to non geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418 and No. 22.2 does not apply. (WRC-03)
5.420	The band 2655 - 2670 MHz may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite, service for operation limited to within national boundaries, subject to agreement obtained under No. 9.21. The coordination under No. 9.11A applies. (WRC-07)

No.	Footnote text
5.430A	The allocation of the frequency band 3400 - 3600 MHz to the mobile, except aeronautical mobile, service is subject to agreement obtained under No. 9.21. This frequency band is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The provisions of Nos. 9.17 and 9.18 shall also apply in the coordination phase. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed $-154.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$ for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) and with the assistance of the Bureau if so requested. In case of disagreement, calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3400 - 3600 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-15)
5.431	<i>Additional allocation:</i> in Germany, Israel and the United Kingdom, the band 3400 - 3475 MHz is also allocated to the amateur service on a secondary basis. (WRC-03)
5.441	The use of the bands 4500 - 4800 MHz (space-to-Earth), 6725 - 7025 MHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix 30B. The use of the bands 10.7 - 10.95 GHz (space-to-Earth), 11.2 - 11.45 GHz (space-to-Earth) and 12.75 - 13.25 GHz (Earth-to-space) by geostationary-satellite systems in the fixed-satellite service shall be in accordance with the provisions of Appendix 30B. The use of the bands 10.7 - 10.95 GHz (space-to-Earth), 11.2 - 11.45 GHz (space-to-Earth) and 12.75 - 13.25 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)
5.441A	In Uruguay, the frequency band 4800 - 4900 MHz, or portions thereof, is identified for the implementation of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained with neighbouring countries, and IMT stations shall not claim protection from stations of other applications of the mobile service. Such use shall be in accordance with Resolution 223 (Rev.WRC-15). (WRC-15)
5.441B	In Cambodia, Lao P.D.R. and Viet Nam, the frequency band 4800 - 4990 MHz, or portions thereof, is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained under No. 9.21 with concerned administrations, and IMT stations shall not claim protection from stations of other applications of the mobile service. In addition, before an administration brings into use an IMT station in the mobile service, it shall ensure that the power flux-density produced by this station does not exceed $-155 \text{ dB(W/(m}^2 \cdot 1 \text{ MHz))}$ produced up to 19 km above sea level at 20 km from the coast, defined as the low-water mark, as officially recognized by the coastal State. This criterion is subject to review at WRC-19. See Resolution 223 (Rev.WRC-15). This identification shall be effective after WRC-19. (WRC-15)
5.442	In the frequency bands 4825 - 4835 MHz and 4950 - 4990 MHz, the allocation to the mobile service is restricted to the mobile, except Aeronautical Mobile, service. In Region 2 (except Brazil, Cuba, Guatemala, Mexico, Paraguay, Uruguay and Venezuela), and in Australia, the frequency band 4825 - 4835 MHz is also allocated to the Aeronautical Mobile service, limited to Aeronautical Mobile telemetry for flight testing by aircraft stations. Such use shall be in accordance with Resolution 416 (WRC-07) and shall not cause harmful interference to the fixed service. (WRC-15)
5.443	Different category of service: in Argentina, Australia and Canada, the allocation of the bands 4825 - 4835 MHz and 4950 - 4990 MHz to the radio astronomy service is on a primary basis (see No. 5.33).
5.474	In the band 9200 - 9500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article 31).

No.	Footnote text
5.474A	The use of the frequency bands 9200 - 9300 MHz and 9900 - 10400 MHz by the Earth exploration-satellite service (active) is limited to systems requiring necessary bandwidth greater than 600 MHz that cannot be fully accommodated within the frequency band 9300 - 9900 MHz. Such use is subject to agreement to be obtained under No. 9.21 from Algeria, Saudi Arabia, Bahrain, Egypt, Indonesia, Iran (Islamic Republic of), Lebanon and Tunisia. An administration that has not replied under No. 9.52 is considered as not having agreed to the coordination request. In this case, the notifying administration of the satellite system operating in the Earth exploration-satellite service (active) may request the assistance of the Bureau under Sub-Section IID of Article 9. (WRC-15)
5.474B	Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU-R RS.2066-0. (WRC-15)
5.474C	Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU-R RS.2065-0. (WRC-15)
5.474D	Stations in the Earth exploration-satellite service (active) shall not cause harmful interference to, or claim protection from, stations of the maritime radionavigation and radiolocation services in the frequency band 9200 - 9300 MHz, the radionavigation and radiolocation services in the frequency band 9900 - 10000 MHz and the radiolocation service in the frequency band 10.0 - 10.4 GHz. (WRC-15)
5.479	The band 9975 - 10025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.
5.481	<i>Additional allocation:</i> in Algeria, Germany, Angola, Brazil, China, Côte d'Ivoire, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Pakistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania and Uruguay, the band 10.45 - 10.5 GHz is also allocated to the fixed and mobile services on a primary basis. In Costa Rica, the frequency band 10.45 - 10.5 GHz is also allocated to the fixed service on a primary basis. (WRC-15)
5.482	In the band 10.6 - 10.68 GHz, the power delivered to the antenna of stations of the fixed and mobile, except Aeronautical Mobile, services shall not exceed -3 dBW. This limit may be exceeded, subject to agreement obtained under No. 9.21. However, in Algeria, Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, Egypt, United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Jordan, Libyan Arab Jamahiriya, Kazakhstan, Kuwait, Lebanon, Morocco, Mauritania, Moldova, Nigeria, Oman, Uzbekistan, Pakistan, Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, Singapore, Tajikistan, Tunisia, Turkmenistan and Viet Nam, this restriction on the fixed and mobile, except Aeronautical Mobile, service is not applicable. (WRC-07)
5.482A	For sharing of the band 10.6 - 10.68 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile, except aeronautical mobile, services, Resolution 751 (WRC-07) applies. (WRC-07)
5.487	In the band 11.7 - 12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except Aeronautical Mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to, or claim protection from, broadcasting-satellite stations operating in accordance with the Regions 1 and 3 Plan in Appendix 30. (WRC-03)
5.487A	<i>Additional allocation:</i> in Region 1, the band 11.7 - 12.5 GHz, in Region 2, the band 12.2 - 12.7 GHz and, in Region 3, the band 11.7 - 12.2 GHz, are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-geostationary systems and subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the broadcasting-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-03)
5.492	Assignments to stations of the broadcasting-satellite service which are in conformity with the appropriate regional Plan or included in the Regions 1 and 3 List in Appendix 30 may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference, or require more protection from interference, than the broadcasting-satellite service transmissions operating in conformity with the Plan or the List, as appropriate. (WRC-2000)

No.	Footnote text																																
5.516B	<p>The following bands are identified for use by high-density applications in the fixed-satellite service:</p> <table border="0"> <tr> <td>17.3 - 17.7 GHz (space-to-Earth)</td> <td>in Region 1,</td> </tr> <tr> <td>18.3 - 19.3 GHz (space-to-Earth)</td> <td>in Region 2,</td> </tr> <tr> <td>19.7 - 20.2 GHz (space-to-Earth)</td> <td>in all Regions,</td> </tr> <tr> <td>39.5 - 40 GHz (space-to-Earth)</td> <td>in Region 1,</td> </tr> <tr> <td>40 - 40.5 GHz (space-to-Earth)</td> <td>in all Regions,</td> </tr> <tr> <td>40.5 - 42 GHz (space-to-Earth)</td> <td>in Region 2,</td> </tr> <tr> <td>47.5 - 47.9 GHz (space-to-Earth)</td> <td>in Region 1,</td> </tr> <tr> <td>48.2 - 48.54 GHz (space-to-Earth)</td> <td>in Region 1,</td> </tr> <tr> <td>49.44 - 50.2 GHz (space-to-Earth)</td> <td>in Region 1, and</td> </tr> <tr> <td>27.5 - 27.82 GHz (Earth-to-space)</td> <td>in Region 1,</td> </tr> <tr> <td>28.35 - 28.45 GHz (Earth-to-space)</td> <td>in Region 2,</td> </tr> <tr> <td>28.45 - 28.94 GHz (Earth-to-space)</td> <td>in all Regions,</td> </tr> <tr> <td>28.94 - 29.1 GHz (Earth-to-space)</td> <td>in Region 2 and 3,</td> </tr> <tr> <td>29.25 - 29.46 GHz (Earth-to-space)</td> <td>in Region 2,</td> </tr> <tr> <td>29.46 - 30 GHz (Earth-to-space)</td> <td>in all Regions,</td> </tr> <tr> <td>48.2 - 50.2 GHz (Earth-to-space)</td> <td>in Region 2.</td> </tr> </table> <p>This identification does not preclude the use of these bands by other fixed-satellite service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in these Radio Regulations among users of the bands. Administrations should take this into account when considering regulatory provisions in relation to these bands. See Resolution 143 (WRC-03). <i>Note by the Secretariat:</i> This Resolution was revised by WRC-07. (WRC-03)</p>	17.3 - 17.7 GHz (space-to-Earth)	in Region 1,	18.3 - 19.3 GHz (space-to-Earth)	in Region 2,	19.7 - 20.2 GHz (space-to-Earth)	in all Regions,	39.5 - 40 GHz (space-to-Earth)	in Region 1,	40 - 40.5 GHz (space-to-Earth)	in all Regions,	40.5 - 42 GHz (space-to-Earth)	in Region 2,	47.5 - 47.9 GHz (space-to-Earth)	in Region 1,	48.2 - 48.54 GHz (space-to-Earth)	in Region 1,	49.44 - 50.2 GHz (space-to-Earth)	in Region 1, and	27.5 - 27.82 GHz (Earth-to-space)	in Region 1,	28.35 - 28.45 GHz (Earth-to-space)	in Region 2,	28.45 - 28.94 GHz (Earth-to-space)	in all Regions,	28.94 - 29.1 GHz (Earth-to-space)	in Region 2 and 3,	29.25 - 29.46 GHz (Earth-to-space)	in Region 2,	29.46 - 30 GHz (Earth-to-space)	in all Regions,	48.2 - 50.2 GHz (Earth-to-space)	in Region 2.
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5.530A	<p>Unless otherwise agreed between the administrations concerned, any station in the fixed or mobile services of an administration shall not produce a power flux-density in excess of -120.4 dB(W/(m² • MHz)) at 3 m above the ground of any point of the territory of any other administration in Regions 1 and 3 for more than 20% of the time. In conducting the calculations, administrations should use the most recent version of Recommendation ITU-R P.452 (see also the most recent version of Recommendation ITU-R BO.1898). (WRC-15)</p>																																
5.530B	<p>In the band 21.4 - 22 GHz, in order to facilitate the development of the broadcasting-satellite service, administrations in Regions 1 and 3 are encouraged not to deploy stations in the mobile service and are encouraged to limit the deployment of stations in the fixed service to point-to-point links. (WRC-12)</p>																																
5.530D	<p>See Resolution 555 (WRC-12). <i>Note by the Secretariat:</i> This Resolution was revised by WRC-15. (WRC-12)</p>																																
5.532	<p>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.</p>																																
5.547	<p>The bands 31.8 - 33.4 GHz, 37 - 40 GHz, 40.5 - 43.5 GHz, 51.4 - 52.6 GHz, 55.78 - 59 GHz and 64 - 66 GHz are available for high-density applications in the fixed service (see Resolution 75 (WRC-2000)). Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the bands 39.5 - 40 GHz and 40.5 - 42 GHz (see No. 5.516B), administrations should further take into account potential constraints to high-density applications in the fixed service, as appropriate. (WRC-07)</p>																																

No.	Footnote text
5.551H	<p>The equivalent power flux-density (epfd) produced in the frequency band 42.5 - 43.5 GHz by all space stations in any non-geostationary-satellite system in the fixed-satellite service (space-to-Earth), or in the broadcasting-satellite service operating in the frequency band 42 - 42.5 GHz, shall not exceed the following values at the site of any radio astronomy station for more than 2% of the time:</p> <p>-230 dB(W/m²) in 1 GHz and -246 dB(W/m²) in any 500 kHz of the frequency band 42.5 - 43.5 GHz at the site of any radio astronomy station registered as a single-dish telescope; and</p> <p>-209 dB(W/m²) in any 500 kHz of the frequency band 42.5 - 43.5 GHz at the site of any radio astronomy station registered as a very long baseline interferometry station.</p> <p>These epfd values shall be evaluated using the methodology given in Recommendation ITU-R S.1586-1 and the reference antenna pattern and the maximum gain of an antenna in the radio astronomy service given in Recommendation ITU-R RA.1631-0 and shall apply over the whole sky and for elevation angles higher than the minimum operating angle θ_{\min} of the radio telescope (for which a default value of 5° should be adopted in the absence of notified information).</p> <p>These values shall apply at any radio astronomy station that either:</p> <ul style="list-style-type: none"> was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply. <p>Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution 743 (WRC-03) shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-15)</p>
5.551I	<p>The power flux-density in the band 42.5 - 43.5 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth), or the broadcasting-satellite service operating in the 42 - 42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station:</p> <p>-137 dB(W/m²) in 1 GHz and -153 dB(W/m²) in any 500 kHz of the 42.5 - 43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and</p> <p>-116 dB(W/m²) in any 500 kHz of the 42.5 - 43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.</p> <p>These values shall apply at the site of any radio astronomy station that either:</p> <ul style="list-style-type: none"> was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply. <p>Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution 743 (WRC-03) shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-03)</p>
5.552	<p>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.</p>
5.552A	<p>The allocation to the fixed service in the bands 47.2 - 47.5 GHz and 47.9 - 48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2 - 47.5 GHz and 47.9 - 48.2 GHz is subject to the provisions of Resolution 122 (Rev.WRC-07). (WRC-07)</p>
5.554A	<p>The use of the bands 47.5 - 47.9 GHz, 48.2 - 48.54 GHz and 49.44 - 50.2 GHz by the fixed-satellite service (space-to-Earth) is limited to geostationary satellites. (WRC-03)</p>
5.555	<p><i>Additional allocation:</i> the band 48.94 - 49.04 GHz is also allocated to the radio astronomy service on a primary basis. (WRC-2000)</p>
5.555B	<p>The power flux-density in the band 48.94 - 49.04 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth) operating in the bands 48.2 - 48.54 GHz and 49.44 - 50.2 GHz shall not exceed -151.8 dB(W/m²) in any 500 kHz band at the site of any radio astronomy station. (WRC-03)</p>